



Department of Energy

Bonneville Power Administration
P.O. Box 3621
Portland, Oregon 97208-3621

SECURITY AND CONTINUITY OF OPERATIONS

September 10, 2013

In reply refer to: NN-1

Charles Johnson
Physicians for Social Responsibility
812 SW Washington St, Ste 1050
Portland, OR 97205

FOIA #BPA-2013-01458-F

Dear Mr. Johnson:

This is a final response to your request for records that you made to the Bonneville Power Administration (BPA), under the Freedom of Information Act, 5 U.S.C. 552.

You requested the following:

“The WNP-1 feasibility study by the consulting firm Goldschmidt Imeson discussing the economics of completing WNP-1 and exploring alternatives for operation of WNP-2.”

Response:

BPA is releasing the responsive documents on the enclosed CD in their entirety.

Pursuant to 10 CFR 1004.8, if you are dissatisfied with this determination, or the adequacy of the search, you may appeal this FOIA response in writing within 30 calendar days of receipt of a final response letter. The appeal should be made to the Director, Office of Hearings and Appeals, HG-1, Department of Energy, 1000 Independence Avenue, SW, Washington, DC 20585-1615. The written appeal, including the envelope, must clearly indicate that a FOIA Appeal is being made.

There are no fees associated with this request.

Please contact Kim Winn, FOIA Specialist, at 503-230-5273 with any questions about this letter.

Sincerely,

/s/Christina J. Munro
Christina J. Munro
Freedom of Information/Privacy Act Officer

Enclosure

Conclusions

SECTION 9

RESULTS OF INTERVIEWS AND CONCLUSIONS

9.1 General Conclusions

The following is a summary of the opinions received from the interviews conducted throughout this study.

1. **Consolidation of U.S. Nuclear Industry.** Nuclear policy experts we interviewed believe that consolidation in the nuclear industry will continue at the current rapid rate. Many also believe the nuclear industry in the U.S., if it is to succeed, must not only consolidate but reorganize into a small number of efficient, highly specialized, niche companies, i.e., a few nuclear operators, two or three nuclear construction contractors, two or three fuel suppliers, etc.

Utilities we interviewed generally agree with industry projections that within five years virtually all of the U.S. nuclear generating capacity will be owned by fewer than a dozen nuclear utilities.

Nuclear companies believe those utilities with just a single nuclear plant are the most likely acquisition candidates.

Alliances in the form of nuclear operating companies are expected to play an important role in the consolidation trend.

2. **Market Value of Nuclear Plants.** In 1998, the first two nuclear plants, Nine Mile Island and Pilgrim, sold for \$23 million and \$14 million respectively, a small fraction of their book value. The sale price reflected valuations of \$28 per kW for Three Mile Island and \$21 per kW for Pilgrim. Likewise, the next two nuclear plants, Clinton and Oyster Creek, reportedly sold for ten cents on the dollar.

Since 1998, a total of 20 nuclear plants have been sold, with the market value of nuclear plants appreciating substantially in four years. The most recent plant auction concluded in April 2002 with the sale of the Seabrook nuclear plants. Seabrook #1, similar to Columbia Generating Station, is a completed and operating 1161 MWe nuclear plant that was placed into service in 1991. Seabrook #2, coincidentally similar to WNP-1, is a 30 to 35 percent partially completed nuclear plant terminated in the mid-1980's. Seabrook #1 and #2 sold together for \$825 million, or \$710 per kW, to Florida Power.

3. **Competition.** Major nuclear utilities have aggressive performance measures and benchmarks and implement tightly refined “best practices” plans across their plants. Large nuclear operating companies have the ability to apply economies of scale, move skilled nuclear specialists from plant to plant, and contract for nuclear fuel at the lowest prices. Single-unit nuclear owners will find it impossible to compete with the “best in the industry” costs and performance results.
4. **Market Incentives for New Nuclear Plants.** Nuclear manufacturers and suppliers are anxious to restore confidence in nuclear power and initiate a resurgence of nuclear generation in this country. Understanding the historic risks of nuclear construction to the owners, both international and domestic manufacturers of nuclear reactors we interviewed are prepared to negotiate fixed price construction contracts for new nuclear facilities. Moreover, at least one company will guarantee the completion time for the plant’s construction.
5. **Government Incentives for New Nuclear Plants.** Government incentives are available for new energy technology, including nuclear. There appears to be greatest interest in smaller, safer nuclear technology. It is possible that federal technology incentives could reach or exceed \$100 million for new nuclear technology.
6. **Cost of New Nuclear Plants.** International and domestic manufacturers of nuclear plants we interviewed argue that they are able to construct an entirely new nuclear plant on the WNP-1 site for a little more than half of the cost-to-complete estimate for WNP-1. Other nuclear executives we spoke with corroborated manufacturer claims but believed the actual installed price would be somewhat higher.

Construction costs for a new nuclear plant, depending upon the unit, are \$1,100 - \$1,500 per kW. Still newer nuclear technologies are close to production at a cost well under these amounts. The operating cost of power from a new nuclear plant is in the range of \$25 to \$35 per MWh, well under the cost of gas.

7. **Undesirable Resource Location.** Numerous Pacific Northwest energy experts and environmentalists we interviewed share the opinion that a second large nuclear plant on the eastern side of the Cascades is an extremely poor (one calls it “grotesque”)

resource decision for the Pacific Northwest. The Hanford site is located away from the region's population load center, the eastern side location will exacerbate system instability, the transmission costs are high and unaccounted for, and a 1350 MWe nuclear plant will require a much higher reserve margin not calculated in overall costs.

8. Environmental Position on Existing Nuclear Plants. Our interviews with environmental organizations revealed no plan or political agenda to shut down existing, operating nuclear plants.
9. Environmental Position on New Nuclear Plant. Not surprisingly, each of environmental organizations we tested is strongly opposed to the construction of new nuclear generation. The reasons vary but the common denominator is the lack of a hazardous waste disposal site exacerbated by the belief that no nuclear waste site can protect against the radioactive life of spent nuclear fuel. It is also apparent from the interviews that completion of an unfinished nuclear plant is perceived for its political consequences the same as construction of an entirely new nuclear facility.

9.2 WNP-1 Conclusions

1. No Basic Impediment to Construction. There is no technical, physical, management or regulatory reason that prevents WNP-1 from being completed and operated.
2. Washington Voter Approval Not Possible. All of our interviews confirm the Executive Board's early conclusion that the likelihood of voter approval for the public financing of new nuclear power in the State of Washington is zero now and for the foreseeable future.
3. Tax-Exempt Financing Not Possible. The only other avenue to tax-exempt financing is to partner with or sell WNP-1 to another large public utility. However, none of the public utilities we interviewed are willing to buy or participate in the completion of WNP-1.
4. Private Financing Not Profitable. None of the private finance economic scenarios produces even a marginally realistic business case. Construction of WNP-1 with private financing is so expensive that no private investment group would ever

consider constructing the plant and no investment bank would finance it.

5. Cost to Complete WNP-1. The range of analyses (and personal opinions) among all parties on the remaining construction and finance costs for WNP-1 is between a low of \$3.3 billion to a high that could exceed \$4.2 billion. We interviewed every member of the Red Team¹³ we could contact (all but two) and each expressed strong confidence in the Bechtel estimate (although their reasons differed). None of these Red Team members believes the Bechtel study is the “high-end cost” of the plant. After assessing the impact of private financing costs, the complete omission of transmission expenses, an imputed capacity factor that will break industry’s record, and a nine percent contingency factor, Goldschmidt Imeson’s own opinion is there are significantly more compelling reasons the plant’s cost will reach \$4.2 billion than the likelihood of cutting costs to the lower end. In particular, we believe transmission expenses for the plant and the higher costs of private financing are not risks. In fact, we think the study results should be adjusted to account for them as *actual costs*. This adjustment brings the cost of completion to a number potentially far higher than \$4.2 million.
5. Capacity Factor of 93.5 Percent. The nuclear engineers we interviewed unanimously disagree with the operational assumption that a 93.5 percent capacity factor is achievable at WNP-1 within four years. They contend this figure would be precedent setting and that not even the finest nuclear operators in the U.S. have been able to achieve this capacity factor in so short a time frame.
6. Age of WNP-1 Technology. With the single exception of Framatome, none of the senior nuclear industry executives we interviewed said they would construct a nuclear plant today with 20-year old technology if the cost of new nuclear was comparable. Nuclear executives said they can install a new 1350 MWe nuclear plant (or two Westinghouse AP 600 units) with state-of-the-technology for less money than the completion costs of WNP-1.

¹³ The Red Team was an elite group of industry, banking, and regulatory experts assembled by Bechtel to review and critique the results of their cost-to-complete study. Their recommendations were published as an appendix to the study.

Nuclear reactor manufacturers are even more adamant the newest technology is less costly. One manufacturer asserts it is possible to construct two 1350 MWe units for \$4.2 million; one unit would cost somewhat more than half this amount. They all contend the design improvements are substantial and that industry measures of safety are ten times better. The manufacturers also state they will enter into fixed price construction contracts and guarantee shorter construction times.

Several nuclear officers believe the manufacturers are naïve in their claims of such terms and low prices and that their ultimate costs will be higher. However, the important point is they do agree with the relative cost comparison between WNP-1 and new nuclear construction: a new nuclear plant would be cheaper.

8. Lowest Completion Cost Estimate Not Viable. Every utility and nuclear expert we interviewed believes that completion costs in the range of \$3.3 billion to \$4.2 billion cause the economic viability of WNP-1 to fail from its own financial weight. More importantly, even if WNP-1 could be completed for the low estimate of \$3.3 billion *with free transmission*, no company will pay for a plant that expensive.
9. Stand-Alone Purchase of WNP-1. No investor-owned or public utility is interested in the stand-alone purchase of WNP-1 *at any price.*

9.3 Conclusions Reached from Exploring Other Executive Board Options

9.3.1 Partnership on Plant Ownership and Construction

With the single exception of Framatome, no company we interviewed will consider any form of partnership agreement to complete WNP-1.¹⁴ California public utilities, in particular, are unwilling to consider an arrangement in which they own the plant (in whole or in part) and then contract with Energy Northwest under a management services agreement to operate the plant.

¹⁴ Goldschmidt Imeson did not pursue this offer further. Even if Framatome is correct in their belief that the plant can be completed for \$2.3 million, by the time financing costs are added, Goldschmidt Imeson believes WNP-1 is still too expensive to build.

There were multiple reasons expressed by all of the California publics. One major objection is their expectation that all of the current output of the plant must be sold to BPA, leaving virtually no firm power output for California. A close second is the negative impact on their credit rating with a huge debt obligation from which they derive almost no direct benefit. Other objections include: gas is cheap; gas is already in their "resource portfolio;" the local public and environmental opposition they expect from additional (or new) nuclear power is not worth the cost; their elected boards of directors are staunchly opposed to nuclear power; nuclear power has enormously negative and powerful political opposition in California; they do not want to invest such a huge part of their assets in generation so far away and out of their control, and other reasons.

9.3.2 Sale of WNP-1 and Columbia Generating Station

Nuclear utilities that want to purchase Columbia Generating Station are willing to consider purchase of WNP-1 as part of the package. However, all of these interested buyers have the unambiguous opinion that WNP-1 should be valued as a *liability* and not an asset in the purchase price.

At least one major investment banking firm contends there is a successful precedent for selling WNP-1 along with Columbia Generating Station. They cite the most recent transaction, Seabrook #1 and #2, which were sold together for \$825 million. Notwithstanding this opinion, all other investment bankers we discussed this with believe WNP-1 can be sold with Columbia, but that it will be a liability not an asset.

9.3.3 Management Services Contract

There are several nuclear utilities interested in an incentive-based management services contract to operate Columbia Generating for Energy Northwest. However, the preference of these companies is the eventual purchase of the plant.

Companies that expressed interest in a management operating agreement want to directly hire the employees of Energy Northwest. They explained the shortage of skilled

personnel in the nuclear industry overall, their own considerable requirements for staffing, and their own attrition and turnover create significant job opportunities in their plant locations.

9.3.4 Site Development Proposals

The reported proposed lease of the WNP-1 and WNP-4 property site by the Department of Energy (\$50,000 for 50 years for 1000 acres, or \$50/acre for 50 years) we believe essentially gives the land away for free in future years. Regrettably, it also effects all other land valuations, including other land uses at Hanford.

Energy experts and utilities we interviewed predict the land value of the WNP-1 site will be far greater in future years than it is today. Utilities believe the public debate over acceptable locations for new generation will become one of the single biggest issues facing power generators. They also expressed the belief that large sites with existing generation will be expanded to accommodate new generation because of the extraordinary value of community acceptance.

9.3.5 Sale of "Future Option" to Acquire WNP-1

No company we interviewed is willing to pay an option fee as a placeholder on WNP-1. No company thought it was worth paying \$2.5 million, next year's operating expense, to preserve the plant and property for future purchase.¹⁵ While this response contradicts their own statements that the site will become more valuable later, their reason is the high cost to hold open a future purchase. More time, we were told, simply worsens the problem. Furthermore, BPA was uninterested in the negotiating terms and conditions of an option contract. BPA felt the time and legal expenses could significantly outweigh the value of any option fee.

