

Comments on the November 2015 Draft WaterFix Economic Analysis Prepared for the California Natural Resources Agency By the Brattle Group

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I was recently given a copy of an economic analysis of the WaterFix developed for the California Natural Resources Agency in Fall 2015 by Dr. David Sunding of the Brattle Group. This document has many similarities to the August 2016 Benefit-Cost Analysis of the California WaterFix published by the Center for Business and Policy Research (CBPR) at the University of the Pacific that I direct. These comments are intended to help people understand the information in the State's consultant analysis, and how it compares to the CBPR report.

Summary Analysis

The Brattle Group report states "I conclude that the WaterFix passes a cost-benefit test in aggregate." However, when the results are disaggregated by urban and agricultural users, the report finds "benefits fall short of allocated costs for most agricultural water users." Because costs exceed benefits for agricultural users, the report actually finds that the tunnels are not economically feasible as this requires benefits to exceed allocated costs for all users. Thus, much of the rest of the report attempts to rationalize public subsidies to lower the costs for agricultural contractors.

The Brattle conclusion about aggregate benefits exceeding costs is the opposite of CBPR's recent benefit-cost analysis which found 22 cents in benefits for each \$1 of costs. However, the difference is entirely the result of several unjustifiable assumptions which are at odds with the public documents the State has released describing WaterFix operations and finance, as well as numerous public statements that water users would pay all project costs. Two assumptions are particularly critical:

- It assumes a \$4.6 billion¹ (2014\$) subsidy of the Central Valley Project from federal taxpayers or some other source. This assumed subsidy is 29% of total construction and mitigation costs, and 59% of the share of this cost allocated to the Bureau of Reclamation's Central Valley Project. Clearly, this huge subsidy is in stark contrast to ten years of public statements that all construction and mitigation costs would be paid by water users.
- It assumes water yields (the difference in export water delivery with and without the tunnels) are 4 times higher than in official WaterFix documents including its RDEIR/SDEIS and petition to the State Water Resources Control Board.

Even with these two problematic assumptions, the Brattle report did not find benefits exceeded costs for agricultural users. That is, even with the \$4.6 billion CVP subsidy, the report finds an additional \$1.9

¹ The report actually refers to the subsidy as \$3.9 billion, but this figure is in present value terms including a 3% real discount rate. This is equivalent to \$4.6 billion in actual costs, which is the appropriate figure to compare to the nearly \$16 billion in construction and mitigation costs.

billion² subsidy would be needed to make the tunnels a break-even proposition for agriculture. Thus, the report finds a total need for a \$6.5 billion subsidy for agriculture's share of the tunnel construction costs even when using a very optimistic assumption of water yields that exceed those listed in the WaterFix environmental documents. The report discusses but does not analyze ideas to potentially avoid a direct subsidy of construction costs if the state were to publically fund purchases of water from users upstream of the Delta to augment supplies delivered through the tunnels or if agricultural contractors could sell water to urban users for enough to pay their construction costs.

It is important to recognize that the report is not a statewide benefit-cost analysis, as would be appropriate for the Natural Resources Agencies and consistent with their guidelines. It only looks at the issue from the perspective of water contractors, and only considers larger public impacts if they have potential to justify a state taxpayer subsidy for the tunnels. Thus, the Brattle report completely omits indirect and public costs to the Delta, upstream communities, and the environment. The omission of harm to other California communities is inexcusable given the call for California taxpayer subsidies for the tunnels based on claimed public benefits to all California citizens. As discussed below, the arguments for indirect and public benefits are very weak.

Finally, it should be noted that with the exception of some rather bold assumptions about subsidies and water yields, this report is not that much different than the CBPR benefit-cost analysis. In fact, the Brattle report rather honestly notes that the WaterFix does not make economic sense if the WaterFix is compared to the No Action Alternative baseline used in REDEIR/SDEIS and other official assessments of the project – which is the baseline used in CBPR's benefit-cost report so as to maintain consistency with environmental assessments and the SWRCB petition. In other words, if the yield and subsidy assumptions were dropped, the benefit-cost results in the Brattle report would be nearly the same as the "optimistic scenario" in the CBPR report.

Additional Comments and Details

Water Transfers: The report correctly notes that the value of water to urban agencies is much higher than agricultural users, and that one way that agricultural users might be able to cover their allocated costs of the tunnels is to sell their water to urban agencies for higher than their allocated costs. While there are potential advantages to agricultural to urban water transfers, there are some problems in the context of this analysis. First, it is important to note that such transfers would result in increased fallowing of farmland according to the analysis of this report on how water shortages will affect farmland after the implementation of the Sustainable Groundwater Management Act. Thus, this water transfer strategy conflicts with the Reports' argument for a State taxpayer subsidy, since the primary

² Similar to the CVP subsidy, the Brattle report uses present value terms in which the effect of discounting needs to be removed to identify the required subsidy to construction costs. Table 10 shows the negative net benefits to agriculture after the assumed CVP subsidy in present value terms (-\$582 million for SWP ag, and -\$990 million for CVP ag). This is a present value of -\$1.57 billion which is about -\$1.9 billion without discounting. Thus, an additional \$1.9 billion subsidy to construction costs allocated to agriculture would be necessary for agriculture to break even.

argument advanced for the subsidy is to mitigate the potential indirect losses from fallowing farmland. Second, most ag to urban water transfer opportunities do not depend on building the tunnels, and the state is free to change policies to maximize these transfers and capture the resulting economic welfare gains with or without the tunnels.

