Department of Energy

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

September 17, 2013

In reply refer to: NN-1

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

FOIA #BPA-2013-01459-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:
"Meeting minutes, notes, and results of the Energy Northwest ad hoc planning committee that was appointed by Chairman John Cockburn to examine WNP-2's long-term value to the region and evaluate possible alternatives for operation or sale."

Response:
BPA is releasing the enclosed responsive documents 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

ENERGY NORTHWEST NEWS May 21, 2002

Here's the latest on the potential sale of the station

Here are excerpts from a briefing paper put together on Monday under direction of the Executive Board. These points concern a study to examine options for future ownership of Columbia Generating Station. A report last month by consultants Goldschmidt Imeson suggested Energy Northwest examine the sale of the plant. However, please note that in this update, the study is mentioned as only a possibility and will focus on the actions necessary to maximize the value of Columbia Generating Station in the long term.

As stewards of a critical resource in the region's energy supply, it is incumbent upon us - the Executive Board - to very carefully consider the future of Columbia Generating Station and to make the decision that will best serve this region.

During its April meeting, the Executive Board passed a motion that provided for the establishment of a work group to carefully examine the options outlined in the Goldschmidt Imeson report, especially the option of Energy Northwest continuing to operate the station. If it moves forward, the study will be conducted with a focus on what actions will best maximize the value of Columbia Generating Station in the long term for the ratepayers of the region.

Over the past few years, the industry has been moving away from single site operations. Today, there are only a few single site plant operators, some of whom are doing very well while others are not. Energy Northwest is among those single plant operators who are doing very well. We have a top-notch staff that has made Columbia Generating Station one of the top performers in the nation.

If the study is conducted, any recommendations that result would be carefully evaluated by a broad constituency - Bonneville Power Administration representatives, Columbia Generating Station participants, Energy Northwest members, Energy Northwest staff, and the ratepayers of the region, as well as both the Board of Directors and the Executive Board - prior to any decisions being made.

Next Steps:

Since the motion was passed in April, a proposed study team has been formed, including John Cockburn, Vera Claussen, Ted Coates, Margaret Allen, Vic Parrish, Diana Goldschmidt, John Carter, Nick Reynolds and Steve Hickok, deputy administrator from Bonneville Power Administration. Diana Goldschmidt is a partner in the Portland, Ore., consulting firm Goldschmidt Imeson. She was instrumental in handling the last portion of the original feasibility study. John Carter is just retiring as executive vice president of Bechtel Group Inc., and is continuing on its Board of Directors. He has significant domestic and international experience in line responsibilities, as well as holding senior legal and financial positions. Nick Reynolds is a partner in the Washington, D.C., law firm of Winston & Strawn. He has years of experience with Energy Northwest and the nuclear industry.

This team will hold an orientation meeting on Wednesday, May 28. The purpose of the meeting is to outline a potential charter for the work to be done, as well as discuss budget and resource needs, and potential timelines for completing this study, should it be approved. The Board of Directors will be briefed on the results of that meeting during the Board of Directors' special meeting on May 30.

The Executive Board will look to the Board of Directors for its comments and suggestions, which will be carefully evaluated prior to the Executive Board making a final decision on whether to proceed with a study during its June meeting.

The following appeared in the EN employee newsletter on May 14, 2002.

Possible station sale filled with uncertainties

Following a consultant's recommendation last month to investigate the possibility of selling Columbia Generating Station, many questions have arisen within Energy Northwest. As of now, questions far outnumber answers.
The Executive Board is expected to name a special team this week to examine the issue. The panel is expected to take about six months to come up with answers and to make a recommendation. Meanwhile, senior managers held four general employee meetings last week to discuss what's known - and not known - about the matter. We attended all four meetings and have prepared a compilation of remarks. One caveat: The issue is so fluid that a few of the opinions given last week have changed because of new information. What we've printed below is accurate as of Monday afternoon.

Will Columbia Generating Station be sold? No one knows the answer right now. That's why the Executive Board is commissioning a special team to investigate the possibility.

Do Vic Parrish and other senior managers believe the plant should be sold?
They all have personal opinions, none necessarily in favor of a sale.
However, there is much to learn about the matter. In addition, the decision isn't theirs to make. A regional consensus will have to emerge and guide those who will make the decision.

Who will make the decision? That's not clear right now. The Board of Directors and Executive Board have a say, but the Bonneville Power Administration probably will be the dominant party.

What factors will be judged when making a decision about a potential sale? A decision will involve many factors: economics, politics, exposure to public opinion, control and reliability, among others.

Why would outside companies want to buy the station? They might believe they can make a profit by owning it.

Who would they sell electricity to? Most likely, the Bonneville Power Administration.

Why Bonneville? The plant was built using tax-exempt municipal bonds. Under our interpretation of current tax regulations, power from the plant would have to go to a public entity such as Bonneville for the bonds to remain tax exempt. Any sale must be approved first by the IRS.

Have any other public power nuclear plants been sold to private companies? Yes, two. However, our circumstances are different than at those two plants. Every plant is different.
Assuming a decision is made to sell the plant, would it be legally practical or possible? We don't know. That question will require a great amount of study. We're talking about an incredibly complex question and, if the decision is made to sell, an incredibly complex deal.

We sell power to Bonneville. A new company would sell power to Bonneville. How would a new company hope to make a profit? By cutting costs.

How would costs be cut? By relying upon economies of scale. For example, a centralized office could handle licensing for several plants, making licensing folks more efficient.

A new company would lay us off? Not necessarily. The plant as it stands is nothing but a pile of concrete, steel and a little bit of uranium. The only thing that makes this pile valuable is its workforce. Ironically, as you have gotten better, you have gotten more valuable.

But there have been quotes indicating the plant could be operated with as few as 750 people. Will 350 be laid off? No. The extra people might be assigned to other offices overseeing several other plants. Any reduction in force probably would be handled through normal attrition. The welfare of current employees always has been guarded in previous sales of nuclear plants.

What about our retirement accounts? Again, such benefits will be guarded by any sales agreement.

Why can't we cut our overhead to lower the price of power to Bonneville? We have, but we can't cut much deeper. We are geographically isolated, which costs us, and we don't have the economies of size that other operating companies have.

Can't we join with other single plants to achieve some economy of scale?
That was the purpose of our arrangement with the Omaha Public Power District and its Fort Calhoun plant. Unfortunately, OPPD choose to back out of that agreement. We are trying to capture some savings through our work with the Utility Services Alliance. The craft have been part of that effort when they work outages at other plants. As for Energy Northwest buying other plants, that's not in the cards.

What about our new business endeavors? They are designed to strengthen Energy Northwest - and its business position. Now, Columbia Generating Station represents about 90 percent of our business portfolio. Vic's goal is to grow other business lines until Columbia contributes only about 25 percent of our gross.

But wouldn't that make Columbia less consequential and therefore easier to sell? Not necessarily. We would achieve economies of scale by using the new business lines to spread some of our overhead.

Why the interest now in acquiring nuclear plants? The industry has finally fulfilled the promises made years ago. We have become an inexpensive and reliable source of power. In the past four years, 20 plants – about one-fifth of the fleet - have changed ownership. And the price is going up. The first plant sold (Pilgrim) went for about $21 per installed kilowatt capacity. This spring, Seabrook sold for $710 per installed kilowatt - although the condition of the plants was not directly comparable. (By comparison, it would have cost about $2,300 per installed kilowatt capacity to finish WNP-1.)

But aren't decommissioning costs a roadblock? Every plant has built a decommissioning fund since initial operation. Many of the companies now buying nuclear plants believe it

will cost less to decommission than the amount of money the funds will hold. That means a profit - if the companies are correct.

Have outside companies expressed interest in buying the station in the past? Yes, about six have contacted us, with varying degrees of seriousness.

Who are they? They have asked us not to reveal their names, but you probably can guess who they are.

Who must agree if the plant is to be sold? In essence, the entire region. We have 94 participating utilities in the plant. We have 16 member utilities. We have the public power community as a whole. There are direct customers of Bonneville, such as investor-owned utilities and the aluminum plants. And then, we have the public at large. For example, some environmentalists don't necessarily like us very much but they may like us more than an outside private company. There are other, more esoteric issues as well. For example, there are some in the public power community worried about a loss of generating resources that they control. Without ownership of generation, you really don't have ultimate control of prices; you're eventually left to the mercy of companies like Enron. Yet there are others in public power who want to relinquish jointly owned generation in favor of buying from the market or building their own individual stations.

Why would Bonneville endorse a sale? It would hope for lower rates than it's paying now. In addition, it would be able to reduce its oversight role. On another front, BPA might reduce some exposure to public criticism if it didn't have a nuclear plant under its wing. Finally, Bonneville has decided - upon prompting by the Northwest public power community - to not sponsor any new generating stations. A sale of Columbia would fit within that strategic model.

Who is advocating the sale of the plant? No one we know of. Again, consultants have only suggested that we examine this option, and the Executive Board believes it has a responsibility to ratepayers to explore every reasonable ownership alternative.

Will security measures following the Sept. 11 terrorist attacks have an impact on a decision to sell the plant? No.

Who will be on the special team reviewing a possible sale? About a half-dozen people. Vic will be on the panel or serve as a special advisor. There will be someone from Bonneville and from the Executive Board. Others probably will come from outside.

How long will the review process last? It's difficult to say, because even the magnitude of the questions has yet to be clearly understood. A good guess would be six months.

Who will pay for the study? Money will come from Columbia Generating Station, which means it ultimately will be paid by ratepayers.

How much will it cost? No one knows yet, because no one knows the full scope of the study. It probably will cost several hundred thousand dollars.

If a sale is approved, how long would it take after the decision is made? No one knows, but clearly the process would take at least a year.

What about bringing in an operating company while Energy Northwest maintains ownership? "I don't think there's anyone else who can run this plant better than we do," Vic Parrish said.

Who will get the money from any sale? Proceeds from the sale would be used to retire a portion of outstanding debt.

But doesn't Bonneville use Energy Northwest bonds to help reduce debt to the federal treasury? Yes. By refinancing Energy Northwest debt - in other words, using Energy Northwest debt rather than borrowing from the federal government - Bonneville has received about $2.3 billion in cash flow relief over the past 12 years. Much of this activity in the past has been used by Bonneville to keep rates lower than they might have otherwise been. It also has meant that eventually repayment of the nuclear debt has been pushed further into the future. If Columbia is sold, Bonneville may lose some debt flexibility. However, it would presumably receive some cash from the buyer.

What would happen if Energy Northwest doesn't want the plant sold but Bonneville does? Good question, but we don't have a solid answer right now. Tentatively, it looks as if a disagreement would go to an arbitrator. Beyond that, we don't know. However, it should be emphasized that a sale won't happen unless there's a broad regional consensus for it.

If the plant is sold, will Energy Northwest get some of the sales price? No. Energy Northwest has no equity in Columbia Generating Station.

How much is still owed on the plant? Bonneville ordered WNP-1 and -3 and Columbia Generating Station - and promised to pay all their bills.

Bonneville still owes $2.1 billion on Columbia Generating Station. If there is a decision to sell, what would be the process? The Board of Directors would terminate the Columbia Generating Station project, then the Executive Board would approve the sale.

What should we do if we don't want Columbia Generating Station sold?
Maintain your focus on performing error-free work. Now, more than ever, we have to show our value to the Northwest - in an arrangement owned by the Northwest.

DRAFT 9/20 /02

Table of Contents

DRAFT

FOREWORD

Energy Northwest's Executive Board has concluded an 18-month review of the organization's nuclear programs, the findings of which are summarized in the following report. The report disposes of questions concerning the future management and ownership of Columbia Generating Station and sets a future course for Columbia and Energy Northwest.

The due-diligence review examined how nuclear power can fit within the region's energy portfolio to the greatest benefit of the region's ratepayers, and considered a variety of possibilities ranging from the feasibility of finishing a partially complete nuclear plant to the potential benefits of third-party management or the sale/trade of Columbia. Attempting to create a roadmap for an even more efficient operation, the review also looked for ways to optimize future operating costs of Columbia and reduce the cost of power without jeopardizing public and employee safety or the long-term reliability of plant operations. The Bonneville Power Administration (BPA) requested that portion of the review because BPA receives all of the output from Columbia, and is liable for all of Columbia's operating costs and debt.

In addition to the resources described below and in the report, in reaching its conclusions the Executive Board consulted and weighed the opinions of nuclear experts from such entities as the Corporate Nuclear Safety Review Board and the Institute of Nuclear Power Operations.

The Executive Board initiated the review when a severe energy crisis coincided with the need to make permanent plans for WNP-1 (a terminated nuclear project located adjacent to Columbia), thus prompting the Executive Board to investigate the feasibility of completing the unfinished plant. Three teams of consultants (Bechtel Power Corp., R.W. Beck, and Goldschmidt Imeson) retained by the Executive Board to conduct the investigation unequivocally concluded completing the plant was neither economically nor politically feasible.

In the course of the study, however, there were unofficial expressions of interest in the third-party management or purchase of Columbia, which the Executive Board felt must be explored.

Executive Board Chairman John Cockburn then appointed an ad hoc committee consisting of several Executive Board members; J. V. Parrish, Chief Executive Officer of Energy Northwest; Steven Hickok, Deputy Administrator of BPA; Nicholas Reynolds of Winston & Strawn (a Washington D.C. law firm with wide nuclear regulatory and industry experience); Diana Goldschmidt of Goldschmidt Imeson; and John Carter also of Goldschmidt Imeson and a retired Vice President of Bechtel Corp.

After further research including extensive interviews, and after numerous discussions with energetic exchanges of diverse views, the Executive Board concluded there was unlikely to be a net benefit either in the third-party management or sale of Columbia, and that either option might

lead to increased economic risk to the region's ratepayers. Additionally, Energy Northwest's member utilities overwhelming opposed both alternatives.

Throughout the process, the Executive Board recognized the importance of clearly and decisively disposing of the two alternatives so staff would not face lingering uncertainly as to the future of Columbia and their jobs. As noted above, an important purpose of this report is to do just that.

In short, the Executive Board has determined neither to contract out management of, nor to sell or trade, Columbia. Compared with commonly accepted standards of performance – many of which are discussed in the following report – Columbia is an exceptionally well-run plant, and there is no reason to instigate a substantial change in either its management or mode of operation.

Under its current management and ownership, Columbia is a major asset to public power and the region's ratepayers, providing enough cost-effective, reliable power for half a million homes. It gives BPA financial flexibility through its historical bonding capability, and flexibility in operating the federal Columbia River hydro system because of its ability to increase or decrease its output according to water conditions. It adds diversity to the region's power supply, is currently the region's only large generating asset not dependent on weather conditions, does not adversely affect fish or other wildlife, and produces no carbon dioxide or other greenhouse effects.

As well run as Columbia is, however, the Executive Board agrees with BPA that it is imperative future plant costs and the cost of power be kept as low as possible without compromising safety or the long-term reliability of plant operations. To that end, the Executive Board expects the senior management team to continuously scrutinize Columbia's budget and operations to identify opportunities to reduce expenses and increase generation, including ensuring that Columbia does not subsidize other Energy Northwest ventures. Rather, Energy/Business Services activities should provide a net benefit to Columbia by sharing overhead expenses. The Executive Board will continue to monitor benchmarking and other data concerning the operation and management of Columbia, and will take appropriate action if trends turn negative.

Responding to BPA's current difficult financial situation, management has come to a determination that reducing fuel inventory and deferring replacement of condenser tubes during the current rate period will be acceptable risks, which reduce Columbia's cash requirements by $76 million. In addition, the current budget will absorb an unanticipated $4.5 million in expenses for security enhancements and the Independent Spent Fuel Storage Installation, through aggressive reductions in expenses and by capturing budget under-runs. Also in the near term, management has committed to conducting a benchmarking study to review staffing levels at Columbia. Finally, management has agreed to set future cost targets based on the results of a joint Energy Northwest/BPA study of top-performing nuclear facilities, the results of which are in the report.

In pursuit of the most efficient operation of Columbia, the Executive Board welcomes the completion of the cost-comparison report, which demonstrates a favorable cost of power in

comparison with the nation's most efficient single-unity nuclear plant operations. While this is a significant and reliable performance measurement, the board believes that the most efficient operation is a never-ending journey. Consequently, the Executive Board directed senior management to identify and evaluate more ways with potential for making Columbia an even more efficient operation in the future, and retained an independent nuclear industry consultant, Richard Kacich, to review their findings and make suggestions. Mr. Kacich is the Director of Special Projects at Northeast Utilities where, among other responsibilities, he is involved in the oversight of the various nuclear facilities in which Northeast has an ownership interest. As part of his review, the board asked him also to assess the reasonableness of the cost and other comparisons in this report. His observations and conclusions, which are attached, support the decision to continue the operation of Columbia in the hands of Energy Northwest and contain a number of suggestions for making future operations more efficient.

In closing, the Executive Board would like to express its appreciation – as a board and as individuals – to all those who assisted in this extensive examination. We have benefited from the process, and we believe the region's ratepayers and Energy Northwest will benefit from the results for years to come.