9.3.6 Demolition of WNP-1

We believe that a decision to permanently demolish WNP-1 is probably a \$60 million decision because of demolition costs.

¹⁵ However, Goldschmidt Imeson did not propose an option fee as low as \$50,000.

9.3.7 "All Other Proposals"

Of all the interviews we conducted, there is only one investment group that has a direct interest in WNP-1. Goldschmidt Imeson met with a consortium of Japanese companies, led by USEC, interested in use of the WNP-1 site and some of its infrastructure to construct a new nuclear plant.

This Japanese consortium of respected and experienced nuclear contractors is prepared to construct a new 1350 MWe ABWR plant on the WNP-1 site. They are extremely interested in presenting a proposal to Energy Northwest. We believe they are prepared to construct two 1350 MWe ABWR plants for the cost of completing WNP-1. Their cost for a single plant appears to be slightly more than half the cost of WNP-1. More significantly, this investment group indicates they will sign a fixed-price construction contract to eliminate risk to the plant owner and guarantee construction completion in less than three years.

Our interest in presenting this matter to the Executive Board is that the Japanese consortium believes there is the potential for reuse of some of the infrastructure of WNP-1. Reuse might include the WNP-1 cooling towers, emergency diesel generator, switch yards, and intake circulating pump. The range of value for this infrastructure reuse is likely to be somewhere between \$100 to \$200 million.

9.4 Interview Comments on the Sale of Columbia Generating Station

1. Several nuclear companies believe the Columbia Generating Station is probably near its peak operating capacity and that now is the ideal time to consider its sale.
2. As a stand-alone, single-unit nuclear plant, the cost to operate Columbia Generating Station will become increasingly non-competitive in future years.
3. There is a perception from our interviews that Columbia Generating Station is overstaffed somewhere between 100 to 200 employees.

4. Interested nuclear operators are convinced they can cut the plant's operating and fuel costs, increase the capacity factor, and offload BPA's future risk of uncapped decommissioning costs. They argue their continuous implementation of best practices across all their plants, their large purchasing power, and ability to quickly transport highly skilled technical experts to a site will benefit Energy Northwest, BPA, and the region significantly.
5. Career advancement opportunities for technical and management employees of Energy Northwest are acutely limited. The large nuclear organizations we interviewed offer significant opportunities for advancement, training, and location transfers. Likewise, the ability to attract and retain highly skilled personnel in Richland is greatly enhanced as a part of a large company.
6. When asked why the Executive Board of Energy Northwest should consider sale of its largest asset, the primary response from interested buyers was that the Executive Board exercises its highest fiduciary role by giving its members greater safety, predictability, and reduced costs.

Alternatives
analysis

SECTION 10

**SUMMARY CONCLUSIONS AND OTHER ALTERNATIVES
AVAILABLE TO THE EXECUTIVE BOARD**

The Summary Conclusions reached by Goldschmidt Imeson in answer to its original scope of work are summarized as follows.

1. Goldschmidt Imeson believes completion of the unfinished WNP-1 plant is not cost effective for either a public utility or an investor-owned utility.
2. We believe it is not prudent to complete the plant given the more competitive pricing of generation alternatives.
3. We do not believe it is politically feasible to complete WNP-1 in view of the expected public opposition and the absence of broad regional leadership to advocate this initiative.
4. We concur there is a long-term need for power in the Pacific Northwest but the immediate need for power is postponed because of economic conditions in the region.
5. We do not agree that completion of the plant is in the best financial interests of Energy Northwest's owners and members.
6. We do not believe completion of WNP-1 is in the best overall interests of the Pacific Northwest region.

In the course of many conversations occurring over several months, Goldschmidt Imeson has reached several other conclusions related, but not directly centered, on the mission with which we were charged. At the encouragement of your Executive Board, they are offered here:

1. Energy Northwest should reduce the annual operating budget for WNP-1 from a standard of maintenance intended to "preserve" the plant to a budget level that secures the building until further action is determined.
2. The Executive Board and management should examine the efficiencies of entering into a management services contract with a nuclear company with a demonstrated record for outstanding operational and cost performance.
3. Given the significant interest expressed by nuclear utilities, the Executive Board should conduct an analysis of the

April 24, 2002

strategic and economic implications of the potential sale of Columbia Generating Facility.

4. We are impressed with the seriousness with which the Energy Northwest Executive Board and staff take their advocacy role in regional energy policy matters. In this context, we are struck by the complexity of responding to interests expressed by parties outside our region. It would seem prudent for Energy Northwest's Executive Board, perhaps in association with its members and Bonneville, to arrange a forum where the international consortium, merchant power projects, and other similar groups can present their respective cases for regional review. Given the candidate's possible interest in the WNP-1 site and infrastructure, some course of review would seem logical and responsible.

Appendix
A

LIST OF PERSONS INTERVIEWED

UTILITIES

| NAME | TITLE | ORGANIZATION |
|-------------------|--|---|
| Jack Bailey | Special Assignment Bellefonte Nuclear Restart Study | Tennessee Valley Authority Chattanooga, TN |
| David Benson | Director, Business Development | Dominion Energy, Inc. Richmond, VA |
| J.W. Brister, Jr. | Senior Mgr., Business Development | Entergy Nuclear, Inc. Jackson, MI |
| Fred Buckman | Chairman & Chief Executive Officer (Former) President & Chief Executive Officer | Trans-Elect Washington, D.C. PacifiCorp Portland, OR |
| Peter Burg | Vice Chairman & Chief Executive Officer | FirstEnergy Akron, OH |
| Benjamin Ewers | Senior Vice President & Chief Financial Officer | Nuclear Management Company Hudson, WI |
| Thomas Farrell | Chief Executive Officer | Dominion Energy, Inc. Richmond, VA |
| Peggy Fowler | President & Chief Executive Officer | Portland General Electric Portland, OR |
| George Fraser | General Manager | Northern California Power Authority Roseville, CA |
| George Hairston | President & Chief Executive Officer | Southern Company Atlanta, GA |

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| Lew Hay | President & Chief Executive Officer | Florida Power Group Juno Beach, FL |
| Terry Hudgens | President & Chief Executive Officer | PacifiCorp Power Marketing, Portland, OR |
| Randy Hutchinson | Senior Vice President | Entergy Nuclear Jackson, MI |
| Judi Johansen | President & Chief Executive Officer | PacifiCorp Portland, OR |
| Harold Keiser | President & Chief Executive Officer | Public Service Enterprise Group Parsippany, NJ |
| Marilyn Kray | Vice President, Nuclear Generation | Exelon Generating Company Kennett Square, PA |
| James Martin | Vice President, Domestic Business Development | Dominion Energy, Inc. Richmond, VA |
| Henry Martinez | Assistant General Manager for Power Services | Los Angeles Department of Water & Power Los Angeles, CA |
| Elizabeth Moler* | Senior Vice President, Governmental Affairs & Policy | Exelon Corporation Washington, D.C. |
| James O'Hanlon | President & Chief Operating Officer | Dominion Resources Richmond, VA |
| Gregory Palmer | Director, Business Development | Nuclear Management Company Hudson, WI |
| Steven Reynolds | President & Chief Executive Officer | Puget Sound Power Bellevue, WA |
| Manny Robledo | Director of Energy Resources | Southern California Public Power Authority Pasadena, CA |
| Gary Rodman | President & Chief Executive Officer | BC Hydro Vancouver, B.C., Canada |

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| Michael Sellman | President & Chief Executive Officer | Nuclear Management Company Hudson, WI |
| James Shelter | Assistant General Manager for Power Supply | Sacramento Municipal Utility District Sacramento, California |
| Jim Sherrill | Executive Vice President & COO, North American Commercial Business | Duke Power Company Charlotte, NC |
| Dennis Steinberg | (Retired) Senior Vice President, Power Marketing | PacifiCorp Portland, OR |
| William Stewart | President President, Generation | Pinnacle West Capital Corp. Arizona Public Service Phoenix, AZ |
| Michael Tuckman | Executive Vice President, Nuclear Generation | Duke Power Corporation Charlotte, NC |
| Mark Willey | Director of Finance | Nuclear Management Company Hudson, WI |
| Jerry Yelverton | President & Chief Executive Officer | Entergy Nuclear Jackson, MI |

INVESTMENT BANKERS & BOND COUNSEL

| | | |
|-------------------|--|---|
| Jim Asselstein* | Managing Director Red Team Member | Lehman Brothers Bechtel Estimate-to- Complete Report New York City, NY |
| Jerry Bobo | Director, Public Finance Department | Solomon, Smith, Barney Seattle, WA |
| Dean Criddle | Chief Bond Counsel, External Bonneville Power Administration | Orrick, Herrington & Sutcliffe San Francisco, CA |
| Paul Dabarr | Senior Vice President Mergers & Acquisitions (Nuclear) | J.P. Morgan Chase Company New York City, NY |
| Dennis Devaney | Tax Counsel | Wilkie, Farr & Gallagher New York City, NY |
| Keith Hausman | Vice President, Public Finance | J.P. Morgan Chase Company New York City, New York |
| Peter Kenny | Chief Bond Counsel (External), Energy Northwest | Wilkie, Farr & Gallagher New York City, NY |
| Gary Krellenstein | Vice President, Senior Analyst, Municipal Research Red Team Member | J.P. Morgan Chase Company Bechtel Estimate-to- Complete Report New York City, NY |
| Harris Kretsge | Vice President & Manager, Energy Group | J. P. Morgan Chase Company New York City, NY |
| John Miller | Sr. Vice Pres., Managing Partner, Public Finance Division | Solomon, Smith Barney Philadelphia, PA |

ENERGY POLICY & NUCLEAR EXPERTS

| | | |
|-------------------|--|---|
| Gary Barbour | Principal | Barbour & Associates Washington, D.C. |
| Leslie Barbour | Legislative Director | Nuclear Energy Institute Washington, D.C. |
| John Carter | Director | Bechtel Corporation San Francisco, CA |
| Ralph Cavanaugh | Senior Attorney | Natural Resources Defense Council San Francisco, CA |
| Gerald Charnoff | Senior Counsel | Shaw Pittman Law Firm Washington, D.C. |
| Tom Christopher | President & Chief Executive Officer | Framatome, ANP Lynchburg, VA |
| Steve Crow | Executive Director | NW Power Planning Council Portland, OR |
| Ray Ganthner | Vice President, Engineering | Framatome, ANP Leesburg, VA |
| Catherine Gaujacq | President, North America Division | Électricité de France Washington, D.C. |
| Katherine Gurun | Vice President, General Counsel | Bechtel Corporation San Francisco, CA |
| Shinichi Hayafune | Manager, Nuclear Power Project | Marubeni Corporation Tokyo, Japan |
| Tetsuro Iwami | Senior Operating Officer, Energy Division | Marubeni Corporation Tokyo, Japan |
| Dr. Tom Karier | Council Member | Northwest Power Planning Council Spokane, WA |

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| Jude P. Laspa | President & Executive Vice President Red Team Member | Bechtel Systems & Infrastructure Bechtel Group, Inc. Bechtel Estimate-to- Complete Report San Francisco, CA |
| Jim Litchfield | Energy Consultant Former Staff Member | Litchfield Consulting NW Regional Power Council Portland, OR |
| Walker Nolan | Attorney | Oldaker & Harris LLP Washington, D.C. |
| Sara Patton | Coalition Director | NW Energy Coalition Seattle, WA |
| Hiroshi Sakamoto | Senior Manager, Nuclear Energy Engineering | Toshiba International Corporation New York City, New York |
| Jay Silberg | Partner | Shaw Pittman Law Firm Washington, D.C. |
| Deborah Sliz | Principal | Morgan Meguire Washington, D.C. |
| Tim Statton | Director President | Bechtel Corporation Bechtel Enterprise Holdings San Francisco, CA |
| Akihiro Takubo | Senior Manager, Nuclear Energy Systems & Services Division | Toshiba Corporation Tokyo, Japan |
| Mark Walker | Public Affairs Director | NW Power Planning Council Portland, OR |
| Bret Wilcox | President & Chief Executive Office (Former) Executive Director | Northwest Aluminum Direct Service Industries Portland, OR |



