

CVP Cost Allocation Powerpoint (Audio Only)

Carl: ...everybody hear me?

Jerry: Yes.

Carl: Welcome. Thanks, everyone, for coming today. I'm really excited about the opportunity to come and speak with you a little bit about the CVP cost allocation, something near and dear to my heart that the Policy Office has been talking about for a long time.

Really glad to see us underway in this effort. Most of us would agree, a very much needed effort. The last time, we did a cost allocation on the CVP. I was celebrating my third birthday. I can't speak to really 100 percent of the experience of that, but definitely a much needed endeavor for us to be jumping into.

I wanted to go over a little bit about the standard methodology for how we do these. Reclamation doesn't do a whole lot of these these days. Most of the projects that we have we've already completed a final cost allocation on. The ones that are outstanding are just a handful. We're not doing a whole lot of these, but we do have a lot of historical experience and background to draw on and quite a bit of policy in place to document and institutionalize how we go about this process.

I just wanted to step through some of that policy and the process that we go through for cost allocation. Then I'll get into some of the more specifics that I know are questions on a lot of people's minds and then, hopefully, we can have a good dialog about that and answer some questions and have some back and forth and hopefully get ourselves to a good place for moving forward.

Catherine: [indecipherable 0:01:58] . Sorry, just because there were a couple people that came in. We are videotaping this, so I just wanted to make sure there's no objection to videotaping the presenter as well as the presentation.

Burt: Yeah, I object.

[laughter]

Catherine: We can turn it off.

Burt: I'm just teasing.

[laughter]

Carl: I'm not that bad.

[laughter]

Carl: All right, so starting off with just conceptually purpose of the cost allocation, why would we go through such an expense and such an effort to just allocate the cost of the project? The purposes are to comply with federal law and policy requirements regarding project financing.

A lot of the requirements for why we're doing a cost allocation come out of the 1939 Reclamation Project Act, which is the first acknowledgment in reclamation law that we would have multipurpose projects, that would serve a range of different users, with different interests, and ultimately different reimbursability requirements, as well.

So, '39, that directed the Secretary of the Interior to allocate the cost of a multipurpose project, and to do so in a way...This is two key points that are in the '39 act. One, we were to use that to determine the financial feasibility of a project.

The language is something to the effect of making sure that, before the secretary recommended a project, they could ensure that it was going to be feasible. The expected revenues were likely to match the expected costs.

Then finally, they're to make sure that the benefits of constructing a multipurpose project were distributed equitably and impartially, among all the different participating project purposes. Again, with the range of project purposes, particularly on a project as large and complex as the CVP, and one that has happened over a long period of time, that's obviously a complex process that's going to be required to figure out how to do that impartially and equitably.

Some reclamation policy on how we approach cost allocations. This is currently in the "Reclamation Manual," in the Project Economics and Contracts series, at Directives and Standards 01-02. If you're not familiar with the "Reclamation Manual," I encourage you to jump on our website. It's on the front page. There's a link that takes you to the "Reclamation Manual," and you'll find this there.

All requirements within reclamation are in the "Reclamation manual." That particular one's been around, in that format, since about 2000, but essentially reflects reclamation policy going back to before we even had what we call the "Reclamation manual," we had what we called "reclamation instructions." Pretty much identical terms and requirements in those previous reclamation instructions, going all the way back to 1959.

I want to step through just a couple of key points that are in this policy directed standard on cost allocation.

First one is, what costs are we going to allocate? Section 7A of that says the costs are adjusted for time of occurrence by applying compound interest and annuity factors to get the equivalent present worth monetary values back to the first year of project service. In figuring out what are the actual costs that we're going to allocate, we take those back to the first calendar year of project service.

Similar for benefits. We'll take all of the benefits, including the single purpose alternative costs, because those are calculated for the same purpose as benefits are, to figure out the basis on which we're going to allocate.

Those benefits and single purpose alternative costs are the same thing. They're placed on a comparable basis in relation to time of occurrence using the same interest rate and the same period of analysis, and they're brought back to the first calendar year of project service. You're going to calculate, again, back to the first year of project service for both benefits and costs.