The Analysis of Indirect and Public Benefits Is Very Weak And Does Not Justify a State Subsidy: The Brattle report identifies 3 potential areas of indirect or public benefits. It is hard to believe that Dr. Sunding would agree with these arguments, and at least on the first two, it seems he has just gone through an exercise at request of the client agency and found no real public benefit.

- 1) Lower Food Prices: California is a large net exporter of food, so even in the unlikely case that WaterFix significantly lowered food prices – this would primarily be a benefit to consumers around the world and reduce income for other California farmers. To its credit, the report notes that any impacts of this are primarily distributional, and thus not a justification for a general subsidy.
- 2) Job Gains from Construction: The report itself finds that there is little to no net job creation, because of the offsetting impact of increased water rates. In addition, alternative water supply investments that would occur without the tunnels could have even higher employment impacts.
- 3) Fallowing Impacts on Farm Jobs and Indirect and Induced Impacts: This last area, section 8.C and 8.D in the report, estimates economic benefits of farming beyond those that accrue to the farmer itself and are captured in the value of water. These include jobs and wages earned by farmworkers, as well as indirect and induced income to those selling inputs and services to farms and farmworkers. It estimates the WaterFix will keep 177,000 acres in production and the present value of the worker income from this over 50 years is \$3.4 billion per year, perhaps implying that subsidies up to this level could be justified. This is not a valid argument for a subsidy, indeed we could argue for subsidizing every industry with this argument. However, taxpayer dollars for subsidies are not free. They must either come from diverting the funds from other uses (which support jobs and income of their own) or from increased taxes which reduce income of other Californian's and creates deadweight efficiency losses through the tax system. This argument for subsidies is invalid and has been rejected in multiple settings. In addition, it would seem to fly in the face of the reports call for ag to urban transfers to finance the WaterFix, which would result in this same fallowing.

The Report Only Calculates the Water Supply Benefits of the Changed Baseline, Without Accounting For Environmental and Other Costs: The Brattle Report boosts the water yield of the tunnels by replacing the EIR No Action Alternative with what it calls the “Existing Conveyance with Proposed Project Operating Criteria.” Imposing this stricter operating criteria on the south Delta pumps without introducing the WaterFix increases the WaterFix by a factor of 4 compared to the No Action Alternative. However, changing this baseline would change much more than just water yield, it would introduce a baseline that is more beneficial to the environment and in-Delta water users than the No-Action Alternative. Thus, the WaterFix would be more harmful to the environment and in-Delta water users

compared to the Brattle Group's baseline, than it would be compared to the No-Action alternative. While the Brattle Group argument that this is a more realistic baseline can be challenged, the bigger problem is that the Brattle analysis only counts the benefits of this change, and omits the costs.

Seismic Analysis: It is important to note that the benefit-cost analysis only attributes small benefits to avoided seismic risks in its benefit-cost analysis. However, rather than educate readers about why the economic loss is not as bad as feared, the report dedicates its energy to working through some scary worse than worst case scenarios for tunnel promoters to use in a PR campaign. In fact, the report confirms that most experts now believe the worst case for a seismic-induced water shortage is about a 6 month outage – and then goes on to ridiculously use a 7.5 month outage as its conservative, lower bound and estimate outages up to 3 years. The estimates of massive job loss are not credible and counter to experience the state has with managing more severe water shortages during droughts. In fact, it is strange to see Dr. Sunding analyze job loss in this way rather than take the econometric approach he advocates in a different section on agricultural water shortages. The exaggerated risks of the seismic event are bad enough, but the worst part of the analysis is how it completely ignores all the other, much larger, economic impacts of such a flood event. I have discussed this in more detail in CBPR's benefit-cost report, the Delta Protection Commission Economic Sustainability Plan and other documents.

Overestimates Future Water Demand: The report states the future water demand estimates follow analysis in Chapter 9 and Appendix 9A of the Bay Delta Conservation Plan. As I have discussed in earlier reviews of this 2013 analysis, the model uses large overestimates of population growth and underestimates of conservation and alternative water supply development to overestimate future water demand and underestimate future water supply without the Tunnels. For more see, <http://www.pacific.edu/Documents/school-business/BFC/BDCP%20economic%20impact%20report%20review%20final.pdf>

Water Supply Benefits are Labeled "Environmental Compliance" Benefits: This is an odd turn of phrase to describe the concept of protecting water exports from future cuts. The wording is problematic, because it implies the WaterFix creates environmental benefits, when it does not. In fact, as previously discussed, the Brattle Report does not calculate environmental cost – which are particularly important since the Brattle Report uses a no-tunnel baseline that is more protective of the environment than the EIR's No Action Alternative.