Michael Woo

Vice President, Strategic
Marketing

United States Enrichment
Corporation (USEC)
Bethesda, MD



GOVERNMENT OFFICIALS

| | | |
|-----------------|---|---|
| John Anderson | Legislative Assistant | Michael Crapo U. S. Senator, Idaho Washington, D.C. |
| Jim Asselstein* | (Former) Commissioner Red Team Member | Nuclear Regulatory Commission Bechtel Estimate-to- Complete Report Washington, D.C. |
| Janine Benner | Legislative Aide | Earl Blumenauer House of Representatives Third District, Oregon Washington, D.C. |
| Earl Blumenauer | Member of Congress | House of Representatives Third District, Oregon Washington, D.C. |
| Brian Bonlender | Legislative Director | Jay Inslee House of Representatives First District, Washington Washington, D.C. |
| Virgil Cabasco | Legislative Director | Jennifer Dunn House of Representatives Eighth District, Washington Washington, D.C. |
| Robert Card | Under Secretary | Department of Energy Washington, D.C. |
| Doug Clapp | Legislative Assistant | Patty Murray U.S. Senator, Washington Washington, D.C. |
| Mike Crapo | U.S. Senator | U.S. Senate, Idaho Washington, D.C. |
| James Curtis | Vice President & Chief Financial Officer | Bonneville Power Administration Portland, OR |

| | | |
|-------------------|---|---|
| David Danner | Executive Policy Advisor | Governor Gary Locke Olympia, WA |
| Greg Delwiche | Vice President, Generation Supply | Bonneville Power Administration Portland, OR |
| Alisa Ferguson | Legislative Assistant | Brian Baird House of Representatives Third District, Washington Washington, D.C. |
| Amy Flachbart | Chief of Staff | George Nethercutt House of Representatives Fifth District, Washington Washington, D.C. |
| Heather Foley | Chief of Staff | Jim McDermott House of Representatives Seventh District, Washington Washington, D.C. |
| Christian Gunter | Legislative Aide | Rick Larson House of Representatives Second District., Washington Washington, D.C. |
| Christine Heggem | Legislative Assistant | Conrad Burns U.S. Senator, Montana Washington, D.C. |
| Darlene Hooley | Member of Congress | House of Representatives Fifth District, Oregon Washington, D.C. |
| Chris Huckleberry | Legislative Assistant | Darlene Hooley Fifth District, Oregon Washington, D.C. |
| Judi Johansen | (Former) Chief Executive Officer/ Bonneville Administrator | Bonneville Power Administration Portland, OR |

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|-------------------|---|---|
| Cameron Johnson | Legislative Assistant | David Wu House of Representatives First District, Oregon Washington, D.C. |
| Carol Jolly | Deputy Director of Government Policy | Governor Gary Locke Olympia, WA |
| John Kitzhaber | Governor | State of Oregon Salem, OR |
| James Lewis | (Retired) Manager, Non-Federal Administration Projects | Bonneville Power Richland, WA |
| Gary Locke | Governor | State of Washington Olympia, WA |
| James Luce | Chairman | Washington Energy Facility Sitting Council Olympia, WA |
| Andrew Lundquist | (Former) Executive Director & Chief Energy Advisor to Vice President Cheney | National Energy Policy Development Office Washington, D.C. |
| Jeff Markey | Legislative Director | Doc Hastings House of Representatives Fourth District, Washington Washington, D.C. |
| Mike McEleney | Legislative Assistant | Butch Otter House of Representatives First District, Idaho Washington, D. C. |
| Elizabeth Moler* | (Former) Chairperson | Federal Energy Regulatory Commission Washington, D.C. |
| George Nethercutt | Member of Congress | House of Representatives Fifth District, Washington Washington, D.C. |

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|------------------|--|--|
| Paul E. Norman | Senior Vice President, Power Business Line | Bonneville Power Administration Portland, OR |
| Mark Racicot | Chairman (Former) Governor | Republican National Committee Washington, D.C. State of Montana Helena, MT |
| John Revier | Legislative Director | Mike Simpson House of Representatives Second District, Idaho Washington, D.C. |
| Rob Roberts | Attorney Advisor (General) | Bonneville Power Administration Portland, OR |
| Joe Rogers | Sr. Account Executive, Transmission Marketing & Sales | Bonneville Power Administration Vancouver, Washington |
| John Savage | Administrator | Oregon Office of Energy Portland, OR |
| Joshua Sheinkman | Counsel | Ron Wyden U.S. Senator, Oregon Washington, D.C. |
| Sam Sperry | Director of Government Policy | Governor Gary Locke Olympia, WA |
| Bob Stacey | Chief of Staff | Earl Blumenauer House of Representatives Second District, Oregon Washington, D.C. |
| Troy Tidwell | Senior Legislative Assistant | Greg Walden House of Representatives Second District, Oregon Washington, D.C. |

Jordan Triplett

Legislative Assistant

Adam Smith
House of Representatives
Ninth District, Washington
Washington, D.C.

Thomas Vinson

Legislative Director

Peter DeFazio
House of Representatives
Fourth District, Oregon
Washington, D.C.

Valerie West

Natural Resources Director

Gordon Smith
U.S. Senator, Oregon
Washington, D.C.

Steven Wright

Chief Executive Officer &
BPA Administrator

Bonneville Power
Administration
Portland, OR

David Wu

Member of Congress

House of Representatives
First District, Oregon
Washington, D.C.

* Indicates individuals listed in more than one section of Appendix A.

Appendix B

SAMPLE LETTER SENT TO ALL
REGIONAL CONGRESSIONAL
MEMBERS



APPENDIX B

February 7, 2002

The Hon. Max Baucus
United States Senate
511 Hart Senate Office Building
Washington, D.C. 20510

Dear Senator Baucus:

Our firm has been retained by the Executive Board of Energy Northwest to develop options for the board to consider with respect to WNP-1.

As you may know, WNP-1 is a partially completed nuclear power plant, located on the Hanford reservation in Washington State. Construction of this 1250 MWe plant was halted in 1984, when the plant was 65% complete, and plans to complete construction were terminated in 1994. However, the plant has been maintained in a manner that would allow either completion or conversion, and its construction permit and NRC licenses are in place as well.

Options for the plant range from demolition, with an estimated cost of at least \$25 million, to completion through a partnership with another entity. As we examine these options and develop others, it is essential that the views of key elected officials from our region are considered.

Thank you for your consideration of this request.

Sincerely,

Neil Goldschmidt

Tom Imeson

c.c. Jay Driscoll

B-1

Appendix C



Neil Goldschmidt Biography

Neil Goldschmidt has served as Governor of Oregon, Mayor of its major city, U.S. Cabinet Secretary, and executive officer of a Fortune 500 corporation.

He is a principal in a small consulting firm (Goldschmidt Imeson) focused primarily on strategic planning and problem solving for national and international businesses. He serves a limited number of clients on a continuing basis.

Goldschmidt is a graduate of the University of Oregon, where he was president of the student body. He earned a law degree from the University of California's Boalt Law School in 1967 and was a Legal Aid lawyer in Portland from 1967 until his election to the Portland City Council in 1970.

Elected Mayor of Portland in 1972 at the age of 32, he was the nation's youngest big-city mayor. During Goldschmidt's years as Mayor, Portland became a national model for mass transit, building both a light rail system and a downtown transit mall. His administration made a strong commitment to preserving Portland neighborhoods, creating new downtown housing and revitalizing an aging city business core.

Goldschmidt served as Secretary of Transportation for President Jimmy Carter from 1979 until January 1981, and was known for his work to revive the ailing automobile industry. He also spearheaded efforts to deregulate the airline, trucking, and railroad industries.

Prior to his 1986 gubernatorial campaign, Goldschmidt was an executive of NIKE, Inc., serving as international Vice President from 1981 to 1985 and as President of NIKE Canada from 1986 to 1987.

He served as Oregon's Governor from 1987 to 1991, leading the Oregon Comeback. The Comeback represented a rebirth of economic vitality founded on the key principles of building new partnerships, targeting investments, leveraging resources, and raising expectations of what every region of the state could accomplish. In addition, he was responsible for establishing the Oregon Children's Agenda.

Since completing his term as Governor, Mr. Goldschmidt has continued his interest in children's issues through the Oregon Children's Foundation, created in 1991 by Goldschmidt and the Ater Wynne Hewitt Dodson & Skerrit law firm. The Foundation's initial effort, SMART, is an early literacy program for children in kindergarten through second grade. The Foundation recruits SMART business and organization sponsors to allow their employees to leave work during the day to tutor children in public schools. Currently 10,000 volunteers are reading to and with 10,000 students each week.

He received the Pioneer Award from University of Oregon in 1982 and was presented the 1998 Citizen of the Year Award by the Portland Metropolitan Association of Realtors. In 2000, he received the Aubrey R. Watzek Award from Lewis & Clark College. He holds honorary degrees from Oregon Health Sciences University, the University of Portland, and Lewis & Clark College.

Neil Goldschmidt was born June 16, 1940, in Eugene, Oregon. He is married to Diana Snowden Goldschmidt, a former executive with Pacific Power and Light. They share four children -- Josh, a Portland police officer; Becca, who works in marketing for R&H Construction; Neilan, who attends the University of Colorado; and Kirstin, Deputy District Attorney for Multnomah County. Neil is the proud grandfather of Micaela, born in November 1995 and Jaden born in May 1999.

CLIENTS INCLUDE

AT&T ; Bechtel Corporation; Crown Pacific; Weyerhaeuser; Nike

PUBLIC SERVICE

Oregon Children's Foundation , Chair, 1991 - Present
Oregon Food Bank, current
Oregon Ballet Theatre, current

NATIONAL ORGANIZATIONS

Tri-Lateral Commission, current
National Fish and Wildlife Foundation Board, current
Drug Strategies, Inc., current
Airline Competition Committee, Co-Chair, 1998

CORPORATE BOARDS

Gelco Corp. (sold to GE Capital)
Infocel, Inc.
BCM (sold to TRW)
Kaiser Foundation Health Plan
National Semiconductor
Oregon Health Sciences University
Analogy, Inc. (sold to AVANT!)
Claremont (sold to CBSI)
Renaissance (sold to Household Finance)
PacifiCorp Advisory Board, current
Finatus, Inc., private venture start-up, current



Diana Emily Goldschmidt Biography

Diana Emily Goldschmidt is a consultant to businesses requiring turnaround management and internet startup strategy assessment.

Goldschmidt is the former Senior Vice President of Operations for Pacific Telecom and directed the six operating divisions of this \$2.4 billion local exchange telecommunications company. Previously, Goldschmidt was the Senior Operations Executive Officer for Pacific Power & Light Company, serving the states of Oregon, California, Washington, Montana and Idaho. In both these positions, she was responsible for the day-to-day operations and management of all line functions of the company: customer service, installation, maintenance, construction, marketing and sales, engineering and network design. In both positions, she gained national attention for instituting "best in industry" performance goals.

Her early career was in labor negotiations as the chief negotiator and management spokesperson in a multitude of union contracts. She later advanced to the position of senior human resource officer in two Fortune 500 companies.

Goldschmidt was also a public utility commissioner for four years, the executive director and chief lobbyist for a Pacific NW electric utility trade organization, and has testified before Congress, state legislatures, and numerous state public utility commissions.

She is currently a member of the Oregon Investment Council which invests \$40 billion in state retirement funds. She is also on the board of Oregon Ballet Theatre, Key Bank Advisory Board, and the Graduate School of Business of Portland State University.

Goldschmidt is an honors graduate of Trinity College with a B.A. degree in Government and the University of Alaska with an M.A. in Public Administration and Labor Relations. She resides in Portland with her husband Neil. They have four children: Joshua, Kirsten, Rebecca and Neilan.

C-4

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Thomas J. Imeson Biography

Thomas J. Imeson is a Principal at Goldschmidt Imeson, a consulting firm focused primarily on strategic planning and problem solving for national and international businesses.

Imeson is a former vice president of government, public affairs, and communications for PacifiCorp.

Prior to joining PacifiCorp in 1985, Imeson worked for 16 years for U.S. Senator Mark Hatfield of Oregon.

In 1987, Imeson left PacifiCorp to serve as Chief of Staff for Oregon Governor Neil Goldschmidt for four years.

In 1994-95, Imeson, on leave from PacifiCorp, was in charge of Oregon Governor John Kitzhaber's transition team and then served for three months as interim chief of staff.

Imeson is on the Oregon State Board of Higher Education and served as its president for two years. Other board memberships include Oregon Health Sciences University, Portland Center Stage, the Oregon Chapter of The Nature Conservancy, Cascade Aids Project and the Portland Chamber of Commerce. In January 2002, Gov. John Kitzhaber appointed Imeson to the Oregon Council for Knowledge and Economic Development. He also has been a member of the Oregon Land Conservation and Development Commission.

He received a bachelor's degree in social sciences from the Johns Hopkins University in Baltimore. He resides in Portland with his wife Laura. He has two sons, Sean and David.

C-5

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Examined
Alternatives

nothing in this
section

Financing
Nuclear power

SECTION 5 FINANCING ISSUES

5.1 Problems with Public Finance

5.1.1 Washington State Statute (Revised Code of Washington § 80.52)

There is an important but highly restrictive statutory requirement in the state of Washington resulting from Initiative 394. This law mandates approval of any new large generating project by a majority vote of the customers of all the public utility participants in that project.

Even with this statutory impediment, R.W. Beck selects the public finance base case as the foundation for its summary conclusions.⁸

By the time our firm began its work, the Executive Board had already determined WNP-1 would not be completed by Energy Northwest. Our interviews confirm the Executive Board's opinion that the likelihood of voter approval of public financing for new nuclear power in the State of Washington is zero now and for the foreseeable future.

5.1.2 Partnership with Another Public Utility

The Executive Board's prior decision that Energy Northwest would not complete construction of WNP-1 alone (without a partner) obviously restricts access to tax-exempt financing. Energy Northwest's only remaining avenue is to sell to or partner with another public utility. If another public entity is willing and if they possess the financial capacity to issue \$4 billion in tax-exempt bonds, then public finance rates are possible.