[Signatures]

Energy Northwest
EXECUTIVE BOARD
REPORT ON NUCLEAR PROGRAMS

Introduction

The purpose of this report is to discuss Energy Northwest's activities over the last 18 months with regard to conducting a prudency review of its nuclear programs. This report will highlight the following topics:

- WNP-1 Study Activities,
- Columbia Generating Station Study Activities
- Industry Benchmarking Activities, and
- Challenges for Future Performance.

Having reviewed the study and benchmarking information, conclusions will be drawn and a challenge for future performance will be outlined. Attached at the end of the report are a number of appendices containing detailed benchmarking summaries.

A little background information will help some better understand this report. In the 1970s Energy Northwest, then known as Washington Public Power Supply System, with the backing of the public power community, embarked upon an ambitious program of constructing five nuclear power plants. Three of those plants, WNP-1, WNP-2 (now Columbia Generating Station) and WNP-3 were funded by tax-exempt construction bonds with backing by BPA and the Federal Columbia River Power System (FCRPS). Columbia has been in commercial operation since 1984. WNP-1 and WNP-3 were terminated in 1994. Through complex contracting and billing arrangements the project participants transferred to BPA the project output in exchange for the cost of the projects – even if the projects were not completed. As owners of the project output, BPA has various authorities, rights and responsibilities including directing the output of the plant and guaranteeing payment of all costs, including debt service.

WNP-1 Study and Resulting Considerations

In March 2001, Congressmen Doc Hastings and George Nethercutt asked Energy Northwest to study the feasibility of completing WNP-1, a nuclear project terminated when it was approximately 65 percent complete. Power managers in the Northwest were scouring the nation to meet demand and it seemed at that critical time that every possibility had to be explored.

The Executive Board and senior management of Energy Northwest responded to this request by examining the following questions:

- Is completion of WNP-1 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 member utilities?
- Is such a decision by the Executive Board in the best overall interests of the Pacific Northwest?

Energy Northwest retained Bechtel Power Corporation in mid-2001 to prepare a detailed cost-to-complete study. Bechtel concluded it would cost approximately $2.3 to $3 billion and take 72 months to finish the plant.

R. W. Beck was then hired to verify Bechtel's methodology and to examine the economic feasibility of completing the plant, including financing costs, compared to competitive market alternatives. R. W. Beck's report, completed in October 2001, confirmed Bechtel's methodology and concluded that an additional $1.2 billion in financing expenses would be required to finish construction of WNP-1.

With these two studies in hand, Energy Northwest senior management prepared a supplemental report examining the impact of changing assumptions and variables. This report did not fundamentally alter the findings of the two consultants' reports: the total cost to complete WNP-1 would be approximately $4.2 billion, including financing expenses.

Goldschmidt Imeson Report

In December 2001, the Executive Board retained the firm of Goldschmidt Imeson to review the Bechtel and R.W. Beck reports; meet with industry, regional, and political leaders to discuss the most appropriate potential use of the site; and provide a final recommendation to the Executive Board on the future of WNP-1.

After an intensive investigation, Goldschmidt Imeson reported there was no interest in completing the plant, nor would it be either economically or politically feasible to complete the plant. Some parties did express interest in WNP-1 only if coupled with Columbia Generating Station. There was clear indication that WNP-1 would be considered a liability, not an asset, in such a transaction.

With regard to Columbia Generating Station, however, several parties did indicate an interest in an outright sale of the plant or a third party management contract.

Goldschmidt Imeson's report recommended that the Executive Board take those expressions of interest seriously and conduct a review to determine if a sale or management contract was in the best interest of the plant, BPA and the region.

Ad Hoc Planning Committee

Following Goldschmidt Imeson's report to the Executive Board, Executive Board Chairman John Cockburn formed an Ad Hoc Planning Committee to examine the long-term value of Columbia Generating Station to the region. In addition to four members of the Executive Board and Vic Parrish, Chief Executive Officer; Steve Hickok, Deputy Administrator for BPA; Nicholas Reynolds, Senior Partner for Winston & Strawn, a law firm with a wide nuclear regulatory and industry practice; Diana Goldschmidt, a principal of Goldschmidt Imenson; and John Carter, also of Goldschmidt Imeson and a retired Vice President of Bechtel Corporation. The committee agreed that whatever option appeared to be best, it must be acceptable to Bonneville, the public power community and political leaders.

The committee broke its study effort into four parts:

1. Develop a matrix of interests/values,
2. Develop a "most efficient operation" proposal,
3. Develop a request for preliminary expressions of interest to be sent to parties interested in a third party management contract and/or sale; and
4. Conduct a survey of single plant owners to determine how they operate and learn from others' experience with third party management contracts in place.

The charter of the committee was later revised to exclude seeking expressions of interest in third party management or sale of the station. Results of the committee's other work indicated that neither sale

nor third party management of the station would offer any significant benefit to the public power community and the ratepayers of the region.

With regard to the value of third party management, study results were inconclusive based on a report by Mr. Reynolds. Reynolds found that in two cases, involving low performing plants, bringing in Nuclear Management Company (NMC) resulted in improved plant performance. The insertion of NMC at the third plant, which had experienced a relatively good level of performance, did not appear to have resulted in improved performance. Reynolds also cautioned that any management company would not send their best people to Columbia.

Study results regarding operating practices of other single plant operators indicated that while all had been approached to sell their nuclear plants numerous times, each had declined for specific, but varied, business reasons. Many of them indicated that participation in cooperative arrangements, like Utilities Service Alliance (USA) or STAR Alliance offered some of the economies of scale that were available to multi-unit operations. The general opinion was that their nuclear assets were valuable and they had no compelling reason to consider selling.

Preliminary Conclusions

Based on the study reports highlighted above, several conclusions can be drawn:

- Completion of WNP-1 is not feasible, politically or economically.
- Columbia Generating Station is considered a desirable asset in the nuclear power industry.
- Single nuclear stations operate with some economic disadvantages compared to multi-plant operators.
- Third party management of the plant will not guarantee improved operation or lower costs for the ratepayers, and will increase long-term economic risk. From a practical matter such a decision is irreversible.
- Because of its role in BPA's generating portfolio, Columbia Generating Station offers value (e.g. load following flexibility) not quantifiable in comparison with the rest of the industry.

Industry Benchmarking

The nuclear power industry is one of the most closely regulated and examined in the world. A tremendous amount of data on the performance of nuclear plants is available; however, it is sometimes difficult to make accurate comparisons based on the many variables in plant design and modes of operation.

The following are highlights of Columbia Generating Station's performance in comparison with others in the industry, based on industry benchmarking data available through a number of sources, including Institute for Nuclear Plant Operations (INPO), World Association for Nuclear Operations (WANO), Electric Utility Cost Group (EUCG), and Federal Energy Regulatory Commission (FERC).

For complete discussions of these performance measures, along with graphs and charts appropriate to the data, see the Appendices attached at the end of this report.

- **Market Test**
  - Columbia Generating Station has passed an industry market test each fiscal year since its inception in 1999. (See Appendix A.)
- **Cost of Power**
  - Columbia Generating Station's cost of power compares favorably to other single-unit plants on both FERC and industry bases.

    - Columbia Generating Station's cost of power is nearly the lowest when compared to plants managed by Nuclear Management Co. – and the only INPO 1 plant in the group. (FERC, INPO – See Appendix B.)
- **Staffing**
    - It is difficult to benchmark staffing in the nuclear industry because of the way each plant counts people. A full discussion is included in the appendix. (EUCG, NEI – See Appendix C.)
- **Generating Flexibility**
    - Columbia Generating Station is the only nuclear plant in the nation that regularly changes its power profile because of market or environmental purposes. (NEI – See Appendix D.)
- **Generation**
    - Columbia Generating Station's overall generation is consistently increasing. The station's capability factor, unplanned capability loss factor and unplanned automatic scram factor are consistently improving. (WANO – See Appendix E.)
- **Radiation protection**
    - Columbia Generating Station's recorded radiation exposure is eighth best in the nation among boiling-water reactors and probably among the top five when comparing results from the just-ended fiscal year. (BWROG – See Appendix F.)
- **Environmental stewardship**
    - Columbia Generating Station was one of only seven nuclear plants in the nation to have no permitted radioactive liquid discharges in 1999. It has not had a radioactive liquid discharge since 1998. Most recently, there were only eight plants in the nation with no liquid discharge. (INPO – See Appendix G.)
- **Energy/Business Services**
    - Energy/Business Services group has not had a negative impact on Columbia. Each project receives a full allocation of overhead costs based on audited accounting practices. A preliminary report by Energy Northwest and BPA has indicated a net benefit of $7.5 million to Columbia over the past 5 years. (See Appendix H.)

Benchmarking Conclusions

Based on the industry benchmarks discussed above, the following conclusions can be drawn:

- Columbia Generating Station is recognized as a high performer in the industry. The plant is currently rated by INPO as an excellent performer, with a ranking of 1. Out of the 103 plants in the nation, only 26 are ranked 1.
- Energy Northwest operates the station with a focus on safety, reliability, and long-term value to the region.
- Energy Northwest takes its commitment to the public power community and the region seriously, and operates and maintains its assets in line with that commitment.
- Future cost targets will be based on results of a joint Energy Northwest/BPA study of top performing plants using EUCG data for outage and non-outage years. This will be the target for evaluating Columbia for efficient operation.

Overall Conclusions on Performance

Energy Northwest and its Executive Board have functioned as responsible stewards of its nuclear assets, as evidenced by the extensive prudency review and intensive studies conducted over the last 18 months. While Columbia Generating Station has opportunities for improvement in several areas of its operation, industry peers and oversight authorities recognize the station as a high performer. Since the comprehensive regional review initiated by BPA in the late 1990s, significant improvements have been

made in the operation of the plant. With this increasing performance, ability to load follow when the region has excess hydro power and commitment to excellence, we believe Energy Northwest operates and maintains the station for the best interest of the ratepayers of the region.

Third party management companies cannot guarantee better operations of the station, nor can they guarantee lower cost of power. Nor would selling the plant outright to a multi-plant operator guarantee either of those results. Consideration should be given to Energy Northwest's commitment to its mission of providing power at the lowest reasonable cost, while maintaining its assets safely and reliably for the long-term. The alternatives of third party management or sale of the plant should no longer be pursued.

Challenge for Future Performance

The Executive Board fully expects Energy Northwest to continue to operate Columbia Generating Station with a commitment to meeting the following objectives:

1. The plant is operated with the safety of the public, employees and the station as the paramount goal.
2. The plant is operated and maintained reliably, for the long term.
3. The cost of power will be closely scrutinized with a focus on identifying opportunities for cost reductions and increasing generation.

It is imperative that Columbia Generating Station's cost of power is maintained at the lowest possible level. Keeping in mind the above objectives, Energy Northwest will continuously scrutinize Columbia Generating Station's operating costs, with a focus on identifying opportunities for cost reduction. Staff and the Executive Board will continue to review benchmark data concerning the operation and management of the station and take appropriate actions if the trends turn negative.

BPA, due to their deteriorating financial condition, has requested Energy Northwest to review the current budget and long range forecast to find ways to reduce cost and cash requirements in BPA's current rate period. On August 15, 2002, CEO Vic Parrish sent a letter to BPA committing to cash deferrals of $76 million by accepting some increased financial and reliability risk. Columbia will reduce fuel inventory and defer condenser tube replacement to a time outside the current rate case.

The current budget has been reviewed to determine is reductions can be made while maintaining the long-term goals and objectives of the station. In review of the current year budget new challenges of over $5 million were identified for security enhancements and Independent Spent Fuel Storage Installation. Through aggressive reductions in expenses and by capturing budget under runs these increased costs will be absorbed in the currently approved FY03 Columbia budget.

Still challenged to find the most efficient operation of Columbia, management reviewed the future major costs in the forecast and a benchmarking study performed by a joint Energy Northwest/BPA team. Also considered were the current year budget challenges, the impact of labor costs considering our aging workforce and the high cost labor market in this area while still focusing on the objective of long-term safe and reliable operation of the plant. The conclusion reached at this time is that an additional $15 million can be removed from the forecast of future costs through FY06. It must be recognized that each year these estimates will be reviewed based on another year of operation and industry data, and can also change due to unforeseen plant conditions or regulatory requirements.

The table below shows the current forecast, adjustments and the resulting forecast.

Adjusted Long Range Forecast – Columbia Generating Station

$ in millions

	FY03*	FY04	FY05	FY06
Operations & Maint.	$130.6	$135.8	$141.2	$146.9
Outage and Major Maint.	50.2	7.1	56.8	4.0
Capital	17.6	10.2	52.8	9.0
Subtotal	198.4	153.1	250.8	159.9
Fuel	35.4	41.3	40.6	45.3
Total Costs**	233.8	194.4	291.4	205.2
Adjustments				
Condenser Tubes			-35.0	
Further Reduction		-5.0	-5.0	-5.0
Fuel Burnup Changes				
Adjusted Total	$233.8	$189.4	$251.4	$200.2
Generation (gigawatt hours)				
Plan	8574	9605	8240	9679
New projection	8574	9637	8347	9610
Cost-of-Power ($ per MWH)				
Plan	27.3	20.2	35.4	21.2
Adjusted	27.3	20.0	30.0	20.7

*current budget year

**excludes interest expense and decommissioning contributions

Energy Northwest is also working closely with BPA in the debt management area to accomplish cost effective refinancing, debt optimization (extending the net billed project's debt and redeeming federal debt), additional variable rate debt issuance and financing capital projects. In 2002 $707 million of bonds were issued for debt optimization and $35 million for current capital. The current capital was financed with taxable short-term notes. On April 25, 2002, the Executive Board passed a resolution allowing Energy Northwest to request a private IRS ruling for issuance of up to $191 million in tax-exempt bonds for capital projects. If IRS approval is obtained, the $35 million taxable financing will be replaced by issuing tax-exempt bonds. A balance of $156 million would remain for future capital projects.

Another opportunity to reduce the cost-of-power is by increasing generation. Initiatives are underway to reduce power losses and shorten both planned and forced outage lengths. Increased generation will reduce the cost-of-power. Changes in projected generation will be incorporated into future planning cycles.

Energy Northwest will maintain its commitment to serving the public power community and the region by not only operating Columbia Generating Station safely and cost effective, but also by investing in its diversification efforts. Through its Energy/Business Services Group, Energy Northwest currently operates several other electricity generating facilities, including hydro, wind, and solar. The organization also is offering its operations & maintenance expertise to operators of power generating facilities, as well as providing a number of other professional services to meet the needs of its member utilities and customers.

Appendices

Appendix A	**Market Test**
Appendix B	**Cost of Power**
Appendix C	**Staffing**
Appendix D	**Generating Flexibility**
Appendix E	**Generation**
Appendix F	**Radiation Exposure**
Appendix G	**Environmental Stewardship – Liquid Discharges**
Appendix H	**Energy/Business Services**
Appendix I	**Independent Consultant's Report**

Appendix A
Market test

In 1998, a regional cost review made several suggestions for the operation of Columbia Generating Station. Most significantly, the review suggested that the Northwest's only nuclear power station prove itself on a market basis. As BPA and Energy Northwest eventually constructed the test, the plant's power would be given a value based upon daily, weighted-average prices at West Coast trading centers. A reasonable amount would be deducted for transmission losses and the cost of transmission.

In every fiscal year since the challenge was made, Columbia Generating Station has proved itself a viable market asset.

Since 1999, the total difference between the cost of operating Columbia and the replacement value of its generation is over $1.526 billion. During the volatile electrical market in 2001 the power worth exceeded cost by a factor of eight due to high market prices and reliability of the station.

Columbia Generating Station

Fiscal Year	Production Cost*	Power Worth
1999	$158,000,000	$174,000,000
2000	175,600,000	265,650,000
2001	199,500,000	1,597,246,000
2002	196,000,000	218,098.000
Total	**$729,100,000**	**$2,255,661,000**

*Does not include interest and decommissioning costs. Interest cost ranged from $132 million to $110 million during the four-year period. Decommission contributions for the same time period range from $5 million to $6 million.

Appendix B
Cost of power

There are a variety of ways of comparing plant efficiency. The most common measurement of cost is cost of power. This measurement is the industry standard by which plants of varying sizes use to compare the cost of the output and is a primary tool for cost benchmarking. Measurement is generally in dollars per MWH (megawatt-hour). At Energy Northwest, two sources for measuring cost of power are used – the Federal Energy Regulatory Commission (FERC) basis and an industry group basis, the Electric Utility Cost Group (EUCG).

Cost of Power – FERC

Each utility is required to report plant production costs to the FERC each year in a standard format. Although FERC requirement and data format have been with the industry for a long time, the data can be misleading. FERC data does not include costs of capital or any administration and general costs. Some sites don't report all of the direct cost as requested. An example of direct costs may be excluded are the direct support services performed at locations other than the plant site. This often happens when services such as design engineering, fuel procurement, licensing and others activities are centralized for multi-site utilities.

