



November 5, 2019

The Honorable Kyle R Kline, Jr.
Chairman, Coastal Protection and Restoration Authority
P.O. Box 44027
Baton Rouge, LA 70804

Dear Chip,

My organization, the Environmental Policy Innovation Center, has been strongly supportive of Governor Edwards' Pay for Success law since it became the nation's first and strongest model of environmental Pay for Success legislation. In 2017, we published the first analysis that looked at your Pay for Success law and related initiatives that were occurring in Maryland and California in a report called Nature, Paid on Delivery. We see Louisiana's and similar state and federal Pay for Success initiatives as crucial to speed environmental restoration, create stronger links between restoration jobs and conservation progress, and to build a more effective and innovative approach to procuring restored environmental assets than is possible using traditional contracting.

Given our background on this Louisiana initiative, we were approached by all of the bidders who submitted proposals under your first round of bidding under this legislation, when the Coastal Protection and Restoration Authority rejected all bids and shared analyses suggesting that the bids were more expensive than CPRA could fund. Those businesses provided us with a small amount of funding which was sufficient to interview each company, associated engineering firms, and others, allowing us to produce the attached analysis. The critiques, conclusions and recommendations in this analysis are entirely our own.

Our principle conclusions are that three problems, each solvable, led to this current outcome.

- First, CPRA staff with years of experience in other forms of contracting simply have a cultural bias against this new form of contracting which is perceived to give government employees less control over projects. This kind of cultural resistance is common in similar initiatives across the country to use results-based contracting in both environmental and social programs. The reaction is understandable, but often misplaced, as companies that do results-based contracting have a strong incentive to work closely with the agencies that pay them because they want to be competitive in future contracting opportunities. Instead of doing paperwork, government staff retain many informal and consultative roles on projects that are critical, but it can be hard to see this in the written materials associated with contract solicitations.
- Second, we believe there are ways that CPRA has missed or undervalued real risk reductions provided by this form of contracting to CPRA and the public it serves. This includes the value of

accelerating by 2-3 years these and dozens of future projects under Louisiana's coastal restoration master plan. It includes the risk reduction associated with the final 20 percent performance payment at Year 5 that no previous CPRA project faced, in addition to an extended guarantee that restoration work will continue to perform to a high standard more than 20 years after construction is complete.

- Third, we believe there are aspects of the contract solicitation for projects that created unintentional costs and unnecessary risk transfer and that CPRA probably did not intend to have the effect they had on bidding. For example, the "clawback" provisions putting the remaining 80 percent of construction costs into the contract as a penalty for poor performance is likely unnecessary and costly. It is unnecessary because contractors already have an incredibly strong incentive to meet the performance contract standards simply with the 20 percent of the construction payment that is tied to marsh restoration success.

Ultimately, we disagree with staff and consultants about this round of bids and believe that you have received strong, cost-effective coastal restoration proposals that are more likely to produce acres of restored marsh that will endure for more than two decades, and that if funded will lead to faster results and a cyclic benefit that allows all coastal restoration work under this initiative to move dramatically faster. And that, if CPRA had accepted one or more of these bids, you would have significantly lowered the public's risks of paying for projects that fail to meet these appropriate standards.

We very much hope that CPRA looks at the lessons learned from this contracting step and immediately restarts use of results-based contracting, using a slightly amended solicitation for bids that allows work to get started in 2020.

Sincerely,

A handwritten signature in black ink, appearing to read "Tim", with a stylized flourish at the end.

Timothy Male, Executive Director
Environmental Policy Innovation Center

**An Analysis of Outcome-Based Performance Contract Bids and the Coastal
Protection and Restoration Authority's Response**

November 7, 2019

Timothy Male, Environmental Policy Innovation Center

A fundamental misunderstanding of restoration performance risks

A design-bid-build contract for marsh restoration in Louisiana, based on past contracts, has very specific risks to the contractor. Once construction begins, contractors would submit monthly invoices to CPRA and be paid afterwards, throughout the construction process. Sixty to ninety (60-90) days after construction is complete, a contractor and CPRA would verify that the expected subsidence of the new substrate and the underlying material will leave the restoration site in a condition of still supporting 80% or more of marsh habitat 20 years in the future. If the model (“curve”) shows that this is the case, the contractor earns their near final payment and likely removes all pumps and dredges from the restoration site. A small fraction of payments may remain unpaid for one year after completion of construction, but payment of the remaining contract is contingent only on relatively minor site adjustments.