For this reason, Goldschmidt Imeson expanded its utility interviews to include Tennessee Valley Authority (TVA) and the largest public power entities on the West Coast. The interviews included TVA, Los Angeles Department of Water & Power, Sacramento Municipal Utility District, the

⁸ The statutory problem is mentioned only in passing: "All issues associated with Initiative 394 will need to be satisfied. This [statute] is intended to provide a mechanism for citizen review and approval of proposed financing for major public energy projects."

**Northern California Power Authority, and the Southern
California Public Power Authority.**

5.1.3 Financial Viability Using Public Financing

Obviously, the best possible financial scenario for WNP-1 is the use of tax-exempt public financing to construct the plant. R.W. Beck uses only public finance results in their Summary Conclusions and even then concludes:

Based on these and other factors, we have concluded that completing the WNP-1 plant should be viewed as risky from a financial perspective.

Goldschmidt Imeson's reading of the modeling results is far more negative. We believe the study's conclusions -- even using tax-exempt rates -- should have emphasized certain "red flags" including: the cost of power in all the early years will be more expensive than the market price; it will require 12 years to reach cumulative positive cash flow (not counting lack of cash flow during six years of construction); it will take 23 years after construction for its public owners to get their cash back; and, if future energy prices remain low, the number of years to return their investment exceeds the 40-year life of the plant. We also believe the report should have indicated the improbability of Wall Street financing with this business case. The drop in current interest rates does not cause us to change this opinion.

Nevertheless, we believe further debate on the public finance conclusions is irrelevant. Goldschmidt Imeson found that no municipal or other public utility we interviewed was interested in the purchase or completion of WNP-1. Accordingly, Goldschmidt Imeson believes none of the public finance conclusions in the report are valid because there is no means to obtain access to tax-exempt bonds.

5.2 Investment Banking Requirements for Private Financing

Goldschmidt Imeson interviewed numerous investment banking experts to determine the requirements for or impediments to future financing of WNP-1 and any of the alternatives involving sale of the Columbia Generating Station.

Wall Street private financing is available for nuclear generation; the question is to whom and at what cost. Investment bankers report they

can offer the best rates if BPA guarantees the debt. Absent this, the borrower must be large enough to have assets well in excess of the amount borrowed, a strong historical financial record, and if it is a nuclear utility, it must have a solid operational record in the industry. The company must have a strong balance sheet at the parent company level and be willing to use the full faith and credit of their corporation to secure the debt. Finally, the company must have a long-term contract in place for sale of the power. The absence or weakness of any of these factors quickly adds 50 or 100 or 200 basis points to the interest rate. Lesser company qualifications than those mentioned above do not preclude private financing, but the cumulative basis point "corrections" will quickly cause the private interest rate to be prohibitive.⁹ We also note there is the opinion that interest rates for WNP-1 will carry a 15 to 25 basis point "WPPSS penalty" to the borrower because prior bond defaults are still well remembered on Wall Street.

5.3 Problems with Private Finance Findings

Goldschmidt Imeson reviewed all R. W. Beck's scenarios in the modeling of private financing. They make several important conclusions. They determined the number of years before payback of the investment in WNP-1 exceeds the 40-year service life of the plant. Although the investment can produce a positive internal rate of return (IRR), the investment payback is so back-loaded to the end of the 40-year life of the plant that the investment must be rated as extremely high risk.

The study also found the net present value of the plant under the base (or expected) case for future energy prices is a loss of \$231 million to its owners. More serious is the low case scenario for future energy prices which shows a net present loss to the private investors of \$1.361 billion if energy prices grow slowly.

We believe the magnitude of the problem is greater than the study concludes because of the imputed 60/40 debt to equity ratio. Our discussions with investment bankers indicate 70/30 or 75/25 debt to equity loan is likely.¹⁰ In short, the study's debt to equity ratio for

⁹ For example, project financing is theoretically possible for nuclear. However, it would be so expensive that even the marketing and sales department of investment banks thought the interest rates were "unattractive."

¹⁰ The effect of this detail is the private finance modeling was done by applying the interest rate against only 60 percent of the construction costs. The balance is effectively free interest and not charged to the cost of the project.

private finance results in an artificially low calculation of the total cost for private sector financing.

Goldschmidt Imeson concludes that the total cost of completing WNP-1 using any of the private finance scenarios to be so expensive it is unlikely that any private investment group, surely including all utilities, would ever take such an extraordinary investment risk. This is borne out by our conversations with investor-owned utilities as indicated later in this report.

5.4 Complexities of Existing Tax-Exempt Bonds for WNP-1 and Columbia Generating Station

The original debt on WNP-1 was \$2.1 billion and, after refinancing, the current debt is still \$2.1 billion. The original debt on Columbia Generating Station was \$2.3 billion, and again after refinancing, the current debt is also \$2.1 billion. However, the underlying tax-exempt bonds, which finance WNP-1 and the Columbia Generating Station, are a major complication in any contemplated sale of these assets. The bondholders on both projects are paid through a complex net billing arrangement, and BPA is the guarantor of the bonds. An ordinary sale transaction of these two plants to an investor-owned utility would cause the IRS to immediately declare the bonds to be taxable; hence, we explored other options to eliminate this undesirable result.

The complexity of selling an asset funded by tax-exempt bonds is governed in part by the bond agreement language.¹¹ It is also a function of Internal Revenue Service (IRS) rulings that have evolved over time to prevent assets paid for by public entities from being converted to private use.

Recent IRS rulings, however, permit certain transactions involving tax-exempt bonds. Briefly, if a public asset is sold for cash and the cash, in turn, is used to purchase something of comparable “good (public) use” which is also exempt from taxes, then the original tax free financing can stay in place. There are a few recent examples of asset transfers which preserve their underlying tax-exempt bonds. The most notable is the New York Power Authority’s sale of Indian Point #1 and # 2.

In sum, it may be possible to orchestrate a transfer of these assets to an investor-owned company. The transaction would be complex,

¹¹ The bond agreement for Columbia Generating we understand requires the proceeds of a sale to be used to reduce the payments of the net billing customers.

April 24, 2002

heavily circumscribed by tax law, and require the agreement of multiple parties. Nonetheless, experts we spoke with believe (cautiously) it can be accomplished. More detail is beyond the scope of this study. However, Goldschmidt Imeson determined it was important to raise this issue with the Executive Board because we found the greatest interest among all the possible alternatives to be the purchase of the Columbia Generating Station.

5.5 Conclusions on the Impact of Financing

Goldschmidt Imeson believes it is not possible to obtain public financing for WNP-1's construction. Furthermore, we believe private financing of WNP-1 is too expensive. Therefore, our reason for any discussion of either of the two relates solely to the applicability of financing to Columbia Generating Station, if the Executive Board ever determines it should be sold.

National
Nuclear
Policy
Journal

SECTION 6

NATIONAL NUCLEAR POLICY ISSUES

6.1 Bush Administration Policies

Early in his Administration, President Bush created the National Energy Policy Development Group, chaired by Vice President Cheney. The group provided its report and recommendations to the President in May 2001. This policy document has formed the basis for the Administration's energy policy and proposals to Congress. The House of Representatives has passed its version of the energy bill, and the Senate is currently considering energy legislation.

6.1.1 Administration's View of WNP-1 Completion

The Administration's policy is favorable to the expansion of nuclear power in the United States. However, their policy focuses primarily on upgrading existing operating nuclear plants, extending licenses of existing plants that meet or exceed safety standards, and research support for new nuclear technologies. Based upon our review of the Administration's policy and our interviews with those who assisted in its development, we believe that the regulatory climate for plant completion would be favorable.

6.1.2 Government Incentives for WNP-1 Construction

Federal research efforts in nuclear technologies are continuing, and support for such efforts is strong in the Bush Administration. However, any funds available for nuclear plant construction will likely be limited to those promoting the use of new nuclear technology. Because the Babcock & Wilcox 205 is not new technology, we do not believe that federal financial incentives will be available to assist in its completion.

6.1.3 New Technology at the WNP-1 Site

We believe the Administration will provide financial support for nuclear power development. However, that support will find its way to a project demonstrating new technology. Essential to such a project is an acceptable site, financial feasibility, and strong political support. While the WNP-1 site offers many positive inducements for such a project, competition will be fierce. The Administration's view of the Pacific Northwest is that the region lacks strong political support for such an undertaking.

6.2 Environmental Organizations

6.2.1 Position on Existing Nuclear Plants

While not attempting to retire existing nuclear plants early, most national environmental organizations are strongly opposed to new nuclear power plants in the United States. In addition to their historic concerns relating to nuclear fuel and waste storage, they also marshal arguments based upon the economics of nuclear power and the difficulty in financing for its construction. They also support increased security measures at existing plants, citing concerns pursuant to the September 11th attacks. All environmental organizations we spoke to or whose positions we reviewed are strongly opposed to governmental assistance for nuclear plant construction.

6.2.2 WNP-1 Completion

National environmental organizations judge completion of a partially finished plant as no different than construction of a new nuclear plant using similar technology. Moreover, our interviews confirmed the next nuclear plant proposed for construction in the U. S. is likely to be a national target for environmental opposition.

6.2.2 Government Assistance to Nuclear

Environmental organizations view nuclear power research and development efforts as inappropriate subsidies to the nuclear power industry. They are opposed to government assistance programs, directly or through tax credits, for completion of WNP-1.

Political
Environment
in NW

SECTION 7

**ASSESSMENT OF POLITICAL ENVIRONMENT
IN THE PACIFIC NORTHWEST**

7.1 Northwest Elected Officials and Public Policy Leaders

7.1.1 Opinions on WNP-1 Completion

Goldschmidt Imeson contacted all members of the Congressional delegations from the Pacific Northwest and interviewed a number of members and their energy policy staff. We also discussed completion of WNP-1 with the Governors of Washington and Oregon and the former Governor of Montana. In each case, we outlined the current status of WNP-1 and the interest of Energy Northwest in identifying and working through the issues necessary to make a decision about its fate. Almost all those we interviewed commended Energy Northwest for undertaking this review and for giving them the opportunity to participate.

The current status of WNP-1 and the potential for its completion are not top-of-the-mind issues for public policymakers, except for those representing geographic areas fairly close to the plant. For many of them, our conversations provided new information about the options being examined for WNP-1.

There is no consensus among regional policymakers about whether the plant should be completed. Opinions ranged from strong support to strong opposition. However, most expressed concerns about completion, including the following:

- **Policymakers are primarily concerned that completion of WNP-1 not adversely impact electricity prices for consumers in the region.**
- **Even if energy rates in the region are not adversely impacted, if the power from a completed WNP-1 is exported and sold outside the region, policymakers are more negative about completion because of the lack of a regional benefit.**
- **Waste cleanup efforts at Hanford have a collateral impact on WNP-1. Several policy leaders expressed**

the view that they want more serious progress made with current cleanup issues on the Hanford Reservation before they would be supportive of WNP-1 completion. A related concern is that any federal assistance for WNP-1 would compete directly with funds available for the Hanford cleanup effort. The Hanford waste cleanup is clearly the region's first priority.

- Reacting to the September 11th attacks, many regional policymakers expressed the view that further security actions are necessary before they would be comfortable with additional nuclear capacity in the region. They referenced legislation pending before Congress to federalize nuclear plant security as an indicator of these concerns.

There is also no consensus among regional policymakers about the urgency of resolving the fate of WNP-1 now. Their views about this are unrelated to their position on whether the plant should be completed. Some favoring completion feel the issue should be decided now, believing that if the case cannot be made for completion today, it can never be made. Some opposing its completion feel it would be divisive within the region's congressional delegation to push for a decision at this time.

7.1.2 Government Incentives for Plant Completion

Regardless of their views on the merits of nuclear power and WNP-1, every policymaker Goldschmidt Imeson interviewed is overwhelmingly negative about the use of public funds to supplement completion of the plant. Those most supportive of plant completion made it clear that the plant's economics, absent public funding, must be satisfactory for the plant to be completed. Those critical of nuclear power believe the nuclear industry has already received an inappropriately high level of public financial support.

7.1.3 New Research Efforts at WNP-1 Site

With respect to support for new nuclear technology development at the WNP-1 site, there is competition within the region for these funds. Idaho policymakers and observers note the longstanding interest in new technology

development at the U. S. Department of Energy's Idaho National Engineering and Environmental Laboratory.

7.2 Regional Environmental Organizations

7.2.1 View of WNP-1 Completion

While giving credit to the current Energy Northwest management for plant improvements at the Columbia Generating Station, regional environmental leaders cite lack of economic feasibility and concerns about nuclear waste storage as arguments against nuclear power development in the region.

Regional environmental leaders are strongly opposed to completion of WNP-1, viewing it as tantamount to construction of a new plant. They are also opposed to spending additional funds for preserving the opportunity to complete the WNP-1 at a future date.

7.2.2 Alternative Site Uses

Regional environmental leaders urge Energy Northwest to consider alternative generation uses of the site, including gas-fired generation and renewable energy. The Sacramento Municipal Utility District's Rancho Seco Nuclear Plant, which was closed pursuant to a measure passed by voters in 1989, was cited as a precedent for the Executive Board's consideration. That plant is currently being converted to a gas-fired plant.