Then a period of analysis. This is also important. The period for estimating benefits and costs using the cost allocation process is the same as in project formulation. It's the lesser of the economic life of the project or 100 years beyond the initial date of service.

Typically, our project life cycle, whether calculated that way or not, as we know, goes well beyond 100 years. The projects are in service for well beyond 100 years. But it's that 100 year life cycle is what is used for calculation of the benefits and the costs.

Standard methodology. Standard method for allocating costs on multipurpose project, used by a range of federal agencies, is the separable costs and remain benefits process. I'm sure you've all heard that term.

It is somewhat complicated, again, in recognition of the fact that allocating the costs of a big multipurpose project requires that level of complexity in order to maintain impartiality. Then I wanted to just go through the seven steps that are involved in doing SCRB, separable costs-remaining benefits allocation.

We're really only going to dive into detail on the first two, because that's where we've really got some questions at this point. But I wanted to walk through all seven, so you can see why it's so important that we come to the conclusions that we do in 1 and 2.

The first step in allocating the costs is to estimate the monetary benefits that are provided by each project purpose. Again, reclamation policy says we take that back to the first year of project service and go out 100 years.

Number two, we estimate the single purpose alternative costs, in other words, what would it cost to build a project for any of the individual project purposes that would provide the same benefits for just that purpose. For hydropower, what kind of project would we have to build to provide those same benefits but just for power? That's the single purpose alternative cost.

Then we compare those two, and we come up with what we call the justifiable expenditure. It's the lesser of those two, the lesser of the total project benefits or the single purpose alternative cost.

The concept behind that, the rationale behind that is that, in building a multipurpose project, all of the participants and the society that represents, or that is going to benefit from those values, who would be willing to pay either up to the amount of benefits that they would get from the multipurpose project, or the amount that it. The cost that it would take them to build a single purpose project that would provide just the benefits they're looking for.

If I'm a municipal and industrial user, I'm going to be willing to pay into a multipurpose project up to the benefits that I get out of it, unless I think I can go build my own single purpose municipal and industrial project just to supply the municipal and industrial water needs that I have.

That's sort of the theory, the rationale behind why we get to step two, comparing the benefits to the single purpose alternative. Whichever is less, that's the one I'm going to be willing to pay for as a participant in this multipurpose project.

Then we take out the next step. Again, I'll just run through these fairly quickly, so you can see why we have to do one and two.

The next step is we take out the separable costs and that is what costs would be avoided if we left out one particular purpose. The separable costs to irrigation use, for example, is, if we took irrigation use out of this project, how much smaller could the dam be, how much less would you have to build in terms of delivery infrastructure? Those costs are all separable to irrigation.

Then what is left is joint costs. We take those separable costs and we subtract those from the justifiable expenditure that we came up with in number two. Because, again, those are clearly costs that can be allocated directly to the particular purpose that we calculated those separable costs for. Then, that leaves us the remaining justifiable expenditure.

Then we take that remaining justifiable expenditure for each individual project purpose, and we look at the proportion that they bear to each other. If irrigation is 20 percent of that, power is 30 percent of that, M&I is 10 percent of that, flood control is 30 percent of that. We look at that proportion that they bear to the total and then that's how we allocate the remaining joint costs among those purposes.

Each purpose gets the separable costs and their share of the remaining joint costs that, again, are allocated in proportion to what we came up with in number four. Then that's the total allocation to that purpose.

Any questions specifically on the steps? Is that easy enough to follow? OK.

All right, so then, a little more specifics on the benefits analysis. As I mentioned at the beginning, Reclamation policy, again, pretty standard across federal agencies, is, we use 100 year period for each of the project purposes.

Then I wanted to talk a little bit about this concept of base year. Because again, we've got to put the benefits and the costs on a comparable basis to each other in relation to time. Then we've ultimately got to get those back to the first year of project service, because the cost that we're going to repay aren't what it would cost in 2013 to build the CVP facility.

Historical benefits are going to be brought forward to a base year, and future benefits are going to be brought back to a base year, and then discounted to the first year of project service.