In contrast, Louisiana’s first outcome-based contract included much different risk reduction parameters for the State of Louisiana and for the environment and much higher risk transfer to contractors. It was the right choice for the state to build these stronger risk mitigation components into coastal restoration.

Your Value for Money analysis found a \$2.9 million value just in the planning, design and construction stages of an outcomes-based contract. This is significant and noteworthy in and of itself. However, your Value for Money analysis made no attempt to estimate the monetary value of the late contract risk reduction for the state and Louisiana residents.

Here is what is different at the end – not the beginning – of an outcome-based contract:

1. Under outcome-based contracting, once construction begins, the contractor pays all subcontractors from its own funds – not CPRA ones. Restoration continues through the contracting process.
2. At the end of construction, the contractor will likely have paid 100% of all subcontractor costs and invoices, but CPRA will only have paid 80% of the contract value, based on the same model (“curve”) performance that a design-bid-build process uses. Then a 5-year ‘hold’ on the remaining contract begins. A contractor cannot keep barges, dredging, pumping equipment and pipelines on the site for 5 years so that equipment will be removed from the site, as in a design-bid-build process. Estimates provided to me suggest that the cost of remobilizing equipment would be \$7 million to \$10 million in unanticipated costs that would at the contractor, not CPRA’s, expense in the event of a performance failure.
3. 20 percent of funds – 20 percent – remain with CPRA until 5 years after construction is complete. At the end of each of those five years, CPRA and the contractor reexamine data from the site and run those same models to determine whether the site will support 80% or more of marsh habitat 20 years in the future.
4. If the models do not show the anticipated result, the contractor is not paid the remaining 20 percent of funds. In addition, unlike past contracts, CPRA can also ‘claw back’ the remaining 80% of funds already provided to the contractor for failures in performance in any given year.

The contractor could fix the restoration to meet standards – but at their expense, not CPRA’s or taxpayers.

CPRA was right to build these requirements into the outcome-based restoration request. In fact, CPRA should establish 5-year performance requirements for all coastal restoration, regardless of the contracting methodology. However, the agency should recognize that this requirement makes these and future projects fundamentally different than past efforts because there is a significant and valuable risk transfer from the state to contractors.

Knowing that the loss of 20 percent of a contract (or 100 percent) after incurring all project costs would be unacceptable and likely fatal to many or most businesses, what are a contractor’s options to address that risk transfer from the environment and CRPA to the contractor?

In your bid process, all your contractors significantly increased the volume of sediment to be pumped to achieve up to one-foot higher projected surface height than they would have used in a traditional contracting process. Pumping more sediment ensures that subsidence does not negate project benefits and risk contract payments but is extremely costly. In addition, there were requirements in the bid to make sure that this additional pumping didn’t just result in dry land but would be actual intertidal marsh during the first 5-year period and behind, further benefiting coastal areas but exacerbating bid costs. Based on our interviews, it appears that contractors have also integrated design features and project oversight measures that go beyond traditional projects to ensure that projected curves after 5 years will match up with the state’s 20-year post-construction marsh goal.

Two Errors or Mistaken Assumptions in Value for Money Analysis

It is difficult to capture the value of the risk transfer described above without doing a more complicated set of Monte Carlo analyses and additional work. However, two mistakes in the Value for Money analysis would appear to drop the difference between the outcome-based bid and a hypothetical design-bid-build project. The first is a math error associated with adding an inflation adjustment into the outcome-based project. The second concerns a questionable assumption in the Monte Carlo simulation that cost overruns for most stages of the project are at the midpoint or higher between the low and high estimates from CPRA for those costs except for at the most expensive project stage (construction) where a 'most likely' scenario very close to the low estimate of past CPRA construction cost overruns was used. Together, these two variables could change the gap between an outcome-based and design-bid-build contract from approximately \$11 million down to \$5 million.

\$5 million inflation error. The Value for Money analysis makes a mistake already recognized by CPRA staff: it adjusts project costs for inflation (i.e. increases project dollar cost) before applying a 'net present value' factor. We were told that CPRA or its contractors on the Value for Money analysis confirmed that this would lower the estimated outcome-based project cost by approximately \$5 million (Figures 2 and 3).