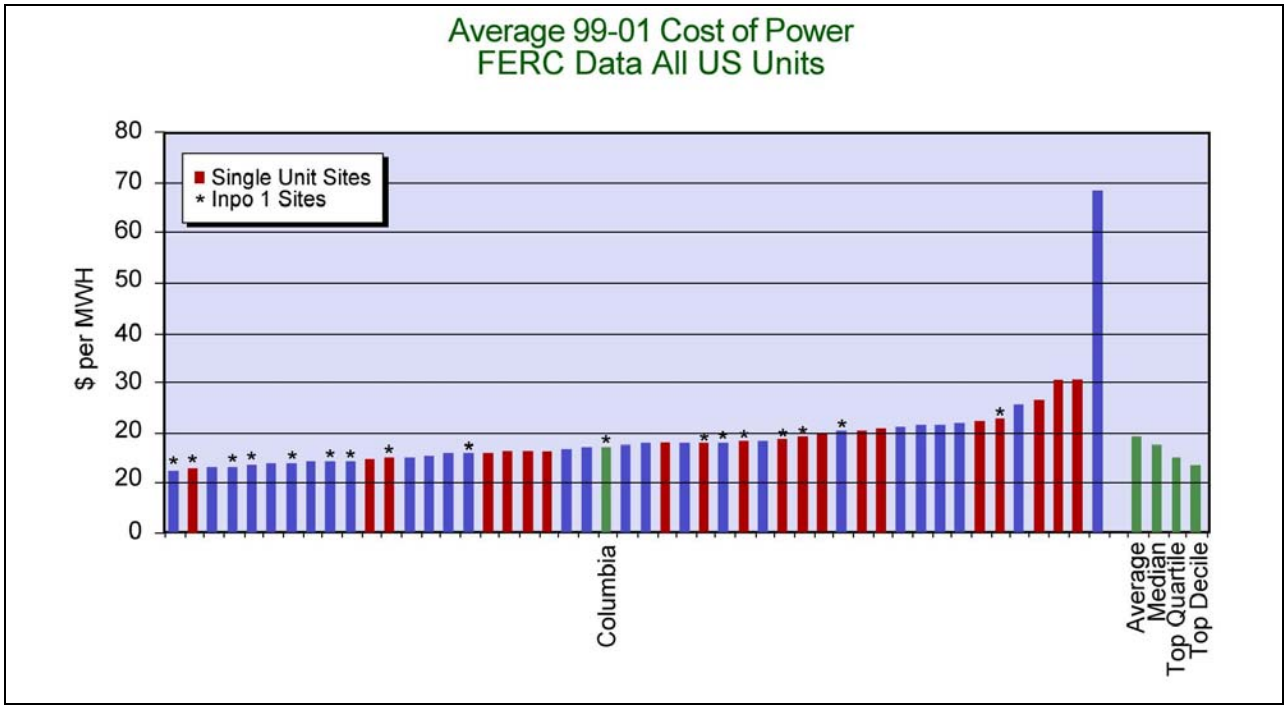
There are other provisos that must be kept in mind when viewing such data. For example, different plants have different refueling schedules, creating broad swings in their individual cost reports. To dampen such oscillations, we have used a multi-year average for comparison purposes. Yet over a multi-year period, Columbia Generating Station undoubtedly went through more fuel-related scheduled outages than other plants because the plant was on a 12-month refueling cycle through 1999. Most plants are on an 18-month refueling cycle.

Perhaps the single-most important factor affecting cost-related efficiencies is the number of plants at a single site. FERC costs are not reported by plant but by site. Plants at multiple unit sites are reported as a single plant. This is significant because many activities and functions can be performed only once or can have significant efficiencies through sharing of resources. A good example is outage costs. A single outage crew can be cycled through several plants at a single site, saving money and – because of heightened skills – down time for the units. Some multi-site operators have achieved similar – but lesser – savings because they are reasonably close to each other. (Columbia Generating Station is at least 1,500 miles from the nearest nuclear plant.) It is no coincidence that invariably the least expensive power based on FERC data comes from multi-unit utilities.

Another factor affecting "snapshot" examinations of a nuclear plant's cost of power is the management focus at any given time. Although safety always is the most important goal, spending on the range of options open to plant managers varies according to outside market and funding factors. For example, beginning in the mid-1990s, cost containment was the primary focus of Energy Northwest management. However, beginning two years ago as the effects of the West Coast energy crisis became apparent, the region urged Energy Northwest management to focus on reliability. Spending levels were higher for the latter than the former.

The condition and owner expectations of power plants also influence spending levels. For example, a poorly operating plant may require a great deal of investment if it is to improve. Or, a plant for which great reliability is demanded will require higher investment than one with less such demand.

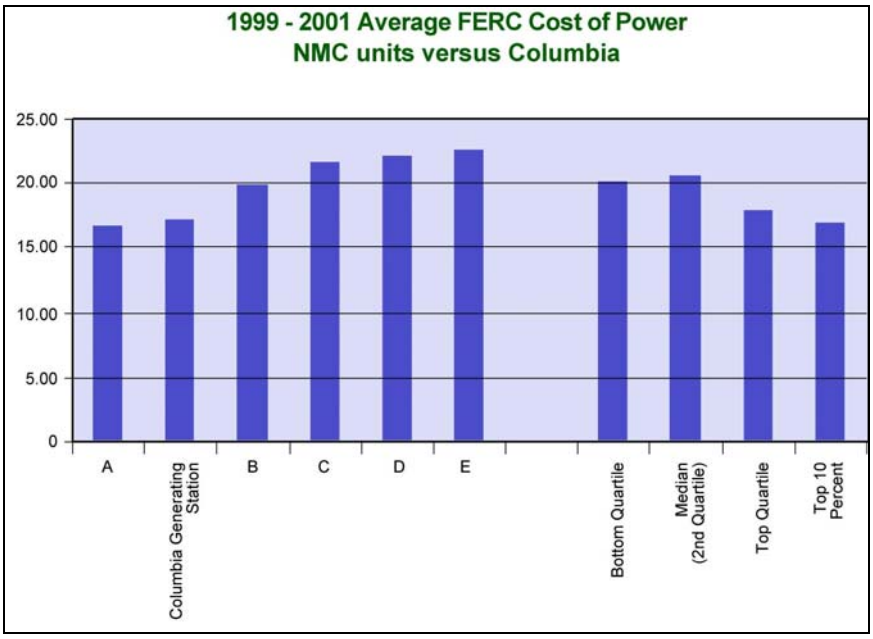
Yet with those caveats, FERC cost-of-power numbers represent the best publicly available information. The chart below shows 48 reporting sites with the FERC cost of power shown. Also depicted are the INPO 1 rated plants and those which are single units.



This chart shows the cost of power from individual plants in the U.S. commercial reactor fleet. Columbia Generating Station is near the median in a compilation of FERC costs from 1999 through 2001. Most of those plants with operating costs lower than Columbia are multi-unit stations. Columbia is one of only six single-unit, INPO-1 plants. In the 23 position on this chart, Columbia has the second most-inexpensive power of all single-unit, INPO-1 plants. The cheapest, single-unit, INPO-1 plant is in the 12th position on this chart. (Source: FERC, INPO)

The recent Goldschmidt Imeson report suggested one option open to Columbia Generating Station might be to turn the plant over to a company specializing in managing nuclear power station. The only such company in the United States is Nuclear Management Company.

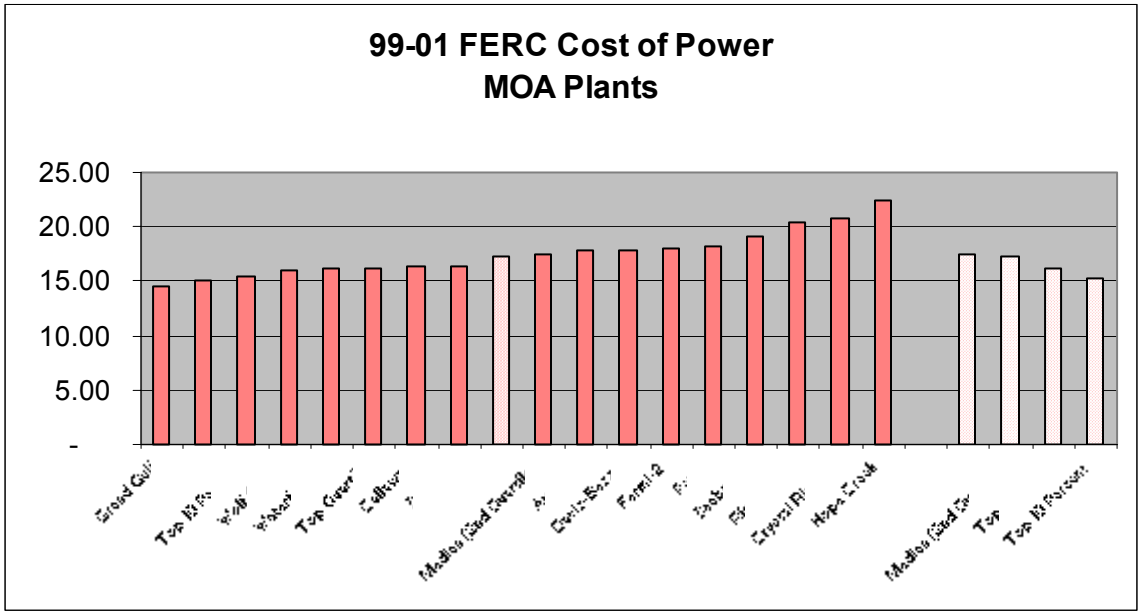
Here is a comparison of costs of NMC-managed plants and Columbia Generating Station. It is interesting to note that Columbia Generating Station is rated INPO 1, unlike any of the NMC-managed plants.



This graph shows the FERC cost of power for plants operated by Nuclear Management Co., plus Columbia Generating Station. Not all of the plants currently operated by NMC are listed here, because they had not been under management by NMC or its predecessors for the entire four-year period. (Source: FERC)

BPA and Energy Northwest have identified a group of well-operated, single-unit plants to use as a benchmarking basis for Columbia Generating Station. These stations are known as the memorandum of agreement (MOA) plants.

The graph below shows cost of power for the MOA plants. Columbia Generating Station is at the mean level.



This graph shows the four-year average cost of power for MOA plants selected for comparison by BPA and Energy Northwest. (Source: FERC)

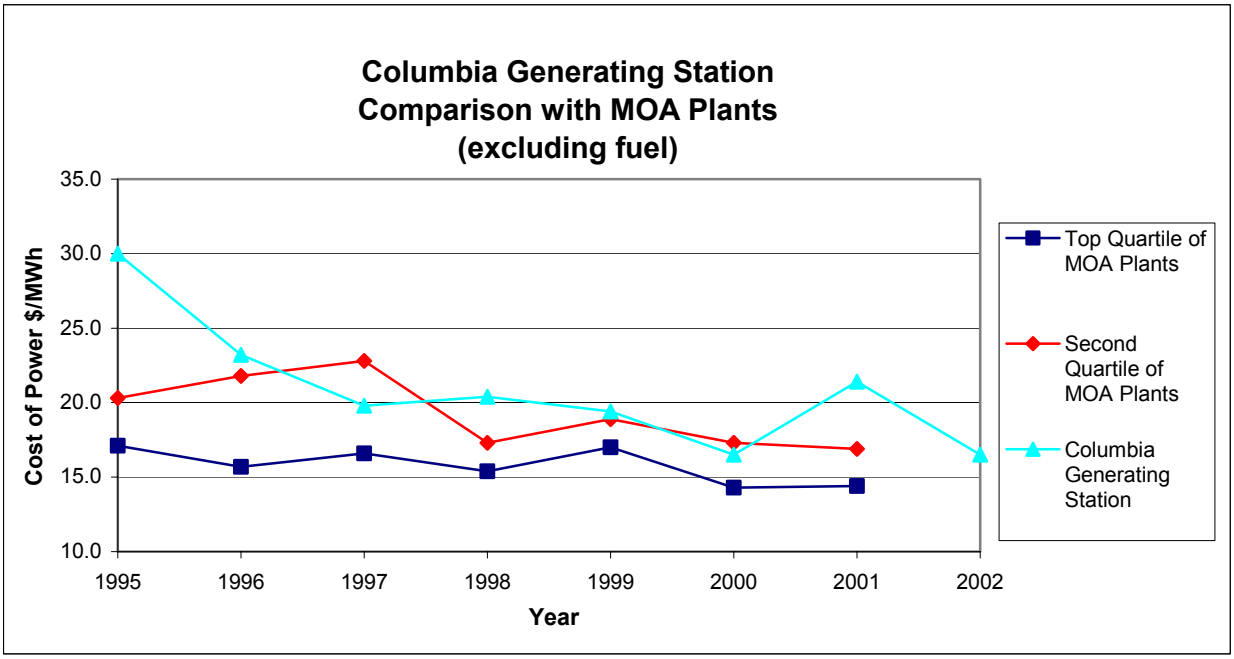
Cost of power – EUCG (Industry Group)

The Electric Utility Cost Group (EUCG) Nuclear Committee, an industry group, collects cost and staffing data submitted voluntarily but confidentially. Such information can provide another vantage from which to examine Columbia Generating Station's performance. This data is more inclusive than FERC data. Included in the database are operation and maintenance, fuel, administrative and general as well as current capital costs.

In a report completed in July 2002, an Energy Northwest-BPA team compiled EUCG data to examine past costs at Columbia in relationship with those of other plants. The report also provided expected projections of future costs and could be used as a foundation to use in setting future cost goals.

The cost of power in the report is the total of direct costs, indirect costs, and capital divided by net generation. Fuel costs were excluded because of the differences in procurement practices between sites. These differences result in wide variations in fuel costs. The accounting practices for classification of direct costs, indirect costs, and capital also differ with each site, so the study focuses on the total costs and not the individual constituents.

Individual utilities have varying fiscal years. Energy Northwest's fiscal year ended on June 30, 2002. Comparison plant data for 2002 will be available in Spring 2003.

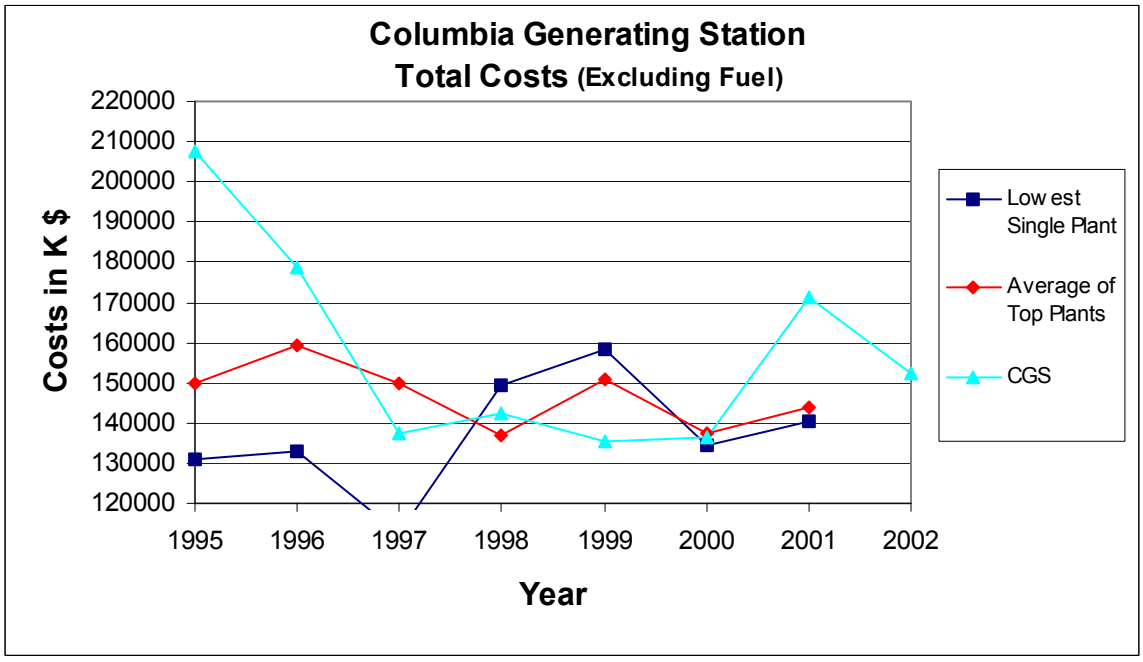


This graph shows power costs of the MOA plants for the last seven years using Electrical Utility Cost Group figures. The data indicate that Columbia's costs for three of the seven years (1995-2001) are within the top 50 percent. In 1997, Columbia was in the top quartile. (Source: EUCG)

The study also compared Columbia Generating Station with selected plants that were members of the EUCG group, identified as best single-unit performers. Eliminated were plants with either high costs, a combination of alternating low costs and high cost years, or costs that were indeterminable based on missing or suspect information.