What we choose as the base year, so long as it's the base year for benefits and costs, isn't going to make a difference in the relationship of the benefits, so long as they're on the same year and then they're brought back to the first year of project service.

It happens to be, generally, a little easier to find the value of a particular delivery in a year that's pretty close to us, than it is to go back and try and figure it out way back into history. Because we may have limited records, there may have been a particular anomaly for that period. It tends to be easier to pick a base year that's a little closer to us.

The technical team that's working on the CVP cost allocation, I know, is working through what's going to be the best base year to use the terms of ease and accuracy.

But in any case, wherever that base year is, anything before it, we'll compound those values to get up to it. Anything after it, we will discount those to bring them back to that base year. Again, all the benefits and costs are in relation to each other in a common year.

Then, how we would do that with, well, so the main, the accomplishments and deliveries, then, is what we're going to take times that common base year unit value. We'll figure out what's the benefit value for flood control in the base year, for power in the base year, for irrigation in the base year. Then we'll take, what were the deliveries and accomplishments times that.

We have really good records, or better records, on the accomplishments and deliveries, obviously, than we do on the benefit levels and price levels. That's a way to make sure that anomalies in price levels or benefits generated and that sort of thing don't unduly impact the analysis.

Again, if that's, megawatt hours for power or acre feet for water supply, we'll take those accomplishments or deliveries and multiply it by that base year unit value. So that, again, we're not subject to outliers or fluctuations in the way that the benefits have stacked up over that 100 years period.

For historic benefits, obviously, we would do actual accomplishments and deliveries, if we have records of those. For future benefits, we would do reasonably foreseeable accomplishments and deliveries.

As we all know, with the CVP, at least as much as any other project in Reclamation, the future is hard to foresee. It's hard to say exactly how it's going to unfold over the remainder of the project, the 100 year life cycle. But we take what's reasonably foreseeable and then, again, multiply those by the base year unit value.

A couple of relevant concepts, I think, to keep in mind as we get into some more of the details is, the cost allocation is used to assign projects to various purposes and ultimately, we need to do that in order to accomplish project repayment. But it's not the repayment policy or the actual collection of revenues that drives the cost allocation.

The cost allocation is an attempt to impartially, and equitably allocate the cost to the project purposes, and then there's repayment policy for each individual project purpose. Then this key point, on the justifiable expenditures, if the justifiable expenditure is determined by a single-purpose alternative cost, in other words, that's less than the benefits, then even if the benefits continue to go up, that may not necessarily change the outcome, because the justifiable expenditure is the lesser of those two.

Why don't I go through a simplified example of why this period of analysis started from the first year of project service is important, because there was a lot of questions about, "Why are you putting in both historical and future benefits?" The simple answer is, we're in the middle of that 100 year period of analysis, so we're going to have some before and some after. What happens to the equitable nature of the allocation if we have a change in the generation of benefits right in the middle of the project lifecycle, and we don't change the allocation?

That's what I want to step through just to show why that methodology that we use is important, and when it makes a particularly large difference. Since we only have 30 minutes to an hour, instead of three days, I'm going to simplify a lot of things to show how we would step through this. Assumptions for this

example are, we have a project the cost \$1 million, and two purposes, and the proportion of the benefits is 30 percent, and 70 percent, so on the X-axis, you have the hundred years of the project lifecycle, on the Y-axis, you have the percent distribution of the benefits.

That's why, over time, you don't see those benefits going down because it's not a number value. If it was a number value, you would expect the present work contract to make those go down over time, but we're talking just as a percentage here.

Over the hundred year period of the project, you have 70 percent to purpose two, and 30 percent to purpose one. Making a simplistic assumption that the benefits are greater than the single-purpose alternatives on this project, and therefore, that the benefits are going to drive the allocation, you would...and making another assumption that all the facilities in this project are multipurpose, and they equally serve purpose one and two.

Those are my simplifying assumptions. Changing those assumptions doesn't really change the outcome, but it helps us step through the math a little easier. The outcome of those assumptions is you're going to have 30 percent of this projects costs allocated to purpose one, and 70 percent allocated to purpose two. Then if we change the way the benefits unfold, and we assume that the benefit stream changes in year 51, so that purpose two is now only getting 60 percent of the benefits of this project, and purpose one is getting 40 percent, then years one through 50 should be allocated 500,000 of the cost.