Response Dom.
& Int'l. Utilities

SECTION 8

RESPONSES FROM DOMESTIC AND INTERNATIONAL UTILITIES AND NUCLEAR GENERATING COMPANIES

8.1 Domestic Electric Utilities

8.1.1 Arizona Public Service

Arizona Public Service (APS) is the largest subsidiary of Pinnacle West Capital Corporation, an investor-owned company headquartered in Phoenix, Arizona. APS serves 857,000 customers in Arizona and owns nuclear, coal, natural gas, oil, hydro, and solar generation.

APS, although a nuclear owner and operator, has no interest in participating in the completion of WNP-1. They also rejected the offer to purchase an option for its future acquisition or to preserve the plant and its site. Moreover, they are not interested in a combined package of WNP-1 and the operating Columbia Generating Station. Their primary generation strategy is the construction of new gas-fired units.

Arizona Public Service is complimentary of the Energy Northwest Executive Board for its efforts to determine the fate of WNP-1. However, they dismiss the viability of completing the plant principally because of its cost. Arizona believes any serious partnership to complete WNP-1 would face significant and potentially crippling opposition.

APS predicted Energy Northwest will find endless numbers of consultants willing to analyze, forecast, and model a variety of completion scenarios at a cost of \$10's of millions. In the end, they believe the Executive Board will still conclude the plant is not economically feasible.

8.1.2 Dominion (formerly Dominion Resources)

Headquartered in Richmond, Virginia, the investor-owned Dominion serves more than four million electric and natural gas customers. Dominion's service territory is extensive and reaches the Mid-Atlantic, Midwest, and Northeast regions. Dominion operates nuclear, natural gas, coal, and hydro generating facilities.

Dominion was mentioned frequently by the investment community as one of the most highly respected electric utilities for its financial management. Dominion is also regarded as one of the finest nuclear operating companies in the country.

Dominion Energy, the nuclear division of Dominion, was not interested in the current or future development of WNP-1, which they regard as not economically viable. However, Dominion expressed interest in further discussions with Energy Northwest involving Columbia Generating Station.

8.1.3 Duke Energy Company

Duke Energy is a global investor-owned energy company headquartered in Charlotte, North Carolina. Through Duke Power Company, it serves two million customers in North Carolina and South Carolina. Duke Power's generation includes nuclear, coal, natural gas, and hydro.

Duke Power is also one of the most highly respected electric utilities in the United States. They own and operate some of the best managed and lowest cost nuclear plants in the industry. Duke has previously examined the costs to complete WNP-1 and concluded the economics are too poor for any company to proceed with construction. However, Duke is interested in further discussions relating to the Columbia Generating Station.

8.1.4 Entergy

Entergy is a global investor-owned energy company headquartered in New Orleans, Louisiana. In the United States, Entergy provides electricity to 2.6 million customers in Arkansas, Louisiana, Mississippi, and Texas. Its generation includes nuclear, natural gas, oil, coal, and hydro.

Of all the investor-owned utilities interviewed, Entergy appears to have the greatest potential for the purchase of WNP-1 and Columbia Generating assets and/or a customized management services contract. Entergy has a clearly defined nuclear expansion strategy, an outstanding

nuclear operating record required to manage additional plants, and the financial capacity to support an asset purchase of WNP-1 and Columbia Generating Station.

Entergy's previous contacts with Energy Northwest management, its own recent experience in the financial markets, and its general knowledge of the latest cost-to-complete estimates lead them to conclude WNP-1 will never be completed. Despite all the cost advantages that obtain from a partially completed nuclear plant, Entergy believes the disadvantages are even more compelling.

Entergy confirmed its interest in further discussions with Energy Northwest.

8.1.5 Exelon Corporation

Exelon Corporation is an investor-owned electric and natural gas utility with dual headquarters in Chicago, Illinois and Philadelphia, Pennsylvania. It is the result of a merger between ComEd and PECO. Through ComEd, Exelon serves 3.4 million electric customers in Northern Illinois. Through PECO, the company serves 1.5 million electric customers and 430,000 natural gas customers.

With 17 nuclear plants under management, Exelon is the largest nuclear generating company in the United States. For the last several years, Exelon has distinguished itself within the industry for its aggressive nuclear expansion strategy and for its advocacy of advanced nuclear technologies, particularly the Pebble Bed Reactor.

Within the last several weeks, however, major organization and strategic changes have taken place at the highest levels of Exelon. These executive management changes are viewed by the investment community as a concurrent shift in Exelon's core business strategy away from new nuclear acquisitions to one which emphasizes performance and efficiency improvements in its existing distribution, transmission, and generating assets. Accordingly, Exelon said it had no interest in WNP-1 as a stand-alone entity or as a transaction done in conjunction with Columbia Generating Station. Most recently, Exelon announced it is withdrawing from the international consortium developing the Pebble Bed Reactor.

8.1.6 FirstEnergy Corporation

FirstEnergy Corporation is a registered holding company headquartered in Akron, Ohio. Its seven electric utility operating companies serve 4.3 million customers in Ohio, Pennsylvania and New Jersey. Its generation includes nuclear, natural gas, oil, coal, and hydro.

FirstEnergy has been the subject of negative media attention for the last three weeks. FirstEnergy's Davis-Besse Nuclear Facility has a Babcock & Wilcox pressurized water reactor. They have discovered cracks in the vessel head and cracks in the bottom welds. They do not know the cause of these cracks as yet.

FirstEnergy is not interested in a partnership to complete WNP-1. FirstEnergy also said they do not want to purchase WNP-1 in combination with Columbia Generating Station.

8.1.7 Florida Power and Light

Florida Power and Light (FPL) serves 7.3 million customers across 34 counties in Florida. This investor-owned utility is headquartered in Juno, Florida. Their generating facilities include nuclear, natural gas, oil, and wind.

We were not able to schedule a meeting with FPL due to their travel conflicts. However, Florida Power & Light conveyed to us their serious interest in further discussions of Columbia Generating Station.

8.1.8 Los Angeles Department of Water & Power

The Los Angeles Department of Water & Power (LADWP) is the municipal utility of the city of Los Angeles, California. They have 1.4 million customers and serve 3.8 million people in the L.A. city limits and portions of Owens Valley. LADWP's generation facilities include coal, natural gas, hydro, nuclear, wind, biomass, solar, and cogeneration.

LADWP owns ten percent of the Palo Verde Nuclear Plant, although they are not a nuclear plant operator.

LADWP's future resource planning for new generation does not include new nuclear. Los Angeles believes it has sufficient nuclear from its Palo Verde ownership. Their new generation will balance renewable resources with gas units. For these reasons, Los Angeles Department of Water & Power is not interested in a partnership to complete WNP-1. Further, they do not want to purchase WNP-1 in combination with Columbia Generating Station.

8.1.9 Northern California Power Authority

Northern California Power Authority (NCPA) is a public power generating company headquartered in Roseville, California. NCPA does not have retail customers; it sells wholesale power to the following communities: Alameda, Biggs, Gridley, Healdsburg, Lodi, Lompac, Palo Alto, Plumas-Sierra, Port of Oakland, Redding, Roseville, Santa Clara, Truckee, Donner, Turlock, Ukiah, Lassen Municipal Utility District, City of Davis, City of Santa Barbara, and BART.

Northern California Power Authority is not interested in a partnership to complete WNP-1. NCPA also stated they do not want to purchase WNP-1 in combination with Columbia Generating Station.

8.1.10 Nuclear Management Company, LLC

Nuclear Management Company (NMC) is a nuclear asset operating company established in 1999. They are headquartered in Hudson, Wisconsin. Their plants are located in Palo, Iowa; Kewaunee, Wisconsin; Monticello, Minnesota; Covert, Michigan; Two Rivers, Wisconsin; and Welch, Minnesota.

NMC was created by combining the nuclear assets of its five parent companies, each with equal 20 percent ownership. The company was established three years ago because of the immediate need to improve the operating performance of several nuclear plants under disparate ownership. NMC has made major improvements in those

plants and has quickly evolved into a successful operating company, driven by identification and utilization of best management practices across the plants they operate.

Nuclear Management Company is seriously interested in further discussions involving the Columbia Generating Station and has a number of creative partnership ideas.

8.1.11 PacifiCorp

PacifiCorp is an investor-owned utility that is a subsidiary of Scottish Power. It is headquartered in Portland, Oregon and serves 1.5 million customers in Oregon, Washington, California, Wyoming, Utah, and Idaho. PacifiCorp has 8,200 MWe of generating capacity including coal, hydro, natural gas, cogeneration, solar, and wind.

The majority of PacifiCorp's load growth and need for new generation is in Utah. PacifiCorp owns no nuclear generation nor has any interest in doing so. They expect to purchase substantial amounts of power on the open market.

8.1.12 PacifiCorp Power Marketing

PacifiCorp Power Marketing, the unregulated power trading company, is also a subsidiary of Scottish Power. They are not willing to consider any form of ownership in a nuclear plant. The reasons are several but primarily they believe competitive generating alternatives are numerous and far less expensive.

8.1.13 Portland General Electric

Portland General Electric (PGE), a subsidiary of the now bankrupt Enron Corporation, is a regulated, investor-owned electric utility. Headquartered in Portland, Oregon, PGE serves 750,000 customers in the greater Portland - Salem, Oregon area.

PGE, the former majority owner and operator of the Trojan Nuclear Facility, does not want to own, in whole or in partnership, any large generation facilities. Their current generation mix includes hydro, coal, and natural

gas. New generation that Portland General Electric constructs will be gas-fired, and PGE may not even choose to own them. Their preference is to purchase new generation from independent power producers. For this reason, Portland General Electric is not a prospective buyer of either WNP-1 or the Columbia Generating Station.

8.1.14 Public Service Enterprise Group

Public Service Enterprise Group (PSEG) is an investor-owned electric utility headquartered in Newark, New Jersey. They have 3.5 million customers throughout the state of New Jersey. Their generating facilities include nuclear, coal, natural gas, and oil.

PSEG is not interested in a partnership to complete WNP-1. PSEG also stated they do not want to purchase WNP-1 in combination with Columbia Generating Station.

8.1.15 Puget Sound Energy

Puget Sound Energy is an investor-owned utility headquartered in Bellevue, Washington. They serve 1.2 million customers in the greater Seattle area. Puget Sound's generating resources include natural gas, hydro, and oil.

Puget Sound Energy is highly complimentary of the Energy Northwest Executive Board for its efforts to examine the future of WNP-1 and Columbia Generating Station. However, Puget Sound Energy declined any opportunity for partnership to complete WNP-1. Puget Sound Energy also said they do not want to purchase WNP-1 in combination with Columbia Generating Station. They expect to purchase all their near-term generation from others, but will construct plants themselves if market prices become too high.

8.1.16 Sacramento Municipal Utility District

Sacramento Municipal Utility District (SMUD) is headquartered in Sacramento, California. This large

municipal utility serves 518,000 customers throughout a 900 square mile territory that includes Sacramento County and a small portion of Placer County. SMUD owns hydro, cogeneration plants, wind, solar, biomass/landfill generation, and natural gas. SMUD was formerly the owner of the Rancho Seco Nuclear Plant, which was shut down by an initiative vote.

SMUD is still recovering from the after effects of last year's high purchased-power contracts and their own large rate increase. At the present time, SMUD is attempting to license two gas-fired plants totaling 1,000 MWe.

The interview with SMUD revealed the utility's official "Zero Tolerance Policy" toward nuclear power as a result of their experiences with Rancho Seco. Without any question, SMUD is not interested in any aspect of WNP-1 or Columbia Generating Station.

8.1.17 Southern California Public Power Authority

The Southern California Public Power Authority (SCPPA) is headquartered in Pasadena, California. SCPPA sells wholesale power at cost through ten municipal utilities and one irrigation district. SCPPA's two million indirect customers are in Anaheim, Azusa, Banning, Burbank, Colton, Glendale, Los Angeles, Pasadena, Riverside, Vernon, and the Imperial Irrigation District of Cerritos and San Marcos.

SCPPA is already involved in the latter stages of developing natural gas generation and a new coal facility. SCPPA is not interested in a partnership to complete WNP-1. SCPPA also does not want to purchase WNP-1 in combination with Columbia Generating Station.

8.1.18 Southern Company

Southern Company, headquartered in Atlanta, Georgia, serves 3.9 million customers across the states of Alabama, Florida, Georgia, and Mississippi.

Southern is not interested in a partnership to complete WNP-1. Southern also does not want to purchase WNP-1 in combination with Columbia Generating Station.

8.1.19 Tennessee Valley Authority

The Tennessee Valley Authority (TVA) is the largest public power company in the United States. TVA sells wholesale power to 158 local public utilities who in turn serve eight million customers. The states served with TVA generation are Alabama, Georgia, Kentucky, Mississippi, North Carolina, Tennessee, and Virginia. TVA owns and operates nearly 30,000 MWe of generation including nuclear, coal, and hydro.