The plants with alternating low and high production costs were those that apparently reduced costs drastically for a short time at the expense of reliability and then later had very high costs when a significant amount of money was reinvested to improve reliability. The plants in the "best plant" category were those that appeared to have the right formula for plant equipment reinvestment that allowed for low consistent operating cost and high plant reliability (measured by high generation).

Five single unit plants were selected to be the best overall for low production costs over the last seven years. Three of those five plants are part of multi-plant fleets. Columbia was compared to these plants to determine how the station ranked among the best.



This chart shows total costs, excluding fuel, of selected plants of the EUCG and Columbia Generating Station. Columbia has consistently been very close or below the average total cost for the top five single unit plants for four of the last five years (1995-2001). Top five plant annual averages for five years ranged between $146.4 million and $179.1 million, with overall average of $163.1 million. Columbia's annual average for 8 years is $171.3 million. (Source: EUCG)

The group of plants shown in the chart above are the focus plant to be used in future benchmarking efforts.

Columbia Generating Station

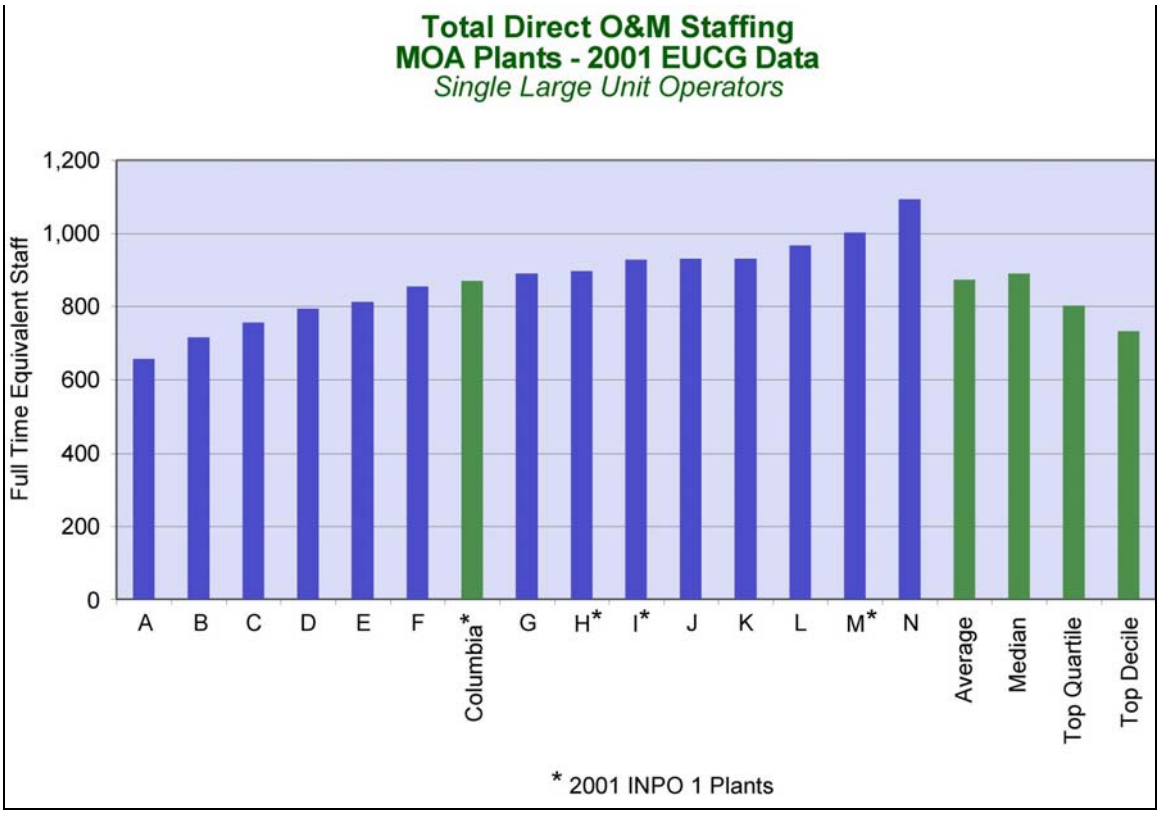
Cost of Power by fiscal year *
Projected through FY2006
($/MWh)

Fiscal Year	Cost of power
1995	34.9
1996	26.9
1997	23.9
1998	23.0
1999	23.8
2000	21.4
2001	26.1
2002	20.6
2003	27.3
2004	20.2
2005	30.8
2006	21.2

* Memorandum of Agreement basis using nominal dollars. Note: FY04 through FY06 include a 4 percent escalation rate. Condenser retubing is not included in any year.

Appendix C
Staffing

The EUCG database also includes staffing data. The best possible comparison of Columbia and other plants is with a group of single-unit stations. The chart below illustrates such data.



This graph shows the 2001 direct operations and maintenance staffing levels for MOA plants selected for comparison by BPA and Energy Northwest. Columbia Generating Station ranks 7th lowest of the 15 plants in the comparison. (Source: EUCG data on MOA)

The industry data has some flaws because of the way each plant counts people. The database is to include all employees and full-time contractors, but some sites do not count direct support functions not on site. A known example at one plant is where fuel design and procurement is performed at a consolidated location for multiple plants. These employees do not show as directs. Most plants report this function as direct.

In the Goldschmidt Imeson report reference is made that staffing at Columbia is higher than most other plants. ("There is a perception from our interviews that Columbia Generating Station is overstaffed somewhere between 100 to 200 employees." Page 53). This comment was based on interviews and not a detailed study.

Columbia is at a disadvantage when comparing total staffing numbers to other plants. The primary reason is Columbia, as a single unit plant, supports over 90 percent of the corporate infrastructure. In addition, Columbia is 1,500 miles from the nearest other nuclear plant, making some sharing of resources virtually impossible or too expensive.

As a single unit plant, Columbia cannot avail itself to common functions that dual and multi-unit plants are able to share. The efficiencies at those other plants are numerous, with many common functions and activities shared between the units. Energy Northwest is trying to reduce this negative impact. Columbia is currently a member of the Utilities Service Alliance (USA), where member plants can share costs for things such as spare parts, security investigations, etc. A two-year effort to form a service company with Omaha Public Power District was not successful.

Many of the staffing reports issued include total staffing which includes directs and the allocated indirect staff. The table below shows staffing in that manner. The data is actual fiscal year to date for the months of July and August.

Business Unit	Direct	Allocated	Contractors	Total
Columbia Generating Station	767	323	47	1137
Business Development	51	13	1	65
Other Business Units	34	12		46
Indirect	348	(348)		----
Total	**1200**		**48**	**1248**

The contractor numbers above include only equivalent full time contractors on long-term jobs.

The nuclear industry as a whole is aging. The average age of Energy Northwest personnel is 47.6, with an average length of service of 13.5 years. Human Resources projections indicate 145 individuals are eligible for retirement over the next five years; fifty of that 145 will be eligible to retire by August 2003. With this realization, some departments (e.g. Engineering) have implemented the practice of hiring replacements well in advance of some pending retirements, in order to ensure an individual's expertise and knowledge is not lost with the retirement. This practice is not a formal program, so the numbers are not easily quantifiable.

To better understand Columbia Generating Station staffing levels, a benchmarking study will be performed this fiscal year by Energy Northwest and BPA.

Appendix D
Generating flexibility

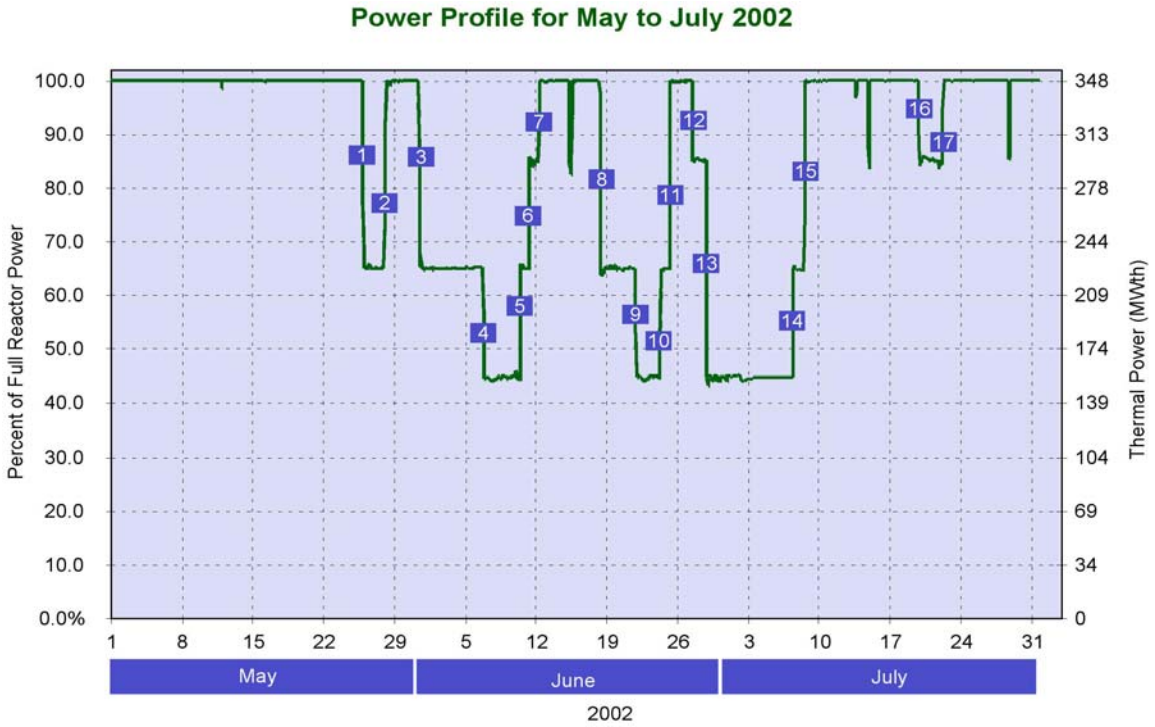
Columbia Generating Station is the only plant in the 103-unit U.S. nuclear fleet to regularly change power levels because of market conditions, weather conditions or river conditions.

This so-called "load following" is done at the direction of BPA, and it alone can describe the many variables that go into decisions to seek a power change at Columbia. However, here are a few basic themes:

- A surplus of power in the Northwest.
- Voltage support for the region and the interties.
- Market prices.
- Gas saturation levels below dams and other fish mitigation issues.

In May, June and July of 2002 alone, Columbia Generating Station operators made 17 power manipulations at the request of BPA. Power levels ranged from 100 percent to 45 percent. During the same period, there were no other plants in the nation making such power changes for market or environmental reasons.

In addition, BPA has repeatedly said Columbia Generating Station is essential for the Federal Columbia River Power System to meet spring and early summer biological opinion operating requirements.



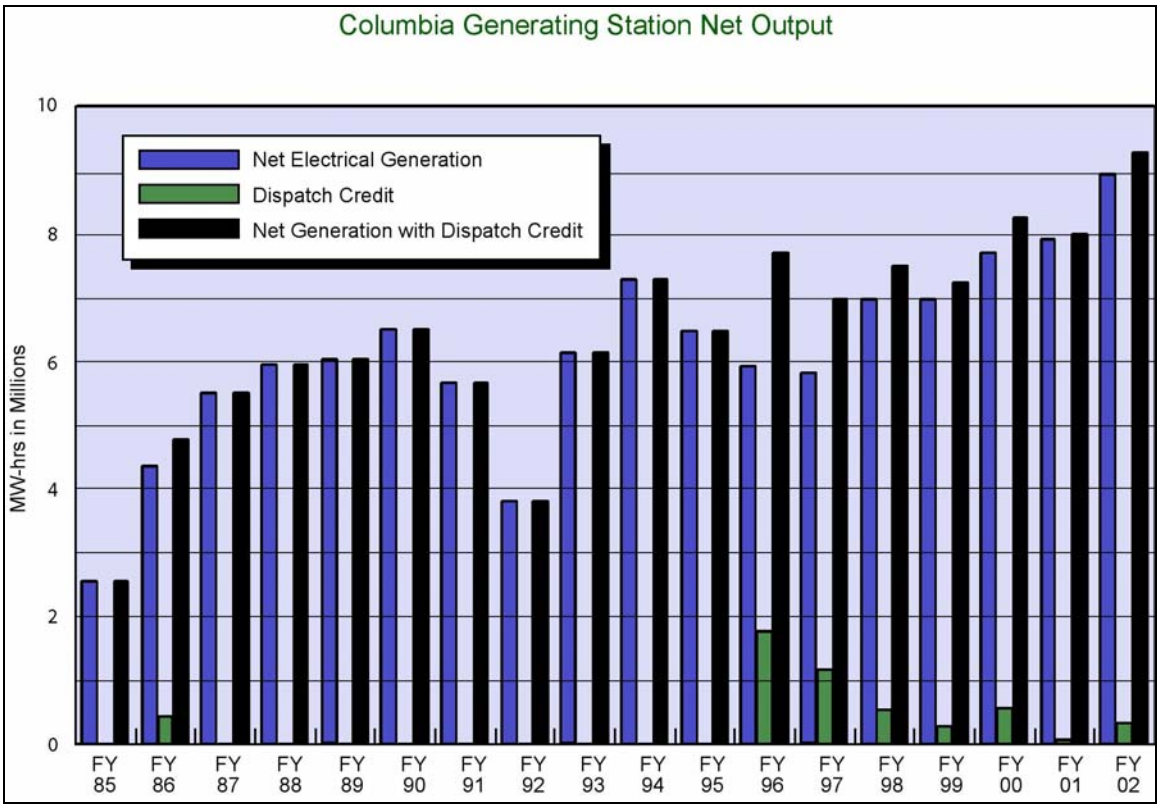
This graph shows power level changes at Columbia Generating Station in May, June and July of 2002. Other short spikes shown on the graph represent regularly scheduled brief downpowers for maintenance purposes. (Source: Energy Northwest System Engineering)

Appendix E
Generation

Generation is one of the key elements in keeping cost of power as low as possible. Regardless of how well management contains costs, long refueling outages and forced outages will drive up unit costs.

Columbia Generating Station's traditional 12-month refueling cycle consistently made the plant's output some of the most expensive in the nation. In addition, the plant was plagued by forced outages and long refueling outages. As the plant became more reliable and moved into a 24-month schedule, the price of the station's power began to descend.

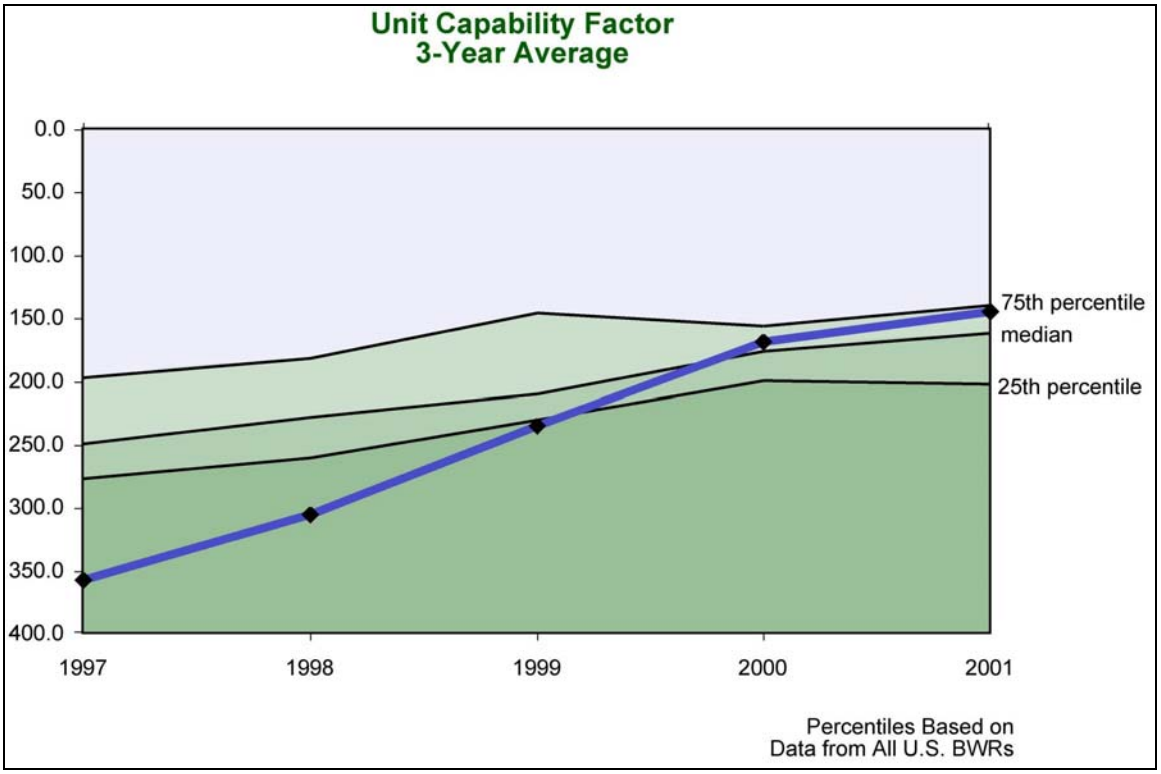
The following chart shows a year-by-year tally showing generation. "Dispatch credit" is a device to credit Columbia Generating Station for time when no electricity was produced because of conditions – generally market forces – outside the control of plant management. For example, Columbia Generating Station operators changed power levels 17 times in the spring and summer of 2002 at the request of BPA.



