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September 29, 2010

MEMORANDUM

TO: Council Members

FROM: Terry Morlan
IEAB Coordinator

SUBJECT: Annual Report to the Council by the Independent Economic Analysis Board (IEAB)

Earlier this year, the Council debated the future role of the IEAB. In those discussions, a need for more communication between the IEAB and the Council was identified. One action related to this was for the IEAB to present an annual report on its activities to the Council. This agenda item fulfills that commitment.

Roger Mann, Chair of the IEAB, will present a brief annual report to the Council. A written version of the annual report is attached to this memorandum.

Attachment



Independent Economic Analysis Board
for the Northwest Power & Conservation Council
851 SW 6th Avenue, Suite 1100
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Fiscal Year 2010 Annual Report

October 1, 2009 through September, 2010

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September 1, 2010

IEAB Fiscal Year 2010 Annual Report

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IEAB Fiscal Year 2010 Annual Report

Background

The Independent Economic Analysis Board (IEAB) is one of three advisory committees to the Northwest Power and Conservation Council (Council) that satisfy the Council's obligation under the Northwest Power Act (P.L. 96-501, 16 U.S.C. §839 et seq. (Act)). The Act requires the Council to develop a regional conservation and electric power plan and a fish and wildlife program (Program) to protect, mitigate and enhance fish and wildlife affected by the development and operation of the hydroelectric facilities on the Columbia River and its tributaries. In developing the Program, the Act requires (among other things) that the Council “utilize, where equally effective alternative means of achieving the same sound biological objective exist, the alternative with the minimum economic cost.” The Act also directs the Council, as part of the project review process, to “determine whether the projects employ cost-effective measures to achieve program objectives.”

The IEAB’s primary objectives are to:

- provide the Council with increased analytical capability to bring economics to bear on issues within the Council’s statutory responsibilities;
- advise the Council on appropriate methods of economic analysis for proposed fish and wildlife protection and mitigation measures and on the appropriate use of economic analysis to support policy decisions.

Almost all IEAB funding comes directly from the Council’s Fish and Wildlife Division. Over the 12 years of its existence, the IEAB has focused on cost-effectiveness analysis (CEA), but has also provided economic advice on other fish, wildlife and energy issues at the Council's request. The IEAB has produced 28 reports and has engaged the region in discussion of economic issues related to the Program. IEAB reports are available at: www.nwcouncil.org/fw/ieab/Default.htm. In addition, the IEAB presents its reports at various regional fora.

Early in Fiscal Year 2011, one vacant IEAB position and three replacements or reappointments for members whose terms have expired will be filled following the process specified in the IEAB Charter. Fourteen applications were received and the selection committee has provided four recommendations for appointments.

Fiscal Year 2010 Activities

Fiscal Year 2010 (FY 2010) was a year of reexamination of the IEAB and its value to the Council. The year began with a discussion about ways to restructure the IEAB or provide its services by other means. We provided Council members with the historical context of the IEAB and a paper that discussed some options for providing economic information for the Council. We developed background information and provided synopses to the Council on seven potential work topics:

1. Evaluate the effectiveness of irrigation optimization for fish and power.
2. The adoption of fish friendly and more efficient hydropower turbines.

3. Hatchery cost comparison focusing on potential cost benchmarking for BPA-funded projects.
4. Future competition for water.
5. Cost analysis of spill and flow operations to benefit migrating salmonids.
6. Evaluation of spillway weirs.
7. Time series perspective on Fish and Wildlife Program costs

The Council deliberated whether to approve a new charter for the IEAB and, if so, in what form. A new charter was approved by the Council in April.

Several new protocols to reduce costs and increase the value of IEAB services are described in the “Going Forward” memo directed to the IEAB, dated June 22.

The new protocols are:

- Presentation of an annual report to the Council
- Monthly meetings conducted by conference call with in-person meetings held quarterly. When possible, in-person meetings to be scheduled close to Council meetings in order to facilitate discussions with Council members.
- More coordination with the ISAB and ISRP, including participation by members of these groups in IEAB tasks that have natural science components, an annual joint meeting to discuss natural and social science issues and opportunities for collaboration, and more work with outside specialists.
- Upgraded IEAB website content to include meeting minutes, reports and special topics.
- Alerting Council members by email of tasks with budgets less than \$5000.

IEAB Reports FY 2010

The IEAB completed two reports in FY 2010. In fall of 2009, we prepared comments on Chapter 11 of the draft 6th Power Plan. In July, we released a study of the economic risk associated with the potential establishment of zebra and quagga mussels in the Columbia River basin. The mussel report has received widespread distribution and discussion. Presentations of the report were provided at the 100th Meridian Initiative Columbia Basin Team meeting, June 10, and at the Invasive Species session of the Pacific Northwest Economic Region Summit meeting, July 17. A presentation for the Lake Roosevelt Forum is expected November 15.

The FY 2010 reports are summarized below. More complete descriptions are found in the report executive summaries.

1. Review of Draft Sixth Power Plan Chapter 11, Capacity and Flexibility (Task 152)

November 2, 2009 | document IEAB 2009-3

<http://www.nwcouncil.org/library/ieab/ieab2009-3.htm>

The review was motivated by some concern in the region that potential rate impacts of wind integration are being underestimated.