TVA's nuclear history parallels, to some extent, the Pacific Northwest experience. TVA began construction of 16 nuclear plants in the 1970's but completed only five. TVA is currently examining the costs of restarting or completing one of four plants: Watts Barr (60 percent complete), Browns Ferry (completed but shut down), Bellefonte Unit #1 (58 percent complete) and Bellefonte Unit #2 (85 percent complete). Coincidentally, Bellefonte #1 and #2 are also Babcock and Wilcox 205 pressurized water reactors (PWR's).¹²

TVA's cost analyses are now finished and their conclusions are nearly complete. As of this time, TVA believes the restart of Browns Ferry is their economic first choice. If TVA completes Browns Ferry, it postpones the need for the next new large resource to 2006. TVA's cost to complete Bellefonte #2 is \$1.4 billion, plus financing costs. Although TVA believes the economics are favorable on Bellefonte #2, TVA's discussions with nuclear manufacturing companies show they can construct a new nuclear plant for about the same cost as finishing the 85 percent complete unit. Therefore, TVA expects its next new large resource to be either a Westinghouse AP 1000 or the new ABWR.

¹² TVA and Energy Northwest have previously discussed the efficiencies and savings of constructing WNP-1 and Bellefonte #2 simultaneously. After examining the financial analysis of WNP-1, Goldschmidt Imeson did not explore this as a viable option. Our opinion is that the savings could conceivably be enough to swing TVA's decision on the 85 percent complete Bellefonte #2, but the total economic savings of dual filings are nowhere near great enough to change the economics on WNP-1.

Moreover, TVA believes that even if the costs were somewhat higher, the lifespan and technology advancements of new nuclear technology make it a much better decision.

TVA provided other interesting facts. First, TVA has received no responses from other utilities on their proposed sale of Bellefonte #1 or #2. Second, the Japanese ABWR proposal contemplated reuse of the Bellefonte cooling towers, switch yards, emergency diesel generator, and intake circulating pumps. While reuse of Bellefonte infrastructure was not enough to change the fundamental economics, TVA did estimate its value at approximately \$100 million. Third, TVA believes new nuclear technology is going to be competitive with \$2.50 per mcf natural gas. Finally, when asked their advice to the Energy Northwest Executive Board, they responded "... there is a scenario for nuclear, but it's not old nuclear. Energy Northwest should sell WNP-1 for a dollar, wait for restrictions on gas, then build new nuclear."

8.2 International Companies

8.2.1 BC Hydro

BC Hydro is a publicly-owned Canadian utility that serves a wide geographic area in Western Canada. BC Hydro has substantial hydroelectric resources but also operates natural gas and alternative energy sources of generation. BC Hydro is interconnected with the Pacific Northwest energy system. They also have substantial dealings with Bonneville and electric utilities throughout the Pacific Northwest.

BC Hydro's public policy and long term generation strategy are "aggressively green." BC Hydro will not consider any business relationship that puts them in the public position of participating in nuclear generation.

8.2.2 Électricité de France

Électricité de France (EDF), a state-owned company headquartered in Paris, France, is the largest nuclear operating company in the world. EDF operates 58 nuclear

reactors throughout France and is the country's largest utility, serving 31 million customers.

After construction of several hydroelectric plants during the 1960's, France began its nuclear development in earnest during the world oil embargo. France's national goal was to become self-sustaining in its energy requirements. Today, France has no power plants fueled by coal, oil, or natural gas, each of which they would need to import.

EDF has its own architects, engineers, design, construction and maintenance crews and they do their own design, project management, construction, and contracting.

EDF believes the cost to complete WNP-1 is neither realistic nor responsible. Their own experience confirms the best designed nuclear plant can now be sited, installed and completed for \$1,100 per MW (which is the equivalent of \$1.4 billion for WNP-1, but with the latest nuclear technology).

Électricité de France is interested in opportunities for business growth in the U.S. They look at market opportunities by business segment, conduct research and development, and follow U.S. energy policy and legislation. EDF's unique strength, they believe, is in the construction of plants.

8.2.3 Framatome ANP

Framatome is the license owner of the Babcock & Wilcox 205 reactor that is to be used at WNP-1. Framatome is also the only company we interviewed that believes WNP-1 can be completed for approximately \$2.3 billion. Framatome expresses concern with portions of the Bechtel study, believes some of the costs are too high, and that it is possible to reduce the time frame for construction by a year.

To their professional credit, Framatome is certain enough of their preliminary calculations that they are prepared to bring in their French and German partners at their expense to conduct a new study of Bechtel's \$3 billion estimate. If Energy Northwest finds a serious partner or buyer willing to complete WNP-1, Framatome states they

have the approval of their global Board of Directors to negotiate a cap on the owner's maximum cost of construction. This offer significantly improves the competitive position of Framatome relative to other nuclear manufacturers.

8.2.4 Marubeni Corporation

Marubeni Corporation is one of the largest international trading companies in the world. Marubeni's major lines of business are in information technology, natural resources and utility services, raw materials and finished goods, and retail services. The company is headquartered in Tokyo, Japan but operates all over the world.

Marubeni, as part of a consortium of other Japanese companies, is prepared to offer Energy Northwest a turnkey contract on an ABWR. Marubeni Corporation's primary role in this arrangement is major financing.

8.2.5 Scottish Power

Scottish Power is a large investor-owned utility with international investments. It is headquartered in Glasgow, Scotland. Scottish Power serves 5.5 million customers in the United Kingdom. Through its subsidiary, PacifiCorp, it has an additional 1.5 million customers in Utah, Oregon, Wyoming, Washington, Idaho, and California.

Scottish Power is not interested in a partnership to complete WNP-1. Scottish Power also stated they do not want to purchase WNP-1 in combination with Columbia Generating Station.

8.2.6 Toshiba Corporation

Toshiba Corporation is a \$50 billion international corporation headquartered in Tokyo, Japan. Toshiba has several operating companies with lines of business in semiconductors, media, communications, advanced systems for railroads, traffic, industrial applications, medical systems, home appliances, and personal computers, displays devices, and components. Toshiba is also Japan's

leading energy systems supplier with advanced capabilities in the design and manufacture of hydroelectric, thermal, and nuclear power generating systems and services.

Toshiba's nuclear division manufactures the advanced boiling water reactor (ABWR). Toshiba has completed 17 nuclear units in Japan since 1976. Design improvements in the ABWR technology over the past decade are impressive. Through a modularized construction protocol, Toshiba has reduced its construction time on the ABWR to 34 months (from concrete pouring to final fuel loading). They present recent data which shows their ABWR has been independently judged ten times safer in its core damage frequency, for example, than the pressurized water reactor at TVA's Watts Barr nuclear plant.

Toshiba, as part of this consortium, is prepared to discuss with Energy Northwest a turnkey contract for the construction of an ABWR at that future time when new generation is required in the Pacific Northwest. The contract would have a fixed price construction cost, a guaranteed completion schedule, and would include enriched fuel costs. They emphasize that their ABWR design is also pre-certified by the NRC.

8.2.7 United States Enrichment Corporation

United States Enrichment Corporation (USEC) is headquartered in Bethesda, Maryland. It is the largest nuclear fuel supplier in the United States. They are also the lead company in the international consortium which is interested in constructing a new ABWR plant on the site of the WNP-1 plant.

Table of contents

TABLE OF CONTENTS

| | | |
|------------------|---|-----------|
| SECTION 1 | INTRODUCTION | 6 |
| 1.1 | Background | 6 |
| 1.2 | Questions Reviewed by Energy Northwest | 7 |
| 1.3 | Purpose of Goldschmidt Imeson Study | 8 |
| 1.4 | Interim Report to Executive Board | 10 |
| SECTION 2 | TECHNICAL FINDINGS | 11 |
| 2.1 | Regional Need for Power | 11 |
| 2.2 | Physical Condition of Plant | 12 |
| 2.3 | Technical and Management Capacity | 12 |
| 2.4 | WNP-1 Nuclear Technology | 13 |
| 2.5 | NRC Licensing Status | 14 |
| SECTION 3 | COST-TO-COMPLETE FINDINGS | 15 |
| 3.1 | Disparity in Completion Estimates | 15 |
| 3.2 | Factors Which Might Reduce Plant Completion Costs | 15 |
| 3.3 | Factors Which Might Increase Plant Completion Costs | 16 |
| 3.3.1 | Transmission Expenses | 16 |
| 3.3.2 | Contingency Factor | 17 |
| 3.3.3 | Security Costs Post-September 11 th | 18 |
| 3.3.4 | Demolition Costs | 18 |
| SECTION 4 | RANGE OF ALTERNATIVES EXAMINED | 20 |
| 4.1 | Partnership on Plant Construction and Ownership | 20 |
| 4.2 | Outright Sale of Plant as Stand-Alone Entity | 20 |
| 4.3 | Sale of a "Future Option" to Acquire WNP-1 | 20 |
| 4.4 | Fixed Price Construction Guarantees | 20 |
| 4.5 | Site Development Proposals | 21 |
| 4.6 | Management Services Contract | 21 |
| 4.7 | Sale of WNP-1 and Columbia Generating Station | 21 |
| 4.8 | Cessation of WNP-1's Preservation Status | 21 |
| 4.9 | Status Quo | 21 |
| 4.10 | Sale of All Energy Northwest Assets | 22 |
| 4.11 | "All Other Proposals" | 22 |

| | | |
|------------------|--|-----------|
| SECTION 5 | FINANCING ISSUES | 23 |
| 5.1 | Problems with Public Financing | 23 |
| 5.1.1 | Washington State Statute | 23 |
| 5.1.2 | Partnership with Another Public Utility | 23 |
| 5.1.3 | Financial Viability Using Public Financing | 24 |
| 5.2 | Investment Banking Requirements for Private Financing | 24 |
| 5.3 | Problems with Private Finance Findings | 25 |
| 5.4 | Complexities of Existing Tax-Exempt Bonds for WNP-1 and Columbia Generating Station | 26 |
| 5.5 | Conclusions on the Impact of Financing | 27 |
| | | |
| SECTION 6 | NATIONAL NUCLEAR POLICY ISSUES | 28 |
| 6.1 | Bush Administration Policies | 28 |
| 6.1.1 | Administration's View of WNP-1 Completion | 28 |
| 6.1.2 | Government Incentives for WNP-1 Construction | 28 |
| 6.1.3 | New Technology at WNP-1 Site | 28 |
| 6.2 | Environmental Organizations | 29 |
| 6.2.1 | Position on Existing Nuclear Plants | 29 |
| 6.2.2 | WNP-1 Completion | 29 |
| 6.2.3 | Government Assistance to Nuclear | 29 |
| | | |
| SECTION 7 | ASSESSMENT OF POLITICAL ENVIRONMENT IN THE PACIFIC NORTHWEST | 30 |
| 7.1 | Northwest Elected Officials and Public Policy Leaders | 30 |
| 7.1.1 | Opinions on WNP-1 Completion | 30 |
| 7.1.2 | Government Incentives for Plant Completion | 31 |
| 7.1.3 | New Research Efforts at WNP-1 Site | 31 |
| 7.2 | Regional Environmental Organizations | 32 |
| 7.2.1 | View of WNP-1 Completion | 32 |
| 7.2.2 | Alternative Site Uses | 32 |
| | | |
| SECTION 8 | RESPONSES FROM DOMESTIC AND INTERNATIONAL ELECTRIC UTILITIES AND NUCLEAR GENERATING COMPANIES | 33 |
| 8.1 | Domestic Electric Utilities | 33 |
| 8.1.1 | Arizona Public Service | 33 |
| 8.1.2 | Dominion (formerly Dominion Resources) | 33 |
| 8.1.3 | Duke Power Company | 34 |
| 8.1.4 | Entergy | 34 |

| | | |
|------------------|--|-----------|
| 8.1.5 | Exelon Corporation | 35 |
| 8.1.6 | FirstEnergy Corporation | 36 |
| 8.1.7 | Florida Power & Light | 36 |
| 8.1.8 | Los Angeles Department of Water & Power | 36 |
| 8.1.9 | Northern California Power Authority | 37 |
| 8.1.10 | Nuclear Management Company, LLC | 37 |
| 8.1.11 | PacifiCorp | 38 |
| 8.1.12 | PacifiCorp Power Marketing | 38 |
| 8.1.13 | Portland General Electric | 38 |
| 8.1.14 | Public Service Enterprise Group | 39 |
| 8.1.15 | Puget Sound Energy | 39 |
| 8.1.16 | Sacramento Municipal Utility District | 39 |
| 8.1.17 | Southern California Public Power Authority | 40 |
| 8.1.18 | Southern Company | 40 |
| 8.1.19 | Tennessee Valley Authority | 41 |
| 8.2 | International Companies | 42 |
| 8.2.1 | BC Hydro | 42 |
| 8.2.2 | Électricité de France | 42 |
| 8.2.3 | Framatome ANP | 43 |
| 8.2.4 | Marubeni Corporation | 44 |
| 8.2.5 | Scottish Power | 44 |
| 8.2.6 | Toshiba Corporation | 44 |
| 8.2.7 | United States Enrichment Corporation | 45 |
| SECTION 9 | INTERVIEW RESULTS AND CONCLUSIONS | 46 |
| 9.1 | General Conclusions | 46 |
| 9.2 | WNP-1 Conclusions | 48 |
| 9.3 | Conclusions Reached from Exploring Other Executive Board Options | 50 |
| 9.3.1 | Partnership on Plant Ownership & Construction | 50 |
| 9.3.2 | Sale of WNP-1 and Columbia Generating Facility | 51 |
| 9.3.3 | Management Services Contract | 51 |
| 9.3.4 | Site Development Proposals | 51 |
| 9.3.5 | Sale of "Future Option" to Acquire WNP-1 | 52 |
| 9.3.6 | Demolition of WNP-1 | 52 |
| 9.3.7 | "All Other Proposals" | 52 |
| 9.4 | Interview Comments on the Sale of Columbia Generating Station | 53 |

April 24, 2002

| | | |
|-------------------|--|------------|
| SECTION 10 | SUMMARY CONCLUSIONS AND OTHER ALTERNATIVES AVAILABLE TO THE EXECUTIVE BOARD | 55 |
| APPENDIX A | LIST OF PERSONS INTERVIEWED | A-1 |
| APPENDIX B | LETTERS TO POLITICAL REPRESENTATIVES | B-1 |
| APPENDIX C | RESUMES OF GOLDSCHMIDT IMESON PRINCIPALS | C-1 |

Introduction

SECTION 1

INTRODUCTION

1.1 Background

Energy Northwest is the owner and operator of several electric generation facilities located in the State of Washington. Legally constituted as a joint operating agency (JOA), the ownership of Energy Northwest is comprised of 13 public utility members and the three municipal utilities of Seattle, Tacoma, and Richland.