This chart shows a dramatic increase in output of Columbia Generating Station, with the most recent fiscal year setting a record of about 9 million megawatt-hours. (Source: Energy Northwest System Engineering)

Unit capability factor indicates the percentage of total possible generation the plant was capable of producing. This is in comparison to the capacity factor, which indicates the percentage of maximum generation the plant actually produced. Because of the Northwest's unique generation system that relies so heavily on hydropower, Columbia Generating Station often is asked not to produce power when it is capable of doing so. Therefore, the capability factor is a more telling measurement instrument of plant

generation success than is a capacity factor. The following chart shows the capability factor based upon reports from all U.S. boiling-water reactors (BWRs).



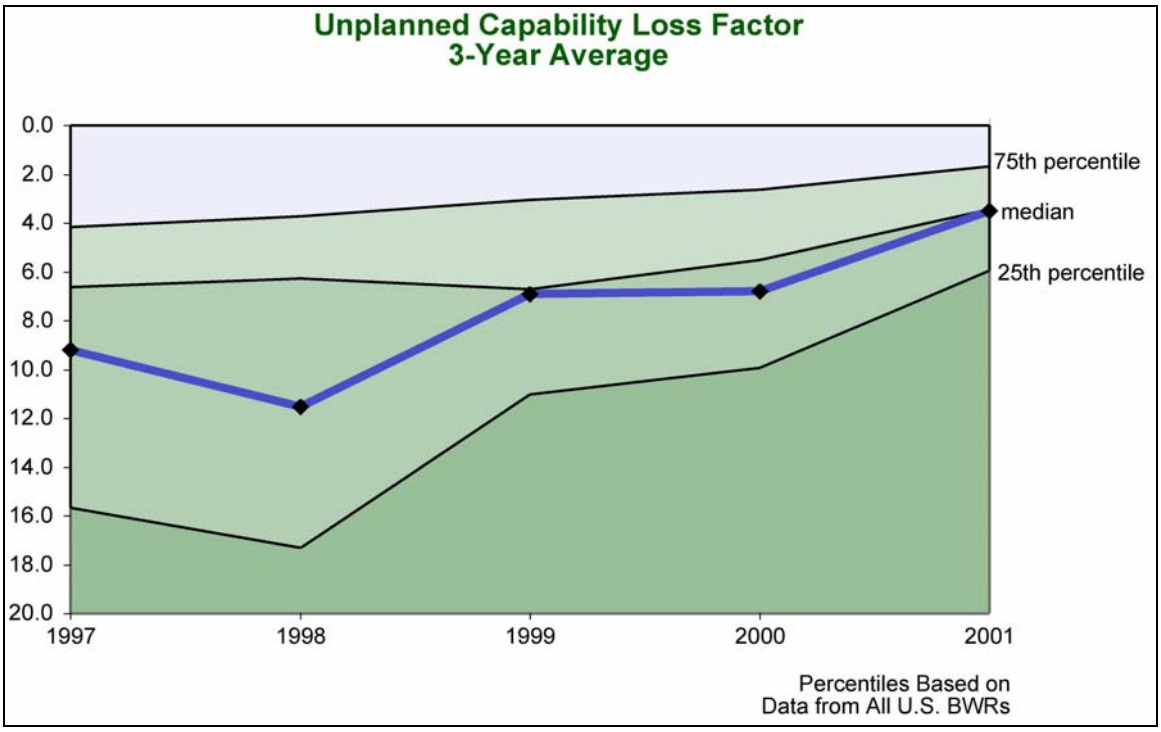
This chart shows a steady increase in the capability factor of Columbia Generating Station (indicated by the blue line) when compared to other boiling-water reactors. Not counting the most-recent, highly successful generating campaign during the 2001-2002 fiscal year, but including previous years of substantial outages, this chart puts us at about the median among other BWRs. Source: WANO

Capability loss can be unplanned – such as in forced outages – or planned, for example scheduled refueling outages.

The length and number of scheduled outages are deliberately determined by managers, and often are designed to ensure more reliable operation in the future.

Unplanned loss of capability – forced outages – can reflect a lack of planning or maintenance for the plant.

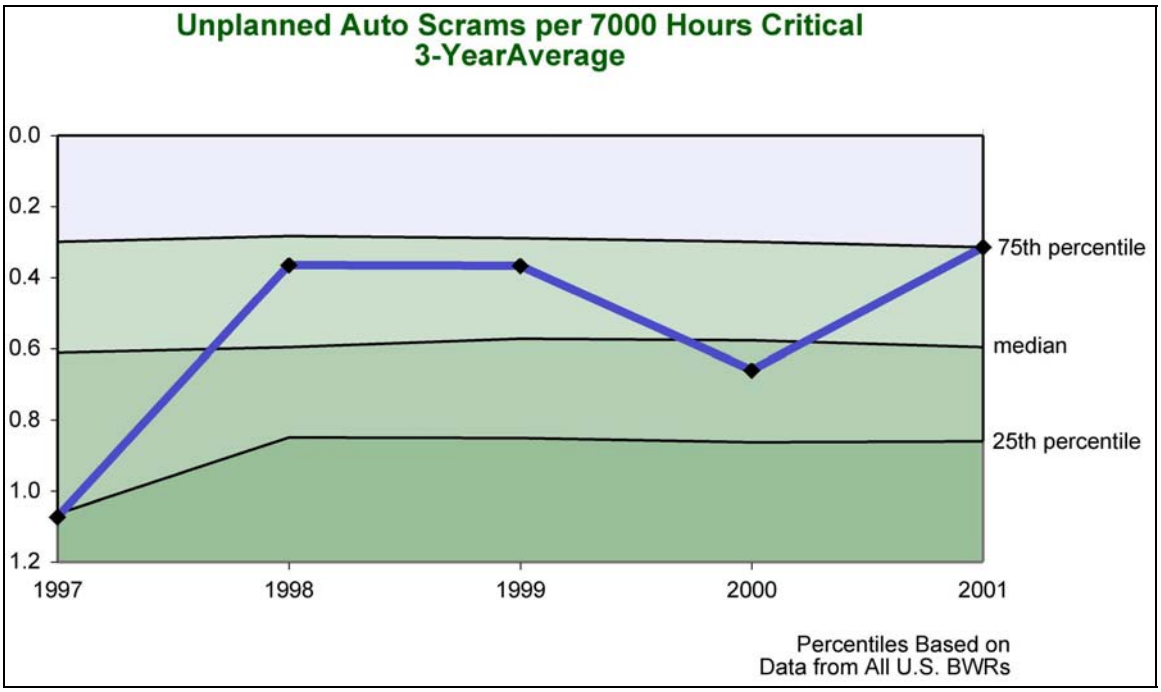
The following chart shows the unplanned capability loss factor of Columbia Generating Station as compared to other BWRs in the nation.



This chart shows Columbia Generating Station currently at the median of United States BWRs for unplanned capability losses and an improving trend for the plant over the past four years. (Source: WANO)

Of all unplanned capability losses, the most telling are automatic scrams, in which monitors inside the plant detect something out of the ordinary and shut down the station. Not only are unplanned scrams difficult for operators and equipment of a plant, they also present problems for customers, who are faced with a sudden shortage of power. Most significant, however, is the nature of scrams; they often represent a failure of operators to maintain and predict the condition of the station.

The following graph shows Columbia Generating Station's automatic scram rate as compared to other BWRs in the nation.



This chart illustrates that Columbia Generating Station has now reached the top quartile of U.S. boiling-water reactors. (Source: WANO)

Appendix F
Radiation Protection

Radiation exposure is an important measure of the success of Columbia Generating Station for several reasons:

- Radiation safety is one of three NRC reactor oversight performance areas, and occupational radiation safety is one of seven safety cornerstones in the oversight process. The cornerstone monitors the effectiveness of our plant's program to control and minimize dose.
- Low exposure and a low number of radiologically contaminated areas are indicators of a clean plant, one in which tasks can be completed quickly without donning protective clothing, thus saving time and material while improving worker efficiency.
- A well-run plant is one in which every aspect is inspected, tracked and improved upon. Low dose is a key indicator of a well-run commercial nuclear power station.

In 1992, Columbia Generating Station was one of the highest-dose plants in the nation. While the station was well within national standards and its own administrative standards, its collective radiation exposure was high. Collective exposure has dropped dramatically in recent years.

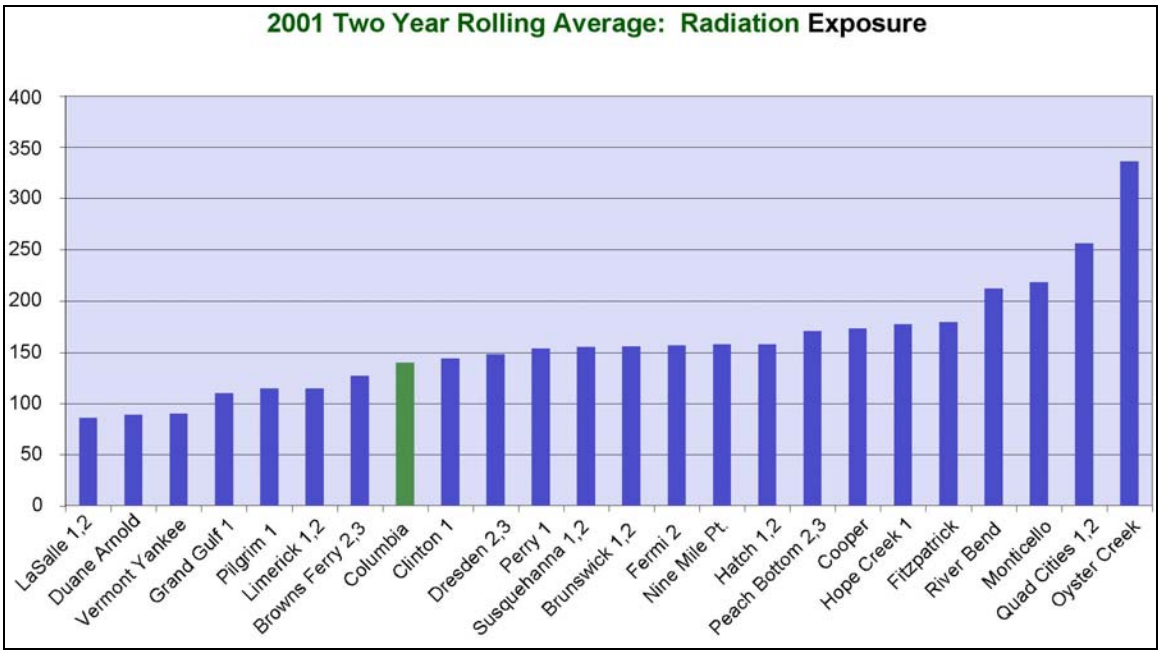
Our cumulative tally for fiscal year 2002 was 38.6 rem. Although statistics from other plants for that period have yet to be compiled, we believe – based upon recent previous totals – that Columbia Generating Station's results probably rank the plant among the top five boiling-water reactors.

Dose rates are significantly higher during outage years. Columbia Generating Station had annual refueling outages until 2000, when it began a shift to a 24-month cycle. By that time, almost every other plant had switched to either an 18- or 24-month fuel cycle.

Therefore, the overall dose at Columbia Generating Station has improved because:

- The plant is running well with fewer equipment challenges in radiologically significant areas.
- The plant is cleaner, meaning fewer sources of contamination and reduced dose rates.
- Worker practices have emphasized dose reduction.
- Improved worker efficiency has resulted in less time being spent on radiologically significant jobs and, therefore, reduced dose.
- With fewer refueling outages, there is less need to perform some higher dose rate jobs.
- There is an improved radiological safety culture fostered by all workers.

In the future, we expect to remain at roughly the current level of exposure. Theoretically, we could build and operate a plant with zero human radiation exposure. However, to do so would be prohibitively expensive. Those plants with lower dose rates than those at Columbia have achieved those successes because of substantial capital investments in the past. At Columbia, we believe we have reached the point of diminishing returns.



This chart shows the most recent two-year rolling averages from boiling-water reactors. Because of the cyclical nature of dose rates because of the outage schedule, the best benchmarking instrument is one that compares two-year averages. Source: Boiling Water Reactor Owners Group.

Appendix G
Environmental Stewardship – liquid discharges

On September 19, 2002, Columbia Generating Station will have discharged no radioactive effluent into the Columbia River for four years.

Liquids entering Columbia Generating Station systems may become contaminated with low-level radioactivity. In the past, excess water was processed through demineralizers to minimize radioactivity before the water was discharged to the river.

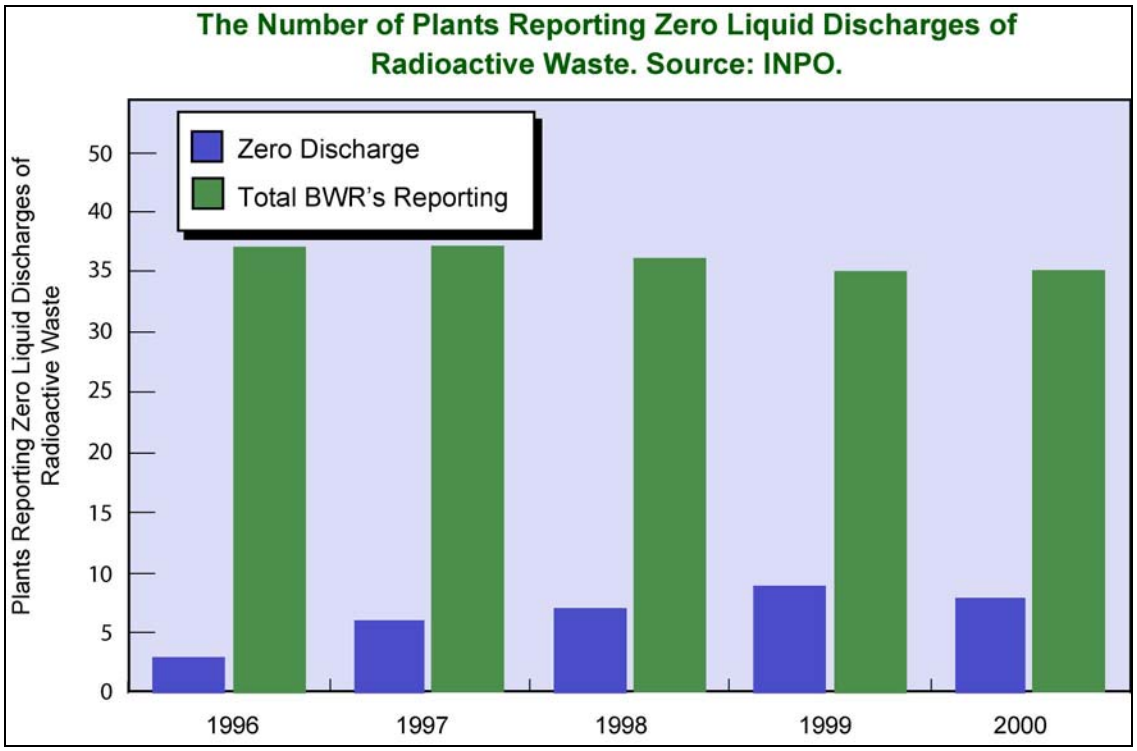
Energy Northwest has a permit from the Washington State Department of Ecology that allows the plant to discharge tiny quantities of radioactivity to the Columbia River.

In 1993, for example, Plant 2 discharged more than 3,000,000 gallons of water containing low-level radioactivity to the river, well within regulatory limits. In 1998, contaminated water discharges had been reduced to 717,000 gallons.

Over the years, plant discharges have been calculated to contribute about 1/100th of a millirem to the public's radiation dose from the Columbia River. Such low numbers can be only calculated, not measured in the field. By comparison, background exposure rates in the nation's capital are up to 3 millirem an hour.

But today, that number at Columbia Generating Station is zero. In essence, no contaminated water goes back to the river.

Does this reduce the cost of power? Probably not. But it also does not cost any more and it is one measure of our standards of stewardship.



This graph shows the number of plants reporting zero liquid discharges of radioactive waste. Source: INPO.

Appendix H
Energy/Business Services

The Resource Development group, now called the Energy/Business Services group, was created in 1996. At that time the performance of Columbia Generating Station had greatly improved and this progress was being sustained. It was time to share the strengths of the Energy Northwest team with its members and the region.

A Business Development Fund was created to establish financial tracking and a method to carry cash reserves from year to year. The sources of cash are net revenue from successful business units and the incentive fee earned from operation of the net billed projects.