You have half of the benefit period, half of the time, and that gives you the 500,000, and that would be split on a 30/70 basis between purpose one, and purpose two, 150,000 and 350,000. If we knew at the beginning of the project, in year one, when the project goes in the service, that this was going to happen, then we would see that that 40/60 split in the last half ought to apportion the cost 200,000/300,000 to purposeful one and two in the last 50 years, and then over the total lifecycle of the project, it ought to be 35/65. If you add up the benefits then on this scenario over purpose one and two, it's 35/65, and this is how you would split the cost.

If you knew this at the beginning of the project lifecycle, when it's placed in the surface, it would be easy to figure out how to do that, but the only way you could maintain equity is if the repayment also occurred equally over the project lifecycle. In other words, at year 50, half of the cost had been repaid, then you could just shift to 40/60, and everybody pays 40/64 the second 50 years, and you're all good, and so not a problem, it still gets allocated equitably.

Burt: Carl, what happens if purpose one is eliminated in 50 years?

Carl: Then what we would do is we would take...and I think this example is pretty applicable to navigation, and I may need a little help if I get in too much detail on the navigation, but my understanding is we've calculated some benefits that have accrued to navigation over the first part of the project lifecycle, and we're not anticipating any future benefits, and so same thing would happen.

If purpose two went to zero, and purpose one went to 100 percent, you'd still have all the summed cost of purpose two, because they're benefits that are generated from purpose two. You're OK, there's no problem if we've been paying in relative proportion to the project lifecycle.

Burt: But what if it was reimbursable? How are you going to collect that when you have no future deliveries?

Carl: That would be a real...and it's important to make sure we follow this idea that the cost allocation is to assign costs to project purposes, not to individual repayment entities, and it's not influenced by, particularly, payment policies. The cost allocation is to assign the cost to the project purposes, then repayment policy is governed by another set of law and policy.

In the example of navigation, it's nonreversible, so it's not a problem. If you're going to allocate costs to it, that will reduce somewhat the allocation to all the other purposes, and then because it's nonreimbursable, we're not going to have a repayment issue.

If a purpose had gone away entirely that was reimbursable, yes, we would have a repayment issue on our hands, but that would be a repayment issue, not a cost allocation issue. It's straightforward how we would deal with that from a cost allocation perspective.

I'll get into a little more specifics about repayment policy as well, because I'm sure there's some questions that are going to result from that. But let me do a couple of variations on how the repayment happens just to show why the project lifecycle is important.

This first light here assumes constant repayment, and other words one percent of the repayment happens in each of the 100 years of the project lifecycle. In our example of the change to benefit stream, years one through 50 we allocated 30/70 percent, because that's how the benefits are accruing, and assuming a constant repayment stream, purpose one pays 150,000, purpose two pays 350,000, and then in years 51 through 100 we change that, and purpose one pays 40 percent from that point going forward, and purpose two pays 60 percent, and so you have a split of 200,000 and 300,000 in the second half of the project lifecycle.

If you add those up, the total benefits across the project lifecycle shakeout 35 percent/65 percent, and you see that the repayment also comes out in those same proportions, 350,000 ends up getting paid by purpose one, and 650,000 it's paid by purpose two. So, it's still equitable, it's still just, the accrual benefits matches the allocation of cost to each purpose, and with constant repayment the repayment side ends up matching as well.

Then, a couple of changes in the assumptions. Let's assume that rather than paying uniformly over the hundred year project lifecycle, we actually accelerate the payment, and more of the repayment happens in the beginning.

With some of our simpler projects where you build the dam and a canal, and you finish it, and then you enter in the repayment contracts, and people repay over 40 years, which is a typical term, this is essentially the scenario we would have is an accelerated repayment, because repayment happens over the first 40 years, then they're paid out, benefits continue to accrue over the next 60. We have a lot of projects that are in this kind of scenario. Following our same approach, let's assume that 750,000 gets repaid out of this million dollar project in the first 50 years.