Energy Northwest owns and operates the 27.5 MWe Packwood Lake Hydroelectric Project, the 48 MWe Nine Canyon wind generation farm, and Columbia Generating Station, the only operating nuclear plant in the Pacific Northwest. The Columbia Generating Station is an 1150 MWe boiling water reactor (BWR) plant designed by General Electric. All of the generating output from this facility is sold at cost to the Bonneville Power Administration (BPA). BPA, in turn, pays all of the operating costs of the plant and is the guarantor of the tax-exempt bonds which finance the plant.

Energy Northwest is also the owner of the WNP-1 nuclear generating facility located on the Hanford Reservation in Richland, Washington. Located about a mile from the Columbia Generating Station, the 1350 MWe WNP-1 was terminated in 1984 after partial completion because of lower than predicted regional economic growth, an attendant drop in projected power demand in the Pacific Northwest, and significant cost overruns. The plant is currently deemed to be 65 percent complete.

Beginning in the fall of 2000 and continuing through the spring and summer of 2001, strong demand for power and an unexpectedly severe increase in wholesale energy prices occurred throughout the West. Energy prices climbed by astounding proportions through the fall of 2001; at its peak, utilities paid in excess of \$330 per MWh for power.

Other exacerbating factors confronted the West Coast electric industry in 2001. The deregulated California energy market was in crisis. Bankruptcy consumed California's largest utility and most public and investor-owned utilities in the West suffered serious financial repercussions in 2001. The Pacific Northwest's hydroelectric system experienced a low water year. Timing requirements for fish passage along the Columbia River presented Bonneville with extraordinary policy tradeoff decisions. For added

measure, the summer of 2001 was extremely hot and rolling outages were instituted in California.

In addition to this combination of events and circumstances, the region and Energy Northwest faced the need for significant expenditures to demolish the WNP-1 plant. These factors, among others, prompted the Executive Board of Energy Northwest to reassess the value of the partially complete WNP-1 plant.

1.2 Questions Reviewed by Energy Northwest

Over the past year the Executive Board and senior management of Energy Northwest committed themselves and the organization to a rigorous examination of the following questions:

- Is completion of the unfinished WNP-1 plant technically feasible?
- Is completion cost effective and politically feasible?
- What is the long-term need for additional power generation in the Pacific Northwest?
- Is completion of the plant in the best financial interests of Energy Northwest's owner/members?
- Is such a decision by the Board in the best overall interests of the Pacific Northwest region?

To pursue answers to these questions, Energy Northwest retained Bechtel Power Corporation in mid-2001 to prepare a detailed study of the cost to complete construction of WNP-1. Bechtel's *WNP-1 Estimate-to-Complete Study* concluded it would cost approximately \$3 billion and 72 months to finish the plant.

Energy Northwest subsequently hired R. W. Beck to verify the appropriateness of Bechtel's methodology and the reasonableness of their \$3 billion estimate. Additionally, they were asked to examine the economic feasibility of completing the plant, after adding financing costs, compared with competitive market alternatives.

R. W. Beck's final report, *Independent Review and Market Assessment of the Project to Complete WNP-1*, was completed in October 2001. The report confirms as reasonable the methodology and conclusions of the Bechtel Study. Using low cost public financing rates, R. W. Beck calculates debt financing expenses, working capital, reserves,

contingencies, and net interest during construction at \$1.2 billion. The \$1.2 billion in financing expenses is in addition to Bechtel's \$3 billion for construction costs.

Lastly, senior management of Energy Northwest prepared a report, *WNP-1 Owner's Restart and Operating Issues, Assumptions, & Costs*, to supplement the work of the consultants. Other internal cost studies were prepared by Energy Northwest management to examine the impact of changing assumptions and large impact variables such as interest rates, the capacity factor, net electrical output, operating and construction costs, and decommissioning.

Taken together, the Bechtel and R.W. Beck analyses indicate a total cost to complete WNP-1 of \$4.2 billion, including financing costs.

1.3 Purpose of Goldschmidt Imeson Study

In December 2001, the Executive Board retained Goldschmidt Imeson to assist in the final stages of their review regarding the disposition of the incomplete WNP -1 plant.

The original scope of Goldschmidt Imeson's work included the following:

- (1) Review and comment on the technical, economic and political conclusions of the Bechtel, R. W. Beck, and Energy Northwest staff reports. Provide advice and counsel to the Board regarding those conclusions.
- (2) Engage in a series of discussions and interviews, after having received the concurrence of the Executive Board, with energy companies, federal and state government officials, and the regional Congressional delegation, to assess the highest and best use of WNP-1 to not just its owners but the Pacific Northwest region as a whole.
- (3) Develop options for the future of WNP-1. Specifically, what are the circumstances under which the plant should be completed? What options are available to the Executive Board?
- (4) Identify potential partnerships for future action on WNP-1.

Goldschmidt Imeson proposed interviews with the senior officers of the U.S.'s largest nuclear utilities, the top management of the Pacific Northwest's electric utilities, senior energy officials in the Bush

Administration, large California municipal and publicly-owned utilities, Governors in the Pacific Northwest, members of the regional Congressional delegation, Wall Street public and private utility financial experts, bond counsel, lawyers and consultants specializing in energy or nuclear issues, international nuclear manufacturers and nuclear fuel suppliers, and major environmental organizations with an active role in the Pacific Northwest.

The Executive Board was particularly interested in challenging the financial and economic conclusions of existing studies against the political environment in the Pacific Northwest. Goldschmidt Imeson also proposed to identify any set of circumstances that might create an intersection between the cost and political feasibility of completing WNP-1. Lastly, the Executive Board requested that the work be completed in four months.

Our initial approach was to formulate a number of basic premises regarding WNP-1, which provided the foundation for many of our interviews. These basic premises include the following:

- WNP-1 must be economically feasible for its construction to be completed.
- Economic feasibility includes the cost to complete the plant and the ability to get power produced to the market at a competitive price.
- The cost to complete the plant includes its actual construction costs and financing costs.
- Construction costs are directly linked to the time it takes for the construction. Strong political and regulatory support for construction can favorably impact the regulatory process, which can reduce the construction period and, therefore, the construction costs.
- Economic feasibility of the plant can also be improved by governmental incentives for its completion. Strong political support for completion can help to improve the possibility for such incentives. Availability of such incentives is also affected by competition for such governmental support, including other public expenditures in our region and federal research and demonstration efforts promoting new nuclear technologies across the United States.

- **Financing costs are driven by the nature of the financing, i.e., public or private finance. Energy Northwest has already decided that it will not complete the plant, removing one possibility for public financing.**
- **The ability to get the power to the market is linked to the cost and availability of transmission to the purchaser of the power.**

1.4 Interim Report to Executive Board

Based on our initial review of issues and interviews conducted through February 2002, Goldschmidt Imeson proposed at the Executive Board meeting that month to expand the original scope of work to include exploration of the sale of WNP-1 in some combination with the Columbia Generating Station. As of that time, there appeared to be no interest from other utilities in the purchase of WNP-1 as a stand-alone proposition. By expanding the list of options to include the Columbia Generating Station, it was anticipated that the opportunity for sale of WNP-1 might be enhanced in the market. The Executive Board agreed to consider offers of interest in both the Columbia Generating Station and WNP-1 -- as well as any other potential strategies that might arise in the course of our interviews and review.

technical
funding

SECTION 2 TECHNICAL FINDINGS**2.1 Regional Need for Power**

- **Technical reports commissioned by Energy Northwest in 2001 predicted a substantial future shortage of generating facilities in the Pacific Northwest. R.W. Beck, in particular, examined regional economic factors, peak load growth, base load growth, the likelihood of new planned generation coming on line, and a host of other factors before reaching its conclusions in October 2001.**
- **R.W. Beck's conclusions were corroborated by other reliable studies completed in 2000 and 2001. The Bonneville Power Administration (BPA), U.S. Department of Energy (DOE), Northwest Power Planning Council (NWPPC), and the Pacific Northwest Conference Committee (PNUCC) each conducted detailed generation supply and demand analyses.**
- **Not only was there a consensus of opinion on the need for power in the Northwest, but also at that time the resource shortfall was perceived to be serious enough to risk effecting the integrity of the system. From a system reliability perspective, the NWPPC predicted an alarming 24 percent "Loss of Load Probability"¹ of generation interruption by 2003. The same report determined that to reduce this risk to an acceptable risk level, 3000 MW of new generation would be required by 2003.²**
- **By the fall of 2001, the region's energy supply and demand conditions had reversed. Wholesale prices on the West Coast declined to almost artificially low prices after the economic impacts of September 11th. At the present time, the negative effects of many of last year's circumstances have disappeared. Snow pack levels are good, hydro**

¹ The traditional utility standard for generation adequacy in the U.S. is called "Loss of Load Probability (LOLP)," or an outage serious enough to cause an interruption of supply in the region. The historical risk standard is five percent, or one event every 20 years. In the case of the Pacific Northwest, the LOLP was five times the industry standard. Source: *Northwest Power Supply Adequacy/Reliability Study, Phase I Report*, Northwest Power Planning Council (NPPC), March 6, 2000.

² *Ibid.*, p. 3

production is excellent, and BPA is again selling energy at 5 mills this week.

- Although the economic effects of last year are now apparent, most energy experts we interviewed believe that repeated, cyclical energy shortages/surpluses and accompanying wholesale price fluctuations will be a permanent part of the deregulated energy market. They estimate the decline in the U.S. economy has created a three-year backlog of surplus energy. In the Pacific Northwest, most recent energy load forecasts predict a slowdown in the need for future generating resources.

2.2 Physical Condition of the Plant

Major construction of WNP -1 was halted in 1982. By 1984, the decision was made to terminate the plant and place it under a preservation program. Significantly, the plant was managed with a level of maintenance adequate to ensure its cost-effective completion if construction later resumed. Moreover, the Nuclear Regulatory Commission (NRC) approved the preservation and maintenance program implemented for WNP-1.

Over the course of nearly twenty years in preservation status, WNP-1 has been subjected to repeated federal inspections. Several nuclear experts we interviewed have been through the plant and are familiar with its physical condition. As recently as the summer of 2001, the NRC inspected the plant and found it in good order.

Notwithstanding WNP -1's twenty-year construction lapse, there is a consensus among these separate parties that the physical condition of the WNP-1 is exceptional. The dry eastern Washington climate is a contributory factor, but our interviewees attribute the superior physical status of the plant to the rigorous maintenance program implemented by Energy Northwest and its skilled workers.

2.3 Technical and Management Capacity

The U.S. nuclear industry is a relatively small one. Many nuclear executives know one another or have worked together in previous positions. As with other professions, reputations are made or broken for the usual reasons, but in the elite nuclear industry, reputations appear to be well known "to the trade." The same is true for the operating and performance factors of individual nuclear plants because of regulatory requirements and nuclear industry reviews.

Not surprisingly, the senior executives of Energy Northwest are known by many of the nuclear executives we interviewed. A few are graduates of the U.S. nuclear Navy and others have personal acquaintanceships because of past overlapping careers.

The poor early operating history of Columbia Generating Station is also well known in the nuclear industry. For the same reason, the management turnaround of the plant's cost and operating performance under the leadership of Vic Parrish and his staff has created a positive reputation.

Based on the results of our interviews, the Executive Board should feel confident that the management team of Energy Northwest is well respected. Further, Goldschmidt Imeson believes there are no technical skill or management barriers to completion of WNP-1.