The group exists to:

- Meet the energy/business needs of our members and the region;
- To provide career opportunities for our employees which will support employee retention and attraction; and
- To decrease the cost of Columbia by paying a portion of corporate overhead and providing cost avoidance opportunities for Columbia.

Revenues from this group have grown from $3.7 million in fiscal year 1999 to $16.3 million in fiscal year 2002. BPA has estimated the benefit from the group to Columbia to be $7.5 million since 1998.

In the years ahead, it is anticipated that certain business units will provide a positive margin so that they will provide funds to help new businesses start and prosper. Some of the business units will operate for the benefit of the public and may not show a positive margin for the foreseeable future. All business units are constantly under review and decisions regarding their future will be based on both their specific purpose and the margins they provide.

Appendix I
Independent Consultant's Report

I am pleased to provide the draft of my report, titled **Independent Assessment of Cost Comparisons and Future Cost Performance Targets For Columbia Generating Station**, as of September 19, 2002.

Consistent with the methodology outlined at the outset, this draft report is being sent to the parties listed to offer an opportunity for factual corrections to be identified before the assessment is finalized.

For example, I did not fully review the fine details of the design of the existing incentive program for CGS personnel, and the observations offered in that regard may need refinement if my assumptions are not correct. As a second example, I did not
obtain and review all the performance indicators in use at the station in developing some suggestions on possible enhancements. Consequently, the station may already have some of the suggested enhancements in place.

Following receipt of your feedback, I am prepared to finalize this assessment promptly.

Yours truly,

Richard M. Kacich
Management Consultant
Janus Management Associates, Inc.

DRAFT

INDEPENDENT ASSESSMENT OF COST COMPARISONS AND FUTURE COST PERFORMANCE TARGETS FOR COLUMBIA GENERATING STATION

Prepared by:

JANUS MANAGEMENT ASSOCIATES, INC.
208 B NEW LONDON TURNPIKE
GLASTONBURY, CT 06033

Draft as of September 19, 2002

DRAFT

INDEPENDENT ASSESSMENT OF COST COMPARISONS AND FUTURE COST PERFORMANCE TARGETS FOR COLUMBIA GENERATING STATION

EXECUTIVE SUMMARY

The Executive Board of Energy Northwest has been engaged in a comprehensive process to evaluate the operation and maintenance of the Columbia Generating Station ("CGS"). The Board considers it imperative that CGS's going forward cost is maintained at the lowest possible level while ensuring the objectives for safe and reliable operation are met. The Board has also directed that the cost of power be closely scrutinized with a focus on identifying opportunities for cost reductions.

Plant management utilized a variety of industry data comparative services and benchmarking information to compare CGS historical cost performance and future plans to other comparable nuclear facilities. To obtain an evaluation of the reasonableness of the above-described cost comparison, the Executive Board requested that Janus Management Associates, Inc. ("Janus") perform an independent assessment of the reasonableness of the cost comparison and the ability to maintain CGS's cost of power at the lowest level possible.

The Janus assessment involved two major elements. The first was a review of the documentation provided by Energy Northwest, reviewed in light of other information sources that provide a cost comparison context. The second entailed an on-site interview process of station personnel, primarily key management individuals. While considerable objective data were utilized, the interview process included some elements of subjectivity and perception. The use of both quantitative and qualitative information was necessary to perform a more thorough analysis, given the stated overarching goals of safety and long-term, reliable operation.

The assessment of the cost comparisons and future cost performance targets gave preference to comparisons at a global level, recognizing that variations in plant design and operation, financial data reporting conventions, and other variables introduce complexities in making those comparisons.

Conclusion

Janus concludes the cost comparison methods and metrics selected to compare CGS to other nuclear power plants in the industry are reasonable. The benchmark plants chosen reflect care in selecting high performance plants which sustain that achievement over an extended period of time, and the limitations and imprecision in the data are recognized in the analysis. The cost performance goals identified in the CGS Cost Study are reasonable, noting the importance of the statement that indicates they will be revisited periodically as additional data for both CGS and the industry are accumulated.

Listed below are the most significant strengths and challenges identified during the assessment. Details of these strengths and challenges and additional observations are contained in the report.

Strengths

CGS has made meaningful strides in improving its performance over the past several years. Quantitative measures on cost performance, generation, person-rem, Institute of Nuclear Power Operations ("INPO") indices, Nuclear Regulatory Commission ("NRC") Inspection data, and

other metrics provide strong evidence of the progress. CGS' most recent three-year production cost was $17.1/MW-hr, which compares favorably to the three-year rolling industry average of $17.4/MW-hr, particularly in light of the historical 12-month fuel cycle.

The CGS CEO, Mr. Vic Parrish, demonstrates a holistic, thoughtful and long-term perspective in leading the station. He lives the station's core values, embraces continuous improvement, demonstrates that he cares about the well-being of the employees, and passionately pursues operational and performance excellence. His openness to and pursuit of best practices from other leading organizations is apparent. Interviewees spoke from the heart, openly, and with pride, about CGS being an excellent place to work. Equally significant, while qualitative, is the view of the workforce regarding the environment at CGS. They are justifiably proud of who they are, what they do, how well they do it, and their commitment to continuously improve.

Challenges

The future cost targets were based on five, high-performing, single units, reflecting the intent by CGS to be among the best. A seven-year interval was also chosen with benchmark plants that did not exhibit cyclical cost performance. The CGS Cost Study used a 4% annual cost escalation rate to establish the future CGS annual cost targets. By looking over the seven year interval, the significant performance improvements that have been realized over that period are implied by the CGS Cost Study to be more representative of the future than a shorter, presumably higher performing period, such as the most recent three years. The earlier and lower performance is not what those facilities are likely aspiring to accomplish. The CGS Cost Study's approach also assumes that the five benchmark plants have reached a plateau in cost performance, rather than continuing to improve. While these plants are currently performing at a high level, and developments such as escalated security requirements provide upward cost pressures, it will be important to continue to monitor future developments to see if adjustments to the targets are in order.

The 24-month fuel cycle represents a significant challenge to cost performance as well as an opportunity for reducing costs. With comprehensive, organization-wide planning for this mode of operation, it provides a platform for improving cost performance as compared to the historical 12-month cycle. Periodic direction from the Bonneville Power Administration to reduce power represents a unique challenge in the industry. In addition to the obvious lost generation that can be statistically adjusted for in cost and performance metrics, cycling the plant increases the opportunity for error. During such maneuvers, some equipment is operating at conditions that are sub-optimal, causing additional wear and posing further equipment reliability challenges. The Station staff is challenged to anticipate these effects, and also needs to be prepared to take immediate advantage of any incremental, on-line maintenance opportunity that operation at reduced power might present.

INDEPENDENT ASSESSMENT OF COST COMPARISONS AND FUTURE COST PERFORMANCE TARGETS FOR COLUMBIA GENERATING STATION

INTRODUCTION

This independent assessment of Columbia Generating Station's ("CGS") cost comparisons and future cost performance targets and plans was undertaken at the direction of the Executive Board of Energy Northwest. The methodology employed included a review of various benchmarking reports, cost comparisons, performance data, the "Cost Comparison of Columbia Generating Station to Top Utilities" dated July 2002 (the "CGS Cost Study") and related information supplied by the Executive Board or its agents. The review spawned additional information requests that further informed this assessment. Additionally, eleven, one-on-one interviews were conducted over a two-day interval. Interviews included several members of the senior leaders of the Station including the Chief Executive Officer ("CEO"), as well as a cross section of first line supervisory personnel. A general tour of the facility was conducted, including the recently constructed Independent Spent Fuel Storage Installation ("ISFSI"). The varied locations of the interviews, a free-form discussion with the Shift Manager in the Control Room, and the plant tour afforded the opportunity to observe a number of other interactions that were utilized in forming the judgments and observations included in this assessment.

OVERVIEW

CGS has made meaningful strides in improving its performance over the past several years. Quantitative measures on cost performance, generation, person-rem, Institute of Nuclear Power Operations ("INPO") indices, Nuclear Regulatory Commission ("NRC") Inspection data, and other metrics provide strong evidence of the substantial progress. Equally significant, while qualitative, is the view of the workforce regarding the environment at CGS. They are justifiably proud of who they are, what they do, how well they do it, and their commitment to continuously improve.

The cost comparison methods and metrics selected to compare CGS to others in the industry, and the future cost performance targets and plans, are reasonable. The benchmark plants chosen reflect care in selecting high performance plants which sustain that achievement over an extended period of time, and the limitations and imprecision in the data are recognized in the analysis. Multiple sources (e.g., Electric Utility Cost Group, Federal Energy Regulatory Commission, INPO, and Nuclear Energy Institute ("NEI")) were used to provide higher confidence of the validity of the comparisons and to take advantage of the strengths of the various data sources. The cost performance goals identified in the CGS Cost Study are reasonable, noting the importance of the statement that indicates they will be revisited periodically as additional data for both CGS and the industry are accumulated.

That said, some further analysis of the available industry data is offered in this assessment to provide further context in forming judgments about current and future cost performance targets. Additionally, several areas of focus that promise to accelerate the rate of performance improvement at CGS are identified. Finally, a number of other observations and insights that may contribute to the stated objectives of safe, reliable, long-term operation at the lowest possible level of costs are noted.

ASSESSMENT

This assessment starts with a discussion of the most important dimension of what is required to achieve the performance objectives stated above, abbreviated to safe, reliable, low-cost operation. That concerns leadership's performance in establishing a healthy work environment. In that regard, CGS enjoys what appears to be an excellent circumstance that should continue to be nurtured with great care.

The CGS CEO, Mr. Vic Parrish, demonstrates a holistic, thoughtful and long-term perspective in leading the station. He lives the station's core values, embraces continuous improvement, demonstrates that he cares about the well-being of the employees, and passionately pursues operational and performance excellence. His openness to and pursuit of best practices from other leading organizations is apparent. While these values and behaviors became apparent in conversing with him, they are more evident by listening to others, and most evident by observing how people behave.

Virtually all interviewees spoke from the heart, openly, and with pride, about CGS being an excellent place to work. The work environment and culture reflected a safety-conscious foundation. Use of the Problem Evaluation Report System had been transformed from being described as equivalent to a police officer writing a traffic citation to a vehicle for learning. The value of the Leadership Academy was repeatedly characterized as surpassing expectations. Plant challenges, e.g. fuel corrosion, Control Rod Drive pump maintenance, are addressed with high standards and expectations. When a challenge to safe and reliable operation emerges, individuals and plant organizations rally to evaluate and respond in a collaborative fashion. This is not to suggest that CGS employees believe they are the best in the industry. All interviewees acknowledged that they learn - usually a lot - when they visit other nuclear facilities. No one had difficulty enumerating several improvement opportunities. In fact, when one interviewee was asked to describe one, the initial response was, "I have so many!" Two interviewees had gaps in their employment history at CGS. Both were very pleased to return to the Station and remarked very favorably about the extent of improvement during their absence.

The current culture and work environment are healthy and are very valuable assets. Regulatory margin appears to be ample. The benefit of this environment cannot be calculated in dollars, but far surpasses any costs associated with initiatives such as the Leadership Academy. It is far and away the most favorable platform from which to launch a more aggressive cost performance campaign.

One other observation is imperative to this discussion. It is important to establish cost performance targets to avoid any potential for short-term success at the expense of long-term reliability. Said differently, an organization could "make the numbers" in the near term by ceasing to pay attention to the longer-term consequences. An extreme, purely hypothetical example would be the organization that avoids spending the tens of millions necessary to build

a dry cask storage facility, only to one day be unable to offload the reactor core. Other examples are much subtler.

The aging workforce phenomenon at CGS is unlikely to be problematic in 2003. That is not to suggest that steps shouldn't be taken in 2003 to deal with it. The pipeline for licensed reactor operators can be ignored for a period of time without immediate, adverse consequences, but that is not a viable, long-term approach. Several nuclear plants have been operating with capital investments running less than $5 million annually for several years. While this may be workable or even optimum for a period of time, it is unlikely to be optimal over the long haul. In some scenarios, the pace of spending can simply be picked up and plant performance may not be particularly cyclical or eventful. Conversely, if a period of limited spending happens to coincide with several human performance errors, the development of a new degradation phenomenon, an increase in employee concerns, and intensifying regulatory scrutiny, the resulting requirements for costly programs and capital additions can become very high. As a whole, while industry-wide improvements have been impressive over the past several years, there has never been a time when there was no nuclear facility on this “slippery slope”, proving time and again that recovery is a very expensive undertaking. As a single operating unit, CGS is well advised to maintain the current healthy margin that exists between CGS's performance today and the plants that have little or no regulatory margin.

THE 24-MONTH FUEL CYCLE

CGS is currently in the midst of its first two-year operating cycle, planning for the next outage in late spring 2003. The transition from the prior 12-month cycle is of central importance to achieving the desired top cost performance. The reasons for this are well documented in the analyses performed by CGS to justify this change. This analysis includes both hard financial data and qualitative factors such as employee morale and adequacy of outage planning time. Absent a change from the current expectation that CGS periodically be a load follower, the 24-month cycle is the best approach. Use of the term "best approach" is in the context of the CGS asset as a generating resource for the Bonneville Power Administration (“BPA”), which is not necessarily the same as the cycle length that would result in the lowest cost performance if CGS was a conventional, baseload plant. While beyond the scope of this assessment, a cycle length of 18 months may very well be optimum from a pure, cost performance perspective, and this is one of many factors that need to be considered in evaluating CGS's cost performance and targets compared to others in the industry. With comprehensive, organization-wide planning for this mode of operation, it offers the best potential for strong cost performance, largely because over the 24-month period, generation is maximized and scheduled outage days (and their attendant costs) are minimized. At the same time, there are some economic offsets compared to the prior 12-month cycle. These include poorer nuclear fuel economy and the resultant higher nuclear fuel costs, a greater number of discharged assemblies that need to be stored either at the ISFSI or the spent fuel pool, and a greater equipment reliability challenge to maintain a low forced outage rate.

As is well understood by CGS staff, periodic direction from BPA to reduce power represents a unique challenge in the industry. In addition to the obvious lost generation that can be statistically adjusted for in cost and performance metrics, cycling the plant increases the opportunity for error. During such maneuvers, some equipment is operating at conditions that are sub-optimal, causing additional wear and posing further equipment reliability challenges. The Station staff is challenged to anticipate these effects, and also needs to be prepared to take immediate advantage of any incremental, on-line maintenance opportunity that operation at

reduced power might present. Performance during the current cycle has been quite respectable and most interviewees believed that the prospects for a solid operating run for the remainder of the cycle are good. At the same time, most interviewees observed that they did not feel fully prepared for this operational change and, in some respects, it "sneaked up on them." At the appropriate time, perhaps following completion of this cycle, it may be a candidate topic for a cross-discipline self-assessment.

THE METRICS

CGS has identified five high performing, single-unit plants to help establish future cost performance targets. This approach is reasonable, and performance at the targeted levels would yield very satisfactory results. In the interest of further informing the judgments that are reached about achieving the goal of low cost performance, the following observations are offered.

Expand the current comparative profile of "cost of power without fuel" to include the additional views of operations and maintenance expenses (“O&M”) only, production costs (O&M and fuel) and total costs of power with fuel.

One of the CGS-sponsored benchmarking studies explains the exclusion of fuel costs from the comparison "because of the differences in procurement practices." This is not a persuasive explanation. Those differences may, in fact, speak to the capability of the nuclear fuel procurement staff in minimizing the cost of fuel. Particularly for CGS, the transition to a two-year cycle introduces an expected increase in fuel costs compared to prior benchmark years. Further, production costs (O&M and fuel) are widely reported in various industry publications and afford multiple opportunities for cost comparisons. Looking at this information is informative.

In and amongst all the various performance metrics and all the uncertainties and variations in how data are presented, the ultimate figure of merit is the total cost of producing electricity, in $/MW-hr or ¢/kw-hr. Separating the various components of O&M, fuel, administrative and general expenses, and capital, the resulting total is comprehensive without introducing excessive complexity.

To establish the basis for the selection of the target costs, as presented in the CGS Cost Study, five, high-performing, single units were chosen, reflecting the intent to be among the best. A seven-year interval was also chosen with the benchmark plants that did not exhibit cyclical cost performance. Having established the average, the authors of the CGS Cost Study used a 4% annual cost escalation rate to establish the future CGS annual cost targets.

By looking over the seven year interval, the significant performance improvements that have been realized over that period are implied by the CGS Cost Study to be more representative of the future than a shorter, presumably higher performing period, such as the most recent three years. The earlier and lower performance is not what those facilities are likely aspiring to accomplish. The CGS Cost Study's approach also assumes that the five benchmark plants have reached a plateau in cost performance, rather than continuing to improve. While these plants are currently performing at a very high level and developments such as escalated security requirements provide upward cost pressures, it will be important to monitor future developments to see if adjustments to the targets are in order. The 4% escalation rate is

recognized to be an estimate, but is probably on the high side of the range of assumptions in use in the industry.

