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Jointly-Owned Nuclear Operating Companies Formation Difficulties and Barriers

Summary

Significant recent efforts have gone into attempting to form JNOCs, but none have yet been successfully established. Some of the key reasons for failure are presented in this *Management Insight*. It also poses considerations that must be addressed in order to establish a JNOC successfully. This issue deals only with JNOCs which pool a number of different owners' plants for O&M purposes, but where ownership is retained by each owner utility. The next *Management Insight* will cover similar issues and barriers to forming a jointly-owned nuclear generating company (JNGENCO).

The concept of cost sharing and transferring "lessons learned"/expertise is intuitively sound and should be very appealing to nuclear plant owner utilities. Why then have virtually none of these joint nuclear operating companies been formed? Three areas stand out as the main barriers:

- Insufficient initial consideration of and compensation for differences in the generating units placed into the pool
- Inadequate executive oversight and involvement by all owner utilities
- Inadequate up-front analysis, planning, and forethought

A Historical Look and Definition of "JNOC"

Before getting into these areas, a brief historical perspective is instructive. Joint ownership of generating plants is not new. For many years, utilities have pooled their capital, built fossil and nuclear generating plants, and appointed one utility

the owner-operator. These worked well when all owners shared in the benefits, costs, and risks in proportion to their plant ownership.

Other successes occurred in taking multiple nuclear plants and placing them under a single, self-contained management organization (e.g., Southern Nuclear Operating Company and Entergy Operations). These arrangements were really internal organizational restructurings rather than true joint multi-owner pooling arrangements, however. For all intents and purposes, a single utility holding company was involved with its own plants without participation by other outside owner utilities.

Similar past successes included forming a nuclear operating company to operate a single plant with multiple owners (e.g., Wolf Creek Nuclear Generating Company and South Texas Project Nuclear Generating Company). These, too, are simply examples of internal organizational change, however. In both instances, the co-owners merely moved from an owner-operator model to a self-contained nuclear operating company (NOC) model for that single plant.

Hence, NOC formations have been successful but JNOC formations have not. The best we've been able to do is create shared services organizations that a few utilities subscribe to in order to gain scale economies from purchasing, warehousing, and the like.

This lack of JNOC formation success is not the result of lack of effort, as there have been a number

of attempts. For example, one group of four utilities considered pooling their several units into a JNOC, but the deal came apart over differences in market philosophy in an unregulated environment, a legitimate barrier. Similarly, four New York State utilities started work on forming a JNOC well over two years ago. To date, it has not yet been formed, and whether it will be is questionable. Thirdly, four upper Midwest utilities have been discussing JNOC arrangements for over a year, but implementation success has been slow. In each of these instances, significant resources were expended in terms of personnel costs, living, travel, and meeting expenses, etc. Combined expenditures have been in the tens of millions of dollars, and probably much more if the true cost of employee time were included.

In view of the above, we will define the term “JNOC” before presenting the reasons for these difficulties. *A Jointly-Owned Nuclear Operating Company (JNOC) is a single, self-contained management organization responsible for operating multiple nuclear units, which are owned by multiple owners in a safe, efficient, and reliable manner. A key goal of the JNOC is to manage, with regard to cost and operational performance, the nuclear units (i.e., there must be more than one plant site) for the mutual benefit of all co-owners; hence, no single unit would receive preferential treatment. The JNOC’s objective, then, would be to optimize the performance of all the nuclear assets taken as a group. This has important implications as will be shown later. In principle, the formation of the JNOC need not include:*

- *Transfer of asset ownership*
- *Risk sharing of production costs and/or electricity output*

Let’s turn to the first barrier to successfully forming a JNOC.