The IEAB found that, while Chapter 11 is an excellent coverage of the technical interrelationships which underlie the costs of integrating variable generation resources into the PNW system, it did not directly discuss these costs or rate impacts. The IEAB recommended that the 6th Power Plan should include a discussion of the cost and rate estimates from Appendices I and P, focusing on the costs of integrating variable generating resources, and including a short summary of the estimated effect on power rates. Chapter 11 could reference a section on costs and rates that could be included in the main document. Specific additions to the text were suggested.

2. Economic Risk Associated with the Potential Establishment of Zebra and Quagga Mussels in the Columbia River Basin (Task 159)

July 14, 2010 | document IEAB 2010-1

<http://www.nwcouncil.org/library/ieab/ieab2010-1.htm>

The report reviews the current state of knowledge about the risk of mussel introduction, establishment, growth, and densities. Potential costs of damage from infestation are estimated as well as potential costs of avoidance or delay and control. The report concludes with recommendations for research and policies that could improve the assessment of the risks and costs of mussel infestation.

Ambient calcium concentrations are expected to limit the colonization, growth rate, and densities of mussels in parts of the Columbia Basin, but calcium concentrations are highly variable over time and between locations. For much of the Snake River above the Clearwater River, some parts of the Salmon, John Day and Pend Oreille River basins, and other local areas, calcium conditions may be generally favorable for mussels. A Snake River infestation is used to develop cost estimates because this scenario is believed to be relatively likely. Under this scenario, an accidental introduction in the upper Snake River basin would enable veligers (free-floating juveniles) to drift downriver and colonize suitable areas into the lower Snake River with some establishment in the mainstem Columbia.

Control costs associated with mussel infestation of hydropower facilities includes costs of chemical control systems, antifouling paints, cleaning, and potentially, lost power production. Costs of painting and cleaning FCRPS hydropower and passage facilities with a Snake River infestation could amount to tens of millions of dollars annually. In a potential worst-case scenario, potential costs include some combination of hydropower production losses, cleaning and control costs, costs of redundant screens and new bypass systems, and an additional cost that should be assigned to any

reduced juvenile survival. The total potential cost of mussel fouling of juvenile passage systems is unknown, but could be in the tens to hundreds of millions of dollars annually.

Potential costs to water supply systems, primarily irrigation systems, are estimated to be in the tens to hundreds of millions annually. Hatchery water supplies are vulnerable, and fouling of fish screens on intakes has important implications for the Program.

Existing technology provides no reliable options for cleaning or protecting natural habitat from a mussel infestation. Damage would be primarily through food web effects; dense populations of these filter-feeders can substantially alter food chains. Potential impacts, based on calcium concentrations, might be profound in the Snake River Hell's Canyon reach. We assume that existing policies would require that anadromous fish and rare species populations be returned to their without-mussel status. The cost of this compensation is unknown, but could be tens to hundreds of millions of dollars annually.

It is likely that these invasive mussels will eventually colonize some of the large rivers of the Columbia Basin. However, there is much value in delaying this result for as long as possible. First, a delay will allow scientific information to be improved. For example, many control technologies are still being developed and evaluated. Second, the annual benefit of delays in terms of immediate cost savings is large. Third, a delay will allow for more advanced planning and permitting of potential response actions that might reduce the chance for a widespread infestation or reduce management costs. In the short run, prevention buys time that can be used to prepare.

Given the large cost potential and the unresolved science issues, it appears that existing prevention programs may be under-funded in the short run. In the long run, the region should invest to clarify how well invasive mussels might do in different parts of the Basin.

Potential Activities for FY 2011

In FY 2010 the IEAB began to participate in the Council's review of research, monitoring and evaluation (RM&E) costs, and we continued review of several potential topics for economic studies. This section describes some recent concepts for economic topics that, if the Council is interested, we will continue to discuss in FY 2011.

1. IEAB Role in RM&E Initiatives

With Council staff, the IEAB is developing a plan for participation in two related efforts to improve research, monitoring and evaluation (RM&E) in the Program. In the long run, the Council's Monitoring, Evaluation, Research and Reporting (MERR) Plan is an adaptive plan to improve RM&E. In the short run, the ISRP has been asked to conduct a review of RM&E project proposals "mindful of the Council's goal to reduce duplicative or excessive levels" of RM&E. We have already commented regarding the importance of alternatives, and we suggested that "the ISRP and other experts should be encouraged to explore alternative methods for obtaining RM&E information at lower costs."

We tentatively agreed that the IEAB can contribute by 1) learning about the MERR Plan and commenting, and 2) commenting on the ISRP RM&E project review, which is currently expected

about October 13. Nancy Leonard presented a summary of MERR at the August 27 IEAB meeting. We will discuss potential ways to proceed at our October meeting.

2. Other Economic Topics under Review

In 2010 the IEAB reviewed a number of economic topics suggested by Council members and others. Four topics are still being discussed:

1. Irrigation efficiency, hydropower and fish flows.
2. The adoption of fish friendly and more efficient hydropower turbines.
3. Hatchery cost comparison focusing on potential cost benchmarking for BPA-funded projects.
4. Costs of wind generation and integration from alternative accounting perspectives.

Background papers on these topics are available. The IEAB welcomes comments on the potential value of related projects. The IEAB looks forward to working with Council, Council staff and the science boards to identify other emerging economic issues to investigate in FY 2011.

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