NEI provides an annualized estimate of fleet-wide production costs. The most recent value is $17.6/MW-hr for the year 2000. (See Figure 1.) A separate tabulation reports the three-year rolling industry average is $17.4/MW-hr. Entergy Nuclear, Inc. (“Entergy”) has reported the three-year rolling average production costs at its nuclear power plants, Arkansas Nuclear One, Grand Gulf, River Bend and Waterford, as $17, $14, $19, and $16/MW-hr, respectively. Entergy also reported the industry average as $18/MW-hr based on Utility Data Institute and its own internal analysis. CGS' most recent three-year production cost was $17.1/MW-hr. As a large unit, CGS should be capable of maintaining its production costs below industry averages.

IMPROVEMENT OPPORTUNITIES

1. Establish and publicize the long-term steady-state outage duration goal, and align the organizational priorities accordingly. The concept that "everyone on site has an outage job” should be implemented to improve outage performance and execution.

Various station publications and the interviews revealed the absence of a universally shared, normal outage duration target; why that target is appropriate; and whether that target is achieved incrementally or in one step. The power uprate study identifies 30 days for all outages. The fuel cycle assumptions indicate 35 days in 2003 and 30 days in each outage year thereafter. The long-range forecast has 34 days in 2003, 45 days in 2005, and 28 days each subsequent outage year. Interview results revealed a greater diversity of views about what CGS should be targeting, with durations ranging from less than twenty days to the mid-thirties, and achieved at various paces.

Since excellence in outage planning and execution requires a station-wide effort, further clarity of the outage duration target would be beneficial.

Because the possible load-following directives from BPA could complicate the outage duration optimization process, it may be best to start out by ignoring that potential and striving for the shortest possible outage that will yield a breaker-to-breaker operating run. For a 24-month or 730-day period, an approximate 695 to 700 days on-line and 30 to 35 days of outage may be the optimum goal. Plant management and staff recognize the goal is not merely the shortest possible outage; it is the maximizing generation over the two year period, cycle after cycle.

The CGS fuel cycle assumptions provide for Effective Full Power Days per cycle ranging from 660 to 672 for the next five cycles. Taking into account some BPA-directed down-powers, allowing for unplanned outages, and recognizing some coastdown capability, the fuel cycle assumptions are reasonable. For perspective on what other plants are achieving, Entergy conducted seven refueling outages in 2001 and the first half of 2002 with an average duration of 23 days.

The concept that "everyone on site" has an outage job has not been implemented as fully as is the case at some other nuclear stations, and may represent one of the many steps that can be taken to improve outage performance and execution. It has the added advantage of

allowing more employees periodic diversity of job assignment, walking in someone else's shoes to enhance collaboration and teamwork down the road.

NEI has also tabulated the average and median duration of refueling outages across the industry on an annual basis for the years 1990 to 2001. The results demonstrate the dramatic improvements realized during the past decade. (See Figure 2.) For 2001, the average and median values were 37 and 34 days, respectively. Because CGS has historically not experienced as much organizational learning in outage proficiency as others, and having never entered into a refueling outage after nearly two years of operation, CGS is encouraged to avail itself of the methods employed at other successful plants.

2. Improve the processes used for long term planning, capital investment decision making and improving equipment reliability.

There is an enormous variation in capital spending histories across the U.S. nuclear power plant fleet, with recent three-year averages ranging from less than $4 million to more than $45 million. While there are numerous reasons for these differences, one important reason is significant differences in plant needs. It is beyond the scope of this assessment to recommend a plant capital investment spending profile for CGS. However, the interviews did reveal that the CGS organization has further work ahead to specify what capital investments are necessary to achieve the desired level of reliability for the 24-month fuel cycle. Enhancing these processes is integrally connected to the outage duration goal and includes many other optimization efforts, such as more on-line maintenance, completion of the preventive maintenance (“PM”) optimization program, and other improvement initiatives.

3. Over the long term, look for opportunities to reduce full time equivalent (“FTE”) staff working at CGS, but not to the detriment of maintaining safety and maximizing generation as higher priorities.

Numerous industry studies are available regarding staffing at nuclear power plants. A recent industry publication reported average staffing levels for all single unit plants were approximately 850 FTEs (defined as employees, not including authorized vacancies, and long term contractors such as Security). Larger single unit plants understandably tend to have higher staffing, around 900. While there are imperfections in the comparisons and the CGS total appears to be truly all-inclusive, the staffing level at CGS is on the high side of the industry spectrum.

Based upon interview responses and other observations at the facility, CGS has a highly motivated and talented staff. It is fair to say that the organization will be more successful in meeting the cost targets with some modest staff reduction, if properly sequenced with other improvement initiatives.

However, staff reductions are not the recommended immediate priority. Maximizing generation has the potential to yield much greater cost performance improvement. Across the U.S. nuclear fleet, improvements in this area have been very impressive. NEI reported the capacity factor for U.S. nuclear power plants in 2001, including outages as 90.7%. For the first six months of 2002, the figure is 91.4%. Entergy reported its five-unit "Southern" fleet 2001 capacity factor as 98%, and its four acquired Northeastern units had a 94% capacity factor,

including outages. While such results are by no means easy to do year after year, this level of performance is a worthy goal for CGS.

It is logical and necessary to first focus on achieving organizational effectiveness and finding ways to do less work before embarking upon a staff reduction campaign. Reducing rework rates results in less work. Optimizing PMs will reduce the amount of work scheduled. Identifying ways to simplify processes, require fewer organizational "handoffs", and take increasing advantage of technology will require fewer personnel to accomplish the same work. With improved equipment reliability, fewer emerging issues, and improved long range planning, the organization will increase its control over its destiny versus reacting to the challenge of the day. Conducting half the number of refueling outages is also less total work. The United Services Alliance should yield other best practice and resource-sharing opportunities to improve cost performance. After a period of time to pursue these initiatives, a more concerted effort on staffing may be appropriate.

Further to CGS's overall high performance philosophy, consideration should be given to pursuing ISO-14001 certification for environmental performance. Given the work already accomplished in this area, and to further demonstrate to the workforce and others that CGS aspires to be among the best, such certification would provide a capstone to the plant's environmental stewardship initiatives.

OTHER OBSERVATIONS

1. The Quality organization is perceived by some staff to be lagging in adding value to CGS performance compared to other departments in the organization.

Most interviewees expressed the view that the Quality organization had a tough job, and although it was trying hard and getting better, the organization could improve on the value-add of its work products. There was no indication of not fulfilling all regulatory requirements, and the QC function was thought by one interviewee to be very effective. In the aggregate, considering performance-based and not just compliance-based quality functions, most interviewees believe this area to be an improvement opportunity.

2. There may be an opportunity to establish an enhancement to the existing Incentive Program that is "win-win".

Generation is one of the parameters for which incentive payment is earned. Under the current scheme, maximum payout is realized at a 97% capacity factor. There is no further financial reward for performance above 97%. Also, there is no apparent reward for under spending the budget, unless established at the local level.

As noted previously, the ultimate figure of merit is $/MW-hr, over the long term. To the extent costs and / or generation performance are better than the current maximum, BPA enjoys the financial benefit. To say that incentive compensation cannot be awarded because no O&M dollars were set aside is not persuasive logic. It is axiomatic that one should incent the desired result. Since a desired result is strong cost performance, incent the employees to deliver it. To provide an order of magnitude example, a 3% capacity factor opportunity on an annual basis is:

11 days X 24 hours/day X 1150 MW X $30/MW-hr = $9.1 million

Budget under runs represent a similar opportunity. If the staff delivers a result better that the current maximum payout (and, of course, meets safety, reliability, quality and regulatory requirements) why not share 20%-25% of the result with them in the form of incentive pay?

It is beyond the scope of this assessment to design a program, and of course, the appropriate safeguards must be employed to not reward unintended outcomes (e.g., underspending the capital program by deferring projects), but there does appear to be a win-win opportunity. Such a modification to the program also may encourage more innovation within the workforce when staff reduction opportunities present themselves.

3. The internal participation on the Corporate Nuclear Safety Review Board ("CNSRB") could be enhanced.

It became apparent during interviews that the CNSRB function is an example of the station core values. The CNSRB goes well beyond regulatory minimums. Its composition includes very knowledgeable outside members who are considered to add real value. The CNSRB demonstrates the continuous improvement philosophy in action. However, the inside members do not appear to view their participation on the CNSRB as prestigious, nor do they seem to engage in self-critical dialogue to the same degree as the outside members. Appointment to the CNSRB could be changed to something to be sought after, a dimension of career development, something to which others in the CGS organization would aspire. This way of thinking could then be brought into the workplace as a more mature, holistic critique of organizational performance.

4. **Consider institutionalizing some enhancements to the process used to develop and utilize performance indicators across the Station.**

During the course of the assessment process, information in the form of performance indicators was made available. In general, the information was comprehensive, easily interpreted, and tended to reflect strong performance given the percentage of "green" indicators. Without having a complete appreciation for the entire suite of indicators and their use at CGS, the following possible enhancements are offered:

- Station personnel frequently indicated that their goals are derived from top quartile, or even top decile performance. By just looking at the indicators, this is not apparent. Consider adding a basis section to the indicator page or elsewhere that explains how it is determined that a particular level of performance is worthy of a green designation.

- Another expectation at CGS is continuous improvement. As it relates to performance indicators, one would expect the indicator owner to periodically (perhaps annually) assess whether the performance bar should be raised and by how much. If the indicator page was enhanced to provide 3 or 4 prior period actuals, trends in performance would be readily apparent. As an example, annual person-rem totals for the past 3 years could be provided along with the monthly actuals and projections for the current year.

- For those relatively few instances where performance was not in the green, the indicator page did not detail what the indicator owner was doing to restore performance to the

targeted level. This expectation could be established along with the date by which green performance could be expected.

- As a companion step to the above point, accountability on delivering green performance is important. While there is no doubt that CGS has high expectations, it may be beneficial to establish a site-wide, periodic accountability and mutual assistance process so the issue owner explains what he or she is doing, or what help they need, to restore green performance on a schedule consistent with management expectations.

Interview Guide

Columbia Generating Station Management Interview Guide

1. What is the mission and vision of the organization? How is that mission and vision communicated to the organization?

2. How do you use benchmarking? How do you achieve continuous improvement? Will your peers continue to improve cost performance or will they plateau? How do your future targets take this into account?

3. In your experience, what are the major influences on plant performance and thus, cost performance?
   - Leadership
   - The safety culture of management and the workforce
   - Plant material condition
   - Organization adequacy and responsiveness
   - Quality of engineering and design documentation and processes
   - Regulatory environment
   - BWR-specific and industry issues/events

   What major influences do you think affected CGS's costs over the past 3-4 years? What major challenges do you expect to encounter in pursuit of your cost reduction goals? How will you meet the challenges?

4. Why do you think CGS was typically higher than the average of the comparison plants for Direct O&M, Indirect O&M, and Total Costs? (Reference EUCG 2002 Report) Are these opportunities for you? Do you have confidence in your ability to meet the targets?

5. In setting cost targets and emphasizing cost control, what do you anticipate the impact on the workforce's safety culture will be? How are/will you ensure that safety remains the first priority?

6. Describe the health of your relationship with the NRC. Do you anticipate they will have any concerns with escalating focus on cost performance? Do you plan any proactive communications with the NRC?

7. One of CGS's major challenges appears to be both the retention of existing staff and the attraction of qualified and experienced personnel. Do the cost performance targets exacerbate this challenge?

8. How do you generate the capital budget, justify projects, and set priorities? What has driven the capital budget in the past five years? Have you invested sufficiently in the facility? What do you see driving the capital spending requirements next year and in the next five years? (Reliability projects, power uprate, equipment replacements due to wearing out, breakdown or obsolescence, reactor internals)

9. Please comment on your recent, scheduled outage performance, both in terms of duration and subsequent reliability. How much does a “load follower” operating regime affect this goal?

10. Is the station aligned in its priorities cross functionally, and top to bottom?

11. What do you do very well, and how do you know?

12. What is your biggest improvement opportunity?

13. Do you respect the Oversight Organization? Does the organization? How about the Offsite Safety Review Committee?

14. Has the Leadership Academy made an impact? How do you know?

15. Is your incentive plan well structured?

16. Are you prepared for the transition to a two-year cycle?

Resume of Richard M. Kacich

Richard M. Kacich is the NU Director of Special Projects reporting to Bruce Kenyon, President of the Generation Group at Northeast Utilities. He was appointed to this position effective April 1, 2001, immediately following the closing of the Millstone sale to Dominion. In this newly created position, Rick is involved in a variety of business activities, including close-out of the auction work associated with the Millstone sale, and the sale of Seabrook Station which commenced in 2001. With respect to Seabrook, he serves as the Seller Representative on the Transition Executive Committee. Rick is involved in the oversight of the various nuclear facilities in which NU has an ownership interest. This includes serving on the Board of Directors for Connecticut Yankee Atomic Power Company (CYAPCO), Maine Yankee Atomic Power Company (MYAPCO) and Yankee Atomic Electric Company (YAEC), as well as Chairing the Connecticut Yankee Oversight Committee and Co-Chairing the CYAPCO and MYAPCO Joint Oversight Committee. He also serves as the Chairman of the Seabrook Nuclear Safety Audit & Review Committee (NSARC).

From November 1998 through March 2001, Rick was the director of the Business Services organization at NU. He was responsible for managing performance and financial affairs for Millstone Station, and managed consolidated business functions for the nuclear group. He oversaw the bidding of Millstone output to the grid, and managed interfaces with ISO-New England and the entitlement contract customers for Millstone's output. He served as the controller for Millstone Station, provided internal business reports to senior management and to the NU Trustees, provided expert testimony on nuclear prudence and restructuring issues, and coordinated the interface with numerous external groups. In March 1999, he was appointed to the Connecticut Yankee Board of Directors. He served as the on-site lead for the Millstone divestiture process, including the coordination of on-site due diligence, was the lead presenter during the management presentations, and served in the role of co-chair of the Dominion/Millstone Integration Team. He also served in the Station Emergency Response Organization in the capacity of Executive Spokesperson at the Hartford Armory.

Born in St. Louis, Missouri, he earned a bachelor of engineering degree in nuclear engineering from Rensselaer Polytechnic Institute (RPI) in Troy, NY in 1974. The following year he received a master of engineering degree in nuclear engineering from RPI. While at RPI, he was an instructor at the RPI Critical Facility, wrote A Manual of Experiments for the Rensselaer Reactor Facility, and held a senior reactor operator's license. In July 1992, he earned an Executive MBA from the University of Hartford.

He joined NU in 1975 as an assistant engineer. He participated in the initial core loading and start-up testing of Millstone Unit 2 during his assignment to Millstone Station in 1975-1976. He subsequently served in various positions in the licensing organization and was promoted to licensing supervisor in 1982. In 1987, he assumed the role of manager, Generation Facilities Licensing, which involved coordination of all licensing activities for NU's fossil, hydroelectric, and nuclear generating facilities. In March 1992, he was promoted to director, Nuclear Licensing. From December 1993 to February 1996, his duties expanded as director to include Nuclear Planning, Budgeting and Financial Analysis and Nuclear Safety Engineering, as well as Licensing. For seven months beginning in February 1996, he assumed the new position of director, Nuclear Operational Standards, responsible for all financial analysis and budgeting functions, and the Nuclear Excellence Plan designed to recover Millstone Station. In September 1996, he was appointed director, Special Projects, responsible for coordinating the interface with numerous external groups, for preparing responses to PUC interrogatories, providing expert testimony on nuclear restructuring and prudence issues, and administering and upgrading the Nuclear Group Policies and Millstone Station Administrative procedures.

He is a member of the American Nuclear Society and is a registered professional engineer in the state of Connecticut.

Kacich has participated in numerous owners groups and industry activities, including the INPO APOC for Millstone Station, the SEP Owners Group (chairman), the BWR Owners Group, the Nuclear Utility Fire Protection Group, the Nuclear Utility Group on Environmental Qualification, the Nuclear Utility Backfitting and Reform Group, and various Atomic Industrial Forum and NEI activities.