Generating Unit Differences

Nuclear plant owners often fail to account for differences in the plants they want to pool, even though these differences may carry substantial risks for their utility. Such differences include, but are

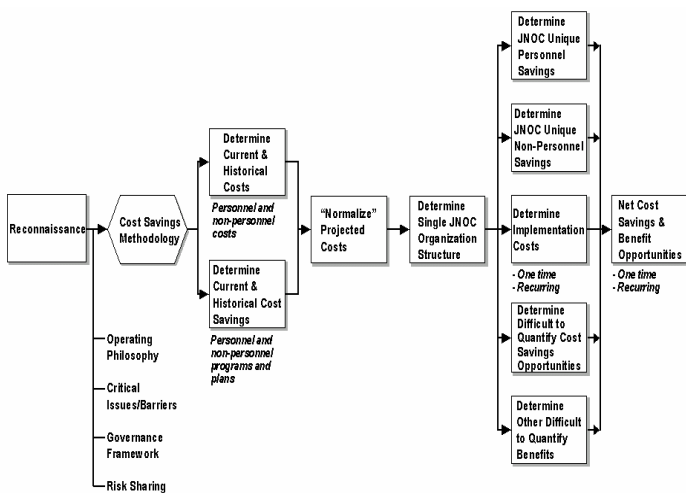
not limited to, items such as staffing levels, operating philosophy, reliability, efficiency, refueling cycle, maintenance practices, age, size, and regulatory standing. It appears that utility owners tend to ignore these differences early in their deliberations in favor of initial efforts aimed at securing regulatory approvals or documenting the expected ‘cost savings’ from forming a JNOC.

A comparison with the airline industry makes a useful analogy. Imagine that one intends to form an airline with two other parties. Each party owns and plans to pool one commercial passenger jet. Imagine further that the three airplanes are: an inefficient, 4-engine, 3-crew B-707; a slightly more efficient 3-engine, 3-crew B-727; and an efficient 2-engine, 2-crew B-757. No one would pool such resources into an airline without looking very carefully into the assets to be pooled, how they would be operated and maintained, and agreeing beforehand on a set of operational ground rules (e.g., does each co-owner share costs/profits equally?). Yet the temptation to jump to expected “cost savings” when forming a JNOC without first developing a workable game plan is great.

Let’s examine the topic of “cost savings”. Within the JNOC context, a single critical question must be asked of each and every cost reduction opportunity, namely, “Is this cost reduction opportunity available **only** through formation of a JNOC?” If the answer is no, it does not represent cost justification for forming a JNOC. Similarly, left unaddressed, cost disparities among plants can result in unanticipated financial subsidies from one co-owner to another. It is well known that personnel costs have tremendous leverage on changing the production cost of a nuclear generating unit. Plant staffing levels provide a good example of this point. To compare plants, certain measures might include INPO Top Quartile staffing (lean), or other measures such as ≤ 0.5 employees/MWe, 525 employees/Reactor, etc. So, how does one deal with sizeable staffing level differences among pooled plants? A common response is that a good accounting system will ensure that all costs are allocated properly.

While theoretically correct, we believe this to be a pragmatically faulty conclusion, especially for indirect costs. **Centralized** services, support, and administration costs are sizeable in a nuclear plant and their allocation is, at best, imprecise. To be fair to **all** co-owners, each item of difference must be looked at and dealt with individually to ensure that such costs are properly applied, and not incorrectly allocated across all owners. This point becomes even more necessary in forming a JNGENCO, the subject of our next *Management Insight*. Figure 1 illustrates the complexity of the cost savings/implementation analysis.

Figure 1: General Cost Analysis Methodology for Forming a JNOC



Inadequate Executive Oversight

Even though nuclear plant operations carry sizeable financial risks as well as grave career risks, sufficient co-owner CEO involvement does not always exist. As a JNOC formation decision could well be a “bet your company” decision, the CEO (together with his Board of Directors) is the principal executive to be entrusted with this heady responsibility.

Nonetheless, it is all too common for a group of CEOs to initially meet and reach conceptual agreement on forming a JNOC, and then to turn the project over to a committee of their direct reports. What typically results is a plethora of even lower

level committees being formed, each carrying out their work without an adequate framework for a disciplined review or formation process.

Utility CEOs would be well advised to concentrate on those “deal breakers” that might prevent the successful formation of the JNOC -- and to stay personally involved in the details until analysis shows the JNOC to be a good (or bad) idea for that utility. He should also insist on seeing those compensating adjustments required to treat all co-owners fairly. Like other important issues in life, “the devil is in the details, but so is salvation”.

Guidance that executive management can provide during the JNOC formation process is invaluable. Such guidance should include a written statement of intent, which provides the rationale for forming the JNOC, and what benefits the JNOC is expected to provide. Among the several goals for such a document include: to establish an optimal JNOC organization structure to achieve desired objectives; to provide a historical frame of reference for evaluating future decisions and actions; to achieve and maintain a uniform level of operational performance at all plants through implementation of best practices and placement of the best people in key positions; and to obtain economies of scale and other potential JNOC savings and benefits in order to generate electricity cost-competitively and safely.