2.4 WNP-1 Nuclear Technology

If planned upratings are installed and the plant is completed as presently designed, WNP-1 would be the largest nuclear plant in the United States. As currently planned, WNP-1 would be a 1350 MWe nuclear generating facility consisting of a nuclear steam supply system, a turbine generator, and a pressurized water reactor (PWR). The PWR is a Babcock & Wilcox 205.³

The Bechtel Study includes \$400 million in costs necessary to upgrade the plant. Despite the planned upgrades, the age of WNP-1's nuclear technology is a serious issue for many and a subject that arose without prompting in nearly all of our interviews. Opinions on WNP-1's technology are conflicting:

- Nuclear industry experts are quite familiar and comfortable with the underlying technology of the WNP-1 unit. There are numerous Babcock & Wilcox pressurized water reactors currently in operation. PWR technology is well understood, reliable, and has a long history of approvals by the NRC for a 40-year license. Industry personnel believe the NRC will readily approve these plants for an additional 20-year license renewal.

³The license for nuclear reactors designed by Babcock and Wilcox is now owned by Framatome ANP.

- There is complete agreement that waiting to build until conditions improve makes the technology problem worse, i.e. “the plant is not getting any younger.”
- A few nuclear experts believe the older technology of WNP-1 might be a positive regulatory factor because the proven record of pressurized water reactors should receive quick approvals from the NRC.
- Other experienced nuclear operators we spoke with believe it is unwise to assume the NRC will quickly approve WNP-1 filings. The age of the plant, the absence of construction activity for 20 years, and their own past experience with the NRC, they believe, could prompt a host of NRC requirements that are not predictable today.
- A few nuclear engineers were critical of the Babcock & Wilcox 205 design as less well engineered than its older competitor technology counterparts.

On balance, however, Goldschmidt Imeson was presented with no technological, engineering, or other design reason why WNP-1 will not operate effectively if completed.

2.5 NRC Licensing Status

From all apparent indications, Energy Northwest takes great care to assure continuation of WNP -1's multiple licenses and to preserve the opportunity for its cost effective completion. The preservation program for WNP -1 is a plan certified by the NRC. The NRC has also approved WNP-1's various certificate renewals and regulatory licenses. Management reports that their required written maintenance and inspection logs are carefully maintained and all of their regulatory filings are current.

While we did not interview current NRC officials, we found nothing to suggest regulatory difficulties due to lapsed filings, improper recordkeeping, or deficiencies identified in the NRC's on- site inspections. In sum, all outward indications suggest there are no regulatory impediments to the completion of WNP-1.

Cost to Complete

SECTION 3

COST TO COMPLETE FINDINGS

3.1 Disparity in Completion Estimates

At our interim presentation to the Executive Board in February 2002, Goldschmidt Imeson discussed the spread of estimates on the remaining construction costs for WNP-1. The construction costs ranged from a low of \$2.3 billion to a high of \$3 billion. Interest, reserves, and other financing costs were at least another \$1 billion under either scenario.

Our opinion is that the range of costs is important for the Executive Board's decision making, not the precise amount to finish the plant.⁴ The range Goldschmidt Imeson proposed to examine was an unstudied low of \$3.3 billion to the official study of \$4.2 billion.

At the time, we were most concerned about the low cost estimate. If the very lowest cost estimate to complete WNP-1 cannot produce a persuasive financial result, there seems little reason to debate the accuracy of higher estimates.

Nonetheless, Goldschmidt Imeson examined the cost studies and offers its own opinion on the range of estimates. We agree with the list of cost variables prepared by the management of Energy Northwest and those contained in the R. W. Beck study. Accordingly, we do not repeat them here. Rather, we offer other factors or changed circumstances identified in the course of our study which we believe could have a material effect on the cost of the plant.

3.2 Factors Which Might Reduce Plant Completion Costs

Goldschmidt Imeson found only one persuasive factor that improves the opportunity to reduce the plant's cost. The decline in the U.S. economy over the last six months has produced interest rates that are among the lowest in 40 years. Obviously, this is a factor not contemplated in earlier studies. The interest rate assumption for public financing is materially lower today than the 6.25 percent figure used in the R. W. Beck cost scenarios. Long-term tax-exempt, AAA-

⁴ Any prospective buyer will conduct its own thorough due diligence and analysis of the cost to complete WNP-1. Furthermore, a decision to proceed with WNP -1's construction would necessitate a new "bottom up" cost-to-complete analysis -- not the incremental updating and analysis of the 1984 cost study. A zero-based, independent cost-to-complete study is a far more definitive estimate to a prospective owner.

rated municipal bonds are now priced at approximately 5.08 percent. This improves payback periods and internal rates of return for all public finance scenarios in the R. W. Beck study. We estimate that if tax-exempt financing could be locked in at today's rates, the cost of power could be reduced by \$3.75 per MWh from the current forecast of \$51 MWh.

Curiously, the change in interest rates for private finance is not as dramatic. The R. W. Beck study uses 7.75 percent for private sector finance. Today investor-owned utilities will typically pay 200 basis points over ten-year U.S. Treasury bonds. The current ten-year U.S. Treasury bond rate is 5.20 percent, so private financing costs should be reduced to about 7.20 percent, depending on the strength of the borrower's corporate balance sheet. This 55 basis point reduction lowers the cost of power by an estimate \$1.50 per MWh.

3.3 Factors Which Might Increase Plant Completion Costs

3.3.1 Transmission Expenses

Goldschmidt Imeson believes the R. W. Beck study omits a significant cost component in WNP-1's ultimate cost of power – transmission expense. Transmission capacity deficiencies in the Pacific Northwest are well known, long standing, and exist east to west and north to south. Substantial high voltage transmission capacity is required to connect WNP-1 to the regional grid.

The original transmission system to connect WNP-1 was designed for the eventual connection of three nuclear plants. We are told by BPA that, over the years, existing transmission capacity has been consumed by greatly increased loads from Grand Coulee, Chief Joseph, Colstrip, and other generating facilities.

R.W. Beck did not include transmission costs in its study and we believe they assume BPA will provide any transmission upgrades needed for WNP-1. This assumption is contrary to our understanding of the cost allocation methodology used by BPA since 1996. BPA's policy on new transmission is to allocate the higher of either: (a) the incremental cost of new transmission; or (b) BPA's imbedded cost rate for transmission.

R. W. Beck's estimate of transmission expense is \$5 million,⁵ although they do not include this cost in their study. We believe that actual transmission expenses will significantly increase the ultimate cost of WNP-1 power, and therefore, cannot be omitted from the analysis.

It is possible to reinforce a transmission system with facility and equipment upgrades. However, there is agreement among those we interviewed who are knowledgeable about the region's transmission grid that a major reinforcement of the system is needed. The expectation we heard in these interviews is that an entirely new high voltage line will need to be constructed to accommodate WNP-1.

The route and connection point of a new transmission line (from the WNP-1 to the load center then the load center to the intertie) is unstudied, but the distance is substantial in any direction. For example, a new transmission line could run from Richland, Washington to Portland, Oregon and then to the intertie at Medford, Oregon. The cost for normal transmission construction is about \$1 to \$1.2 million per mile (without overhead costs). The figure is ineluctably higher if the transmission route is through protected national forests due to the extra time and sensitivity of the construction work. Adding in the cost of circuit breakers, fault protection, and the cost of right-of-way acquisitions along the entire transmission path, we understand has the potential to increase WNP-1's delivered cost of power by as much as 10 to 20 percent.⁶ None of these costs are factored into the study.

While this is just one possible transmission route, others would also be expensive and need to be factored into the costs.

3.3.2 Contingency Factor

We believe a nine percent overall contingency factor is inadequate for the construction of a nuclear plant that has sat idle for 20 years, and which faces so many uncertainties.

⁵ The factory price of a single 500kv transformer alone is about \$5 million.

⁶ BPA will require a study of transmission requirements for any new large generating resource. While the route of BPA's transmission from WNP-1 is not known, the transmission distance from Hanford in any direction is substantial.

3.3.3 Security Costs Post-September 11th

The terrorist attacks of September 11, 2001 have raised important questions about security protections around U.S. nuclear power plants. Following the attacks the NRC called for nuclear plant operators to go to “the highest level of security,” tightening security around each plant by increased patrols, augmented security forces, additional physical barriers and more restrictive site access. The attacks have also prompted the NRC to perform a detailed engineering analysis of the consequences of a deliberate attack by a large airliner, work that is not yet complete.

Debate continues in Congress and elsewhere about the need for more dramatic steps to protect nuclear power plants against terrorist attacks, including federalization of plant security, no-fly zones, and other measures. We cannot speculate on the solutions that will be adopted. However, those actions will certainly increase operating costs at currently operating plants. For plants proposed for construction or completion, including WNP-1, regulatory actions could also result in delays and/or increased costs in design and construction.

3.3.4 Demolition Costs

In 1998, a study was completed on the cost to dismantle WNP-1.⁷ The study estimated it would cost \$25 million if the plant could be left in place. If complete demolition and restoration of the ground site to its natural condition were required, the study estimated a cost of \$60 million, plus or minus 20 percent.

Our interviews reiterated the original conditions of the WNP-1 site certificate issued by the Washington Energy Facilities Site Evaluation Council (EFSEC). The site certificate requires return of the property to its original state. Many of those we spoke with believe full demolition and restoration of the land to its original condition will ultimately be required. If these opinions are accurate, it increases the ownership liability of the plant to BPA and Energy Northwest to the range of \$48 million to \$72

⁷ *WNP-1 and WNP-4 Site Restoration Study*, prepared for the Washington Public Power Supply System, 1998.

April 24, 2002

million. Obviously any large cost negatively affects the marketability of WNP-1 to a prospective buyer.

SECTION 4

RANGE OF ALTERNATIVES EXAMINED

4.1 Partnership on Plant Construction and Ownership

Goldschmidt Imeson interviewed an extensive list of utility executives to determine their interest in partnering with Energy Northwest on the completion of WNP-1. In those interviews we emphasized that any number of partnership opportunities would be seriously considered by Energy Northwest.

Our understanding from Energy Northwest management is that the ideal partnership combines ownership of the plant by another utility with a management services contract through Energy Northwest to operate the plant. This arrangement would offer immediate economies of scale and cost reduction opportunities for both WNP-1 and Columbia Generating Station. Accordingly, the concept of a management services agreement was explored in all utility interviews.

4.2 Outright Sale of Plant as Stand-Alone Entity

The interviews of senior utility executives, both nuclear and non-nuclear, covered the proposal to sell WNP-1 as a stand-alone transaction.

4.3 Sale of a “Future Option” to Acquire WNP-1

Another alternative explored during the interviews was the opportunity for a third party to reserve the option to purchase WNP-1 at a future date. An annual “option fee” would be paid to Energy Northwest to preserve the current status of the plant for a set number of years, i.e., no dismantlement, sale of equipment, etc. At the end of the option period, this third party could exercise its right to purchase the plant for a previously negotiated sum.

The intent of this arrangement is to reimburse Energy Northwest and the region for the \$2.8 million in annual operating costs it spends to maintain the plant in preservation status.

4.4 Fixed Price Construction Guarantees

Actually a subset of other alternatives, Goldschmidt Imeson questioned nuclear manufacturers and other third party contractors as to their capability and willingness to guarantee the future completion cost of WNP-1. Fixed price bids, a turnkey contract, or a cap on the maximum construction cost to a new owner from the

contractor or manufacturer would eliminate much of the risk and uncertainty to a new owner/partner and enhance WNP-1's prospects for sale.

4.5 Site Development Proposals

Goldschmidt Imeson inquired about interest in the WNP-1 site for the investment in new generation or other development purposes. We also explored opinions about the land value of the physical location on the Hanford Reservation.

4.6 Management Services Contract

Energy Northwest has previously been approached by nuclear utilities with offers to operate and manage the Columbia Generating Station under a management services agreement. We addressed this option in all of our nuclear utility interviews.

4.7 Sale of WNP-1 and Columbia Generating Station

At the interim presentation of findings to the Energy Northwest Executive Board, Goldschmidt Imeson reported little response to date in WNP-1 but significant interest in the operating nuclear plant, Columbia Generating Station. The Executive Board agreed to expand the list of alternatives to include the sale of WNP-1 along with Columbia Generating Station. Our utility and investment banking interviews covered this option in detail.

4.8 Cessation of WNP-1's Preservation Status

If construction of the plant is not economically and politically viable, the Executive Board was clear that Goldschmidt Imeson should explore options that include demolition of the plant. Alternatively, funds currently allocated for preservation of the plant could be reduced or eliminated.

4.9 Status Quo

In this case, the status quo means WNP-1 will continue to be maintained at a level of preservation status. The current operating budget for WNP-1 is \$2.8 million. The proposed FY 2003 operating budget is \$2.5 million.

4.10 Sale of All Energy Northwest Assets

April 24, 2002

This hypothetical alternative was proposed at our interim presentation to the Executive Board and rejected.

4.11 “All Other Proposals”

Aside from the sale of Energy Northwest in its entirety, the Executive Board asked Goldschmidt Imeson to explore every other option and alternative we uncovered relating to their nuclear assets.

WNP - 1 OPTIONS ANALYSIS

FINAL REPORT

**Prepared at the Request of the
Executive Board
of
Energy Northwest**

**Presented April 24, 2002
Richland, Washington**

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