Interviewees

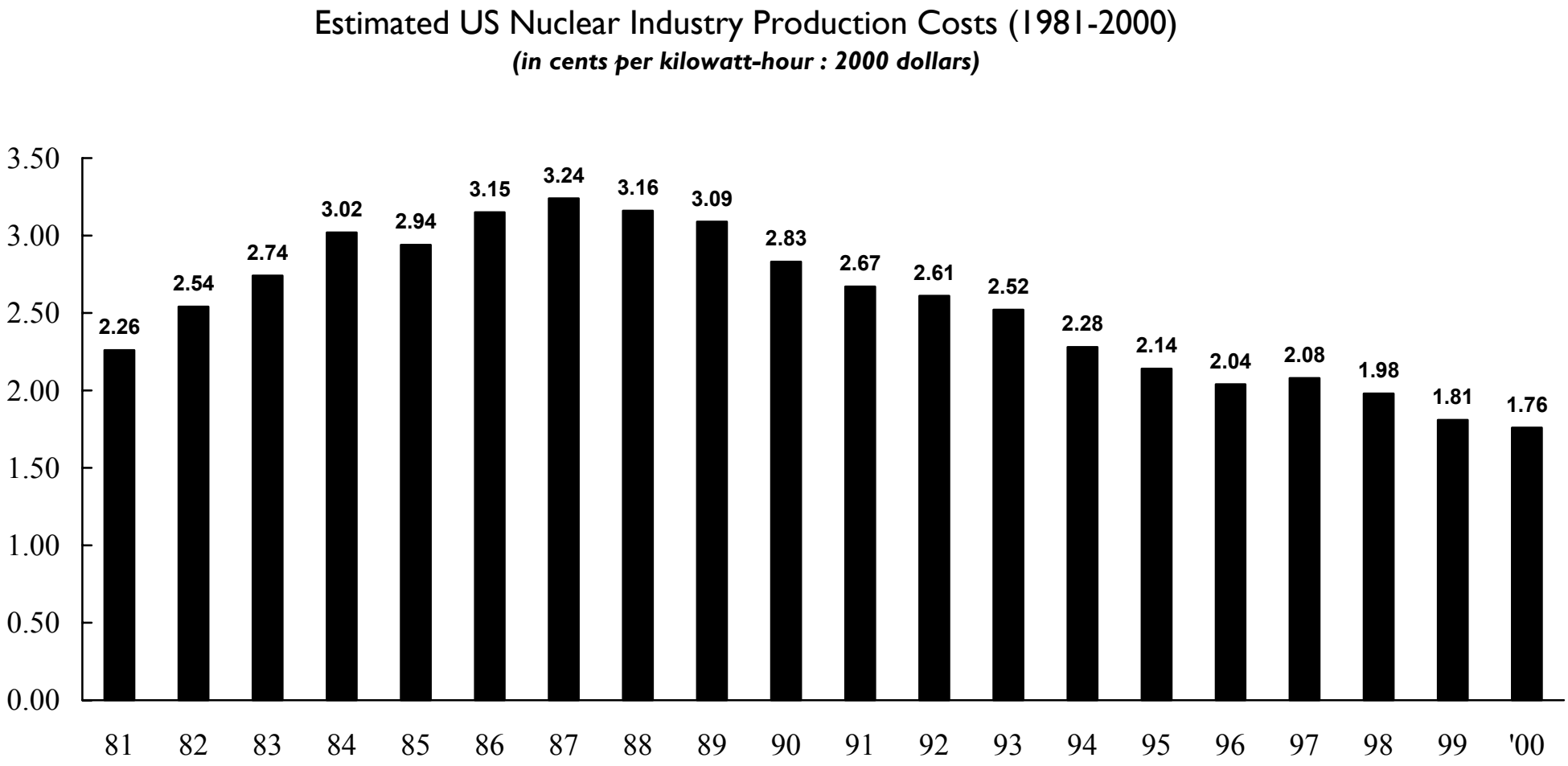
Managers and staff holding the following positions were interviewed:

CEO/CNO
VP Technical Services
Engineering Manager
Maintenance Manager
Plant General Manager
Design Engineering Manager
Operations Manager
Reactor Operator, Operations
Craft Supervisor, Maintenance
Control Room Supervisor, Operations
Maintenance Employee

References

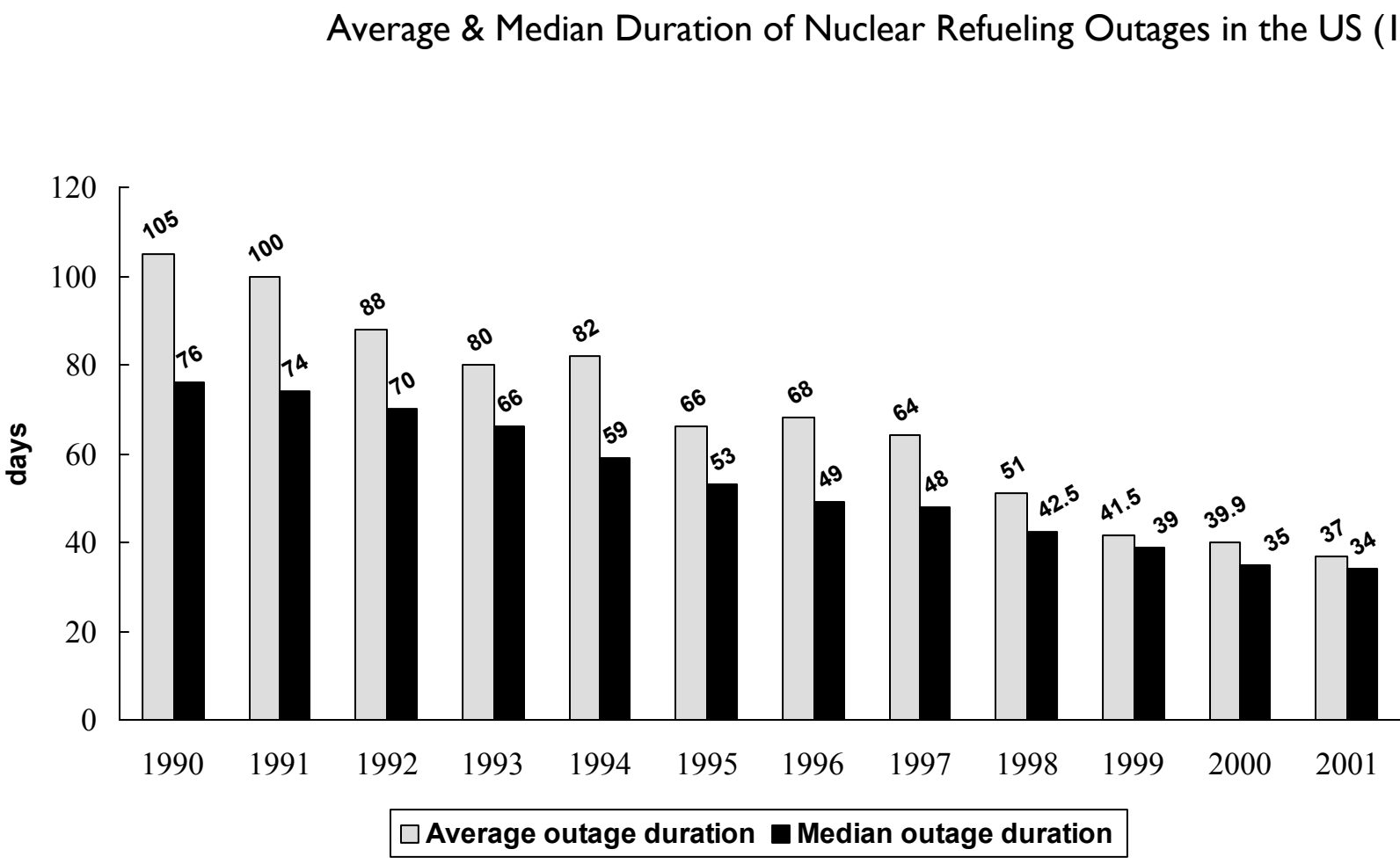
1. Columbia Generating Station Engineering Performance Indicator Report – July 2002
2. Columbia Generating Station Fiscal Year 2003 Annual Operating Budget
3. Columbia Generating Station - Internal Document - Re: WN-2 Twenty-Four Month Fuel Cycle, June 17, 1994
4. Columbia Generating Station Maintenance Department Performance Indicators dated 9-5-02
5. Correspondence from Energy Northwest to Bonneville Power Administration, dated 8-15-02
6. Correspondence from Bonneville Power Administration to Energy Northwest, dated 8-20-02
7. Cost Comparison Report of Columbia Generating Station to Top Utilities Report, July 2002
8. Cost Comparison Report of Columbia Generating Station to Top Utilities Presentation to Bonneville Power Administration and Energy Northwest
9. Energy Northwest Business Plan Action Status Report for Fourth Quarter Fiscal Year 2002
10. Energy Northwest 2003 Employee Incentive Program Plan Document
11. Energy Northwest Executive Board – Review of Nuclear Program – various Drafts
12. Energy Northwest Long-Range Forecast – FY 2003, dated 5-6-02
13. Energy Northwest Annual Report 2001
14. Extended Power Uprate Feasibility Study Interim Status Columbia Generating Station, dated September 5, 2002
15. *Inside NRC*, Excerpt, July 29, 2002
16. *Nuclear News*, Excerpt, July 2002
17. Nuclear: Sustaining Growth, Entergy 2002 Analyst Meeting
18. *Platts Nucleonics Week,* Excerpt, Volume 43, Number 31, August 1, 2002
19. *Power, Business and Technology For The Global Generation Industry*, Excerpt, Volume 146, Number 5, August 2002
20. Various Staffing Benchmark Analyses

Figure 1 – Production Cost History



Source: RDI for 1995 forward; UDI for years prior to 1995

Figure 2 – Outage Duration History



Source: Institute of Nuclear Power Operators (INPO) Note: Values do not include data from shutd

Department of Energy

Bonneville Power Administration
Mail Drop 1399
P.O. Box 968
Richland, Washington 99352-0968

POWER BUSINESS LINE

October 4, 2002

In reply refer to: PGC/Richland

Mr. John Cockburn, Chairman,
Energy Northwest Executive Board
1524 Shenandoah Drive East
Seattle, WA 98112

Dear Mr. Cockburn:

The Bonneville Power Administration (Bonneville) has reviewed Energy Northwest's draft "white paper" on Columbia Generating Station (Columbia) operations. This letter is to transmit our comments (Enclosure) and to thank you for the opportunity to review the white paper while it is still in draft form.

At the close of the 2003 Budget review process, Bonneville and Energy Northwest agreed to initiate several benchmarking efforts to compare Columbia's costs to nuclear industry cost performance. As part of these efforts, Energy Northwest and Bonneville staff participated in a Columbia benchmarking study that is now in draft form. Bonneville also began an effort to update a 1999 benchmarking study that examines all United States nuclear plants and makes a comparison to Columbia's performance. This effort is nearing completion and we plan to solicit Energy Northwest's review before it is finalized. The 1999 study has been a useful benchmarking tool for both Energy Northwest and Bonneville in the past and we believe this updated report will be of value today in helping to set goals for Columbia Generating Station by providing an additional set of comparative industry data points. We suggest the results of both benchmarking efforts be considered when setting future cost targets for Columbia and that this be reflected in the Forward section of the white paper as well as the Benchmarking Conclusions section.

The white paper is a good review of the recent performance history of Columbia and the nuclear industry. The Columbia benchmarking study indicates during the period 1997 through 2000, Columbia's performance was comparable to other plants. Our concern with Columbia's costs is not about recent performance, which is the main focus of the white paper and which we agree has been excellent. See the recent letter from Paul Norman to that effect. Our concern is with the 2003 through 2006 cost projections, which show a sharp escalation in costs, and which may not be consistent with the trends in the rest of the nuclear industry.

Beginning in 2001, Columbia's total costs have been increasing at a faster rate than the top performers selected in the Columbia benchmark study. These cost increases are contrary to recent industry trends of decreasing costs and may drive Columbia away from top peer

performance. Bonneville believes and recommends that the addition of projections of future trends for both Columbia and the nuclear industry would add significant value to the white paper and help set a future course for Columbia. The white paper consultant, Mr. Kacich, may be able to assist the team in adding forward-looking information and perspective. The white paper would then provide more value in allowing Energy Northwest and the Executive Board to be proactive and take appropriate action now to ensure Columbia's costs remain consistent with the industry.

The Columbia benchmarking study used a four percent annual cost escalation rate to establish out-year budgets. The study should address whether this assumption is reasonable in light of the general performance of the industry, which indicates that costs are continuing to decline in spite of inflation. I would note here that Bonneville's Administrator, Steve Wright, has challenged Bonneville managers to bring their FY 2003 - 2006 costs down to FY 2000 - 2001 actual levels without an allowance for inflation. We do not know yet whether this can be accomplished internal to Bonneville, nor do we know whether it is achievable for Energy Northwest, but it seems like the right starting point for thinking about future costs.

Again, thank you for the opportunity to review and comment on the draft white paper report and for considering our comments. Our intent is to add value and we hope our comments will be received in that light, recognizing that Bonneville's desire for Columbia is for continued safe, reliable, cost effective operation.

If you have any questions, please contact me at (509) 372-5752 or Dana Sandlin at (509) 372-5756.

Sincerely,

Andrew J. Rapacz

Andrew J. Rapacz
Manager
Contract Generating Resources

Enclosure

cc:
Ms. M. Allen, Energy Northwest, Executive Board
Mr. D. G. Gunkle, Energy Northwest, Executive Board
Mr. S. Morrison, Energy Northwest, Executive Board
Mr. J. V. Parrish, Energy Northwest, M/D 1023
Mr. J. Kucera, Energy Northwest, M/D 1023

bcc:
S. Hickok – D-7
P. Norman – P-6
G. Delwiche – PG-5
Official File – PGC/Richland (
apacz:dc:5751:10/04/02 (w:_office\October mailings\white paper comments.doc)

Enclosure

Bonneville Comments on the Energy Northwest White Paper

1. Page 7 – Industry Benchmarking – Cost of Power – delete "compares favorably" and insert "is comparable." The data included in the report does not necessarily support the "compares favorably" conclusion.

2. Page 7 – First line – "nor third party management of the station would offer any...." – delete "offer any" and insert "guarantee."

3. Page 7 – Preliminary Conclusions – Fourth Bullet – Delete "will" in both places that it appears and insert "may" in both places. Also delete "is" and insert "could be." The evidence provided does not necessarily support the preliminary conclusions.

4. Page 9 – Second Paragraph – Delete the second paragraph and insert

> "Third party management companies may not be able to guarantee better operations of the station, and may not be able to guarantee lower cost of power. Selling the plant outright to a multi-plant operation also may not guarantee either of those results. Consideration should be given at this time to Energy Northwest's commitment to its mission of providing power at the at the lowest reasonable cost, while maintaining its assets safely and reliably for the long term. The alternatives of third party management or sale of the plant should not be pursued at this time."

5. Page 9 – Fifth Paragraph – Delete last sentence and insert

> "This will be accomplished by reducing the fuel inventory and deferring condenser tube replacement to a time outside the current rate case. Bonneville will provide final concurrence in regards to reduction of the fuel inventory as part of the Financial Choices Process currently underway."

6. Page 10 – Adjusted Long Range Forecast – Columbia Generating Station. The table contains new projections for generation for FY04 and FY05, which may be overly optimistic. Bonneville suggests these projections be reevaluated.

7. Page 10 – Adjusted Long Range Forecast – The table should be expanded to add fiscal year 2007 in order for Bonneville to properly project its costs through the end of the rate period.

8. Page 10 – Second Paragraph – There are references to initiatives underway to reduce power losses and shorten both planned and forced outage lengths. Bonneville suggests these initiatives be listed and briefly described.

9. Page 13 – Appendix A – Market Test. The Market Test was developed in 1998 for the specific purpose of assessing continued operation of Columbia at that time, in response to the Cost Review Panel recommendations. Since Bonneville's rates approach reflects the concept that Columbia's output, sold at PF, covers its operating costs; the usefulness of the table in

Appendix A would be enhanced if a column was added to show the value of Columbia's output if valued at PF. Another important indicator is Columbia's cost effectiveness assessed against other nuclear plants.

10. Page 14 – Cost of Power – FERC – Fifth Paragraph – Delete " the region urged Energy Northwest management to focus" and insert "the focus was shifted to."

11. Page 14 – Cost of Power – FERC – Sixth Paragraph – Delete the last sentence "Or, a plant for which great reliability is demanded will require higher investment than one with less such demand." The data does not support this conclusion.

12. Page 16 – The lower graph compares Columbia to the MOA plants in terms of FERC costs. The MOA plants were selected for the Performance Incentive Fee and used EUCG data for cost comparisons as was agreed upon by Energy Northwest and Bonneville. Another graph using the EUCG data would provide another industry comparison and should be included in the White paper. (see attached graph)

13. Page 16 - Paragraph 1 - Delete "well-operated." MOA plants were not selected on the basis of being well-operated.

14. Page 17 and Page 18 – The cost of power and total cost graphs should include Columbia's forecasts for fiscal years 2003 through 2006. This would provide a forward-looking perspective and compare Columbia's projections to recent industry performance.

15. Page 20 – Total Direct O&M Staffing Graph – Bonneville suggests adding another graph that compares total staffing, including indirect staffing, at Columbia with the industry. We believe this would provide a valuable benchmarking data point.

16. Page 20 – Last paragraph – Add at the end, "The Janus Management Associates Inc. report concludes that the staffing level at CGS is on the high side of the industry spectrum."

17. Page 22 – fourth Paragraph – Delete entire paragraph. Insert

"In addition, Bonneville has repeatedly said that Columbia provides flexibility and assistance in helping meet spring and early summer biological opinion operating requirements for the Federal Columbia River Power System.

Attachment to Enclosure