Executive management should also keep in mind that JNOC formation without retention of the best personnel and practices is likely to result in a severe performance degradation. Their active participation in the process helps maintain the correct strategic focus during data collection, analysis, evaluation, and implementation, and also helps cut through the inevitable internal/bureaucratic obstacles to progress.

Finally, there are other tasks that are best accomplished with direct CEO input, including: developing and approving a JNOC mission and operating philosophy; citing the core values on which the JNOC is to operate; listing prerogatives to be retained by the co-owner utilities and the

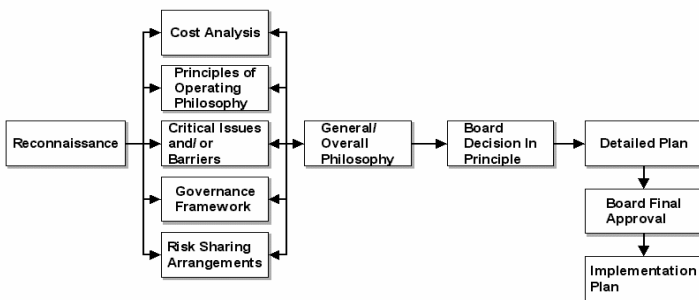
limitations of the JNOC Board; developing the JNOC Board authorities and governance arrangements; the rights and obligations of each co-owner (e.g., for financial capital contribution, decommissioning, spent fuel, etc.); and adjustments that need to be made in financial and/or power output arrangements.

Inadequate Analysis and Planning

As with many other management issues, the three keys to success are “plan, plan, plan”. Such planning is difficult to achieve in forming a JNOC, however, because there is little historical experience and successes to draw upon. Hence, JNOC formation calls for a comprehensive process that actively seeks out issues, and then resolves each of them thoughtfully and in a disciplined manner.

As shown in Figure 2, JNOC formation is complicated, and includes many considerations. Note the large number of interrelated analyses that are required up front.

Figure 2: Overall Process For Forming A JNOC



As noted earlier, a proper cost analysis is quite involved by itself. One output of the cost analysis should be quantified savings and implementation costs (one-time and annual) as shown in Figure 3. Another output that should be included is difficult to quantify cost savings opportunities (such as lower production costs, lower outage costs, lower maintenance costs from mobile or pooled maintenance resources, etc.) and benefits (such as improved capacity factors, improved outage scheduling and outage coordination, improved regulatory relations, increased access to nuclear management talent, improved employee career path

flexibility and selectivity, less reliance on contractors, etc.). This is because such subjective items may result in far greater benefits (or costs) than

Figure 3: Illustrative List of JNOC Cost Savings/Implementation Costs

JNOC Savings	Likely Effect	
	One-Time	Annual
▪ Personnel		☑
▪ Fuel		☑
▪ Inventory	☑	☑
▪ Inventory Carrying Charges		☑
▪ Services Contracts		☑
▪ Mobile Maintenance		☑
▪ IT	☑	
▪ Corporate Overhead & Services		☑
Implementation Costs		
▪ Severance	☑	
▪ Office Lease Changes	☑	
▪ Miscellaneous Formation	☑	
▪ Legal and Financial Services	☑	
▪ Management Consulting	☑	

those that are quantifiable. They can also serve as a reminder of those goals and objectives which need to be incorporated into the JNOC’s business plan.

This short *Management Insight* can hardly do justice to such an important but complicated topic as JNOC formation. While we believe that there are few barriers to forming a JNOC that cannot be surmounted, the biggest barrier appears to be the JNOC formation process itself utilized by many utilities. Considering the significant cost and risk sharing benefits potentially available from a JNOC, it has so far only represented a missed opportunity for many nuclear plant owners.

While this *Management Insight* restricted itself to JNOC formation, the points raised are equally applicable to formation of a Joint Nuclear Generating Company (JNGENCO). In a JNGENCO, however, plant asset ownership is transferred, and the various co-owners share financial and electricity output risk with regard to all the plants, even those they did not originally own. The next *Management Insight* will address issues specific to such risk sharing arrangements.