Monte Carlo Analysis May Underestimate Construction Cost Overruns under DBB. The Monte Carlo analysis uses a series of estimates associated with eight delays and cost overruns between preliminary design and final project monitoring to model the risk reduction to CPRA provided by an OB contract structure. In each of the eight categories, the 'likely scenario' (which is used in the Monte Carlo simulation) is almost exactly the midpoint between the low and high range of costs, which were provided by CPRA staff. The one difference is for the most expensive delay and cost overrun categories, where the most likely scenario is a cost-overrun of only \$800,000 compared to a mid-point of \$2.6 million that would have been the overrun if the pattern from the seven other categories was repeated here. There is no explanation for this difference and it almost certainly would have a \$1 million or greater impact on the value of risk associated with the analysis. CPRA has better data than we do on the frequency of construction cost overruns, but engineers we spoke to indicated that such overruns happened for most projects.

Figure 1. Unusual midpoint selected for typical construction cost overruns

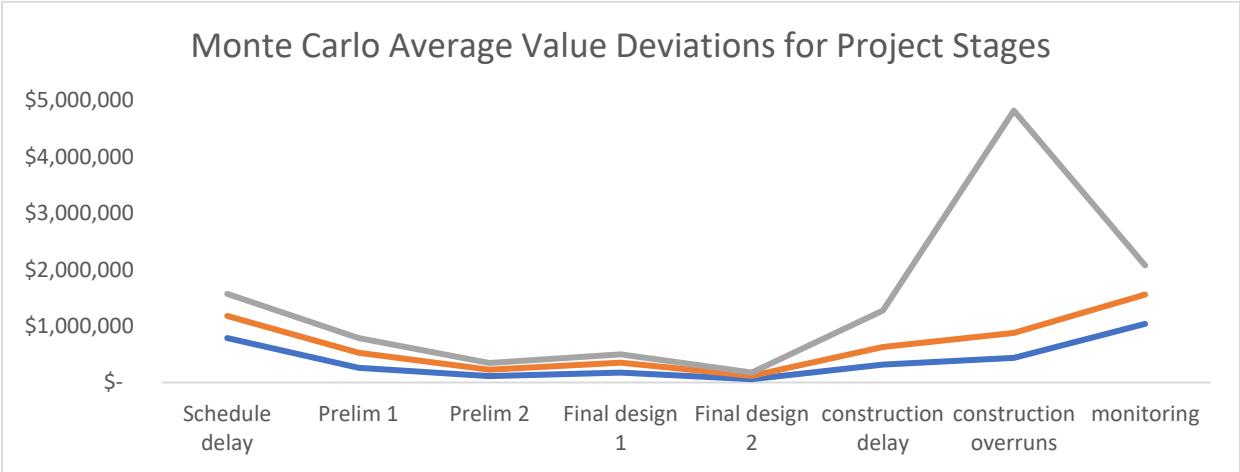


Figure 2. Value for Money Analysis Comparison provided to CPRA

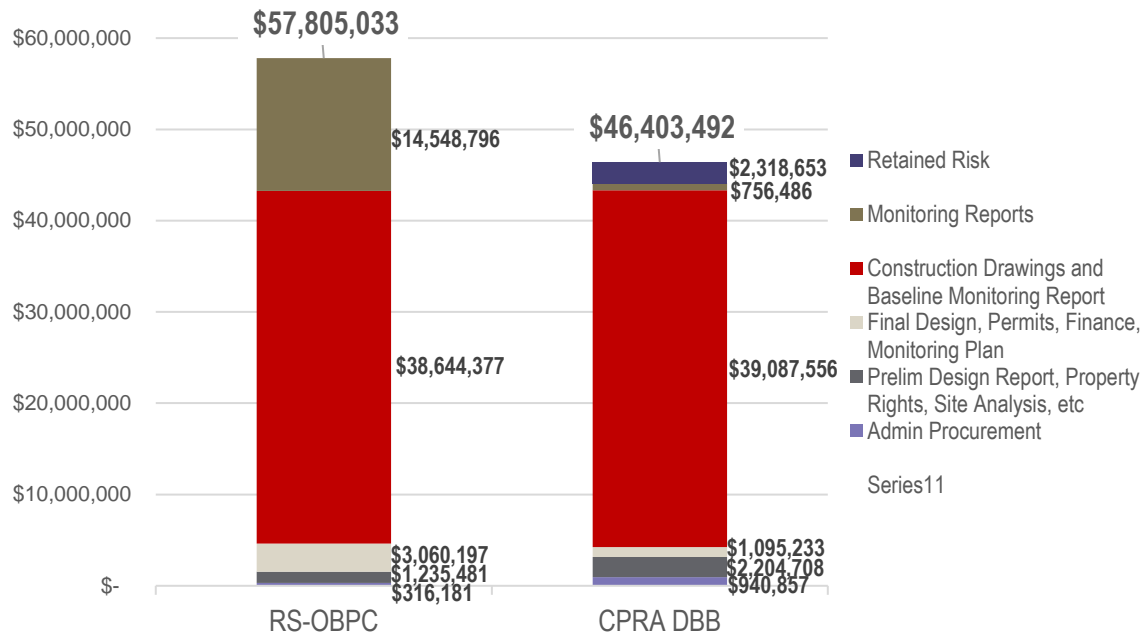
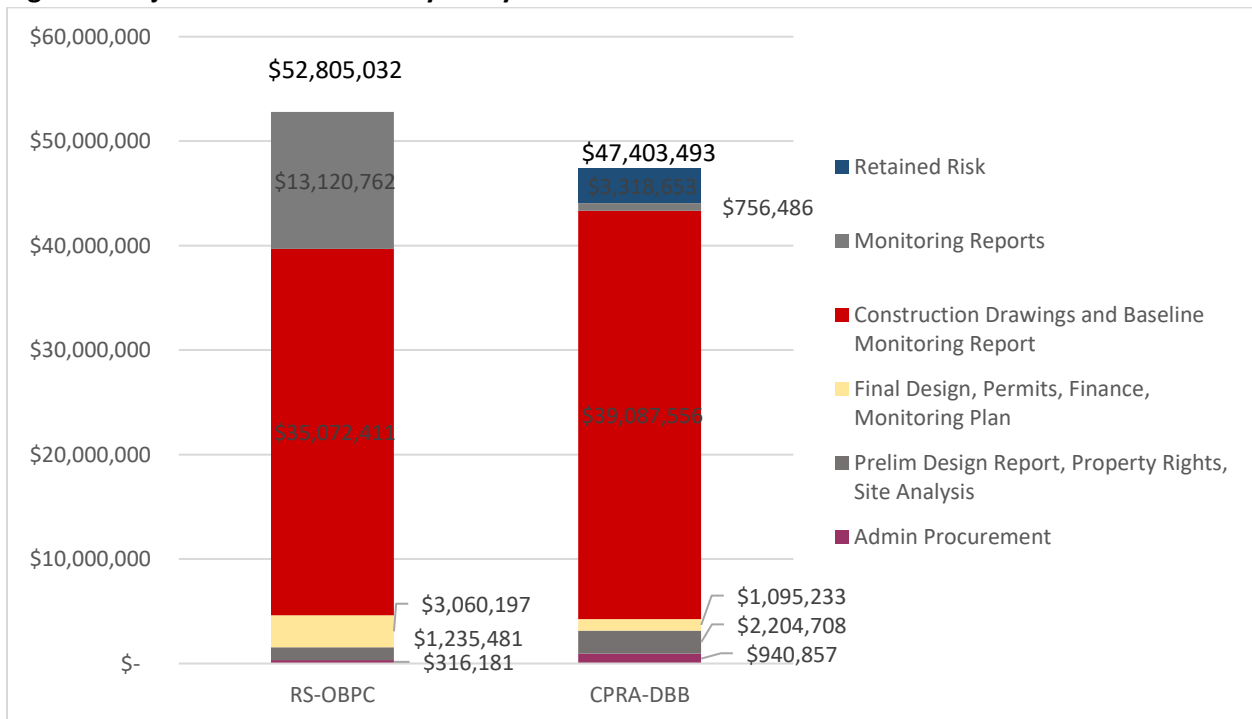


Figure 3. Adjusted Value for Money Analysis



Past Projects Fail at a Higher Rate than Estimated

Design-bid-build projects previously funded by CPRA are inherently different from an outcome-based project because CPRA has not previously paid for outcomes. There is little evidence that CPRA is collecting data 5-10 years after restoration to determine whether previous restorations are successful in maintaining 80% intertidal marsh coverage on restoration sites. Regardless of whether CPRA collects this data, it has no ability to seek remedy from a contractor if projects fail to meet this standard. Such a remedy is designed into the Outcome-based procurement process authorized by the legislature and by both the 20% of construction costs reserved for 5 years as well as claw back provisions that allow CPRA to seek repayment of all paid project invoices.

Past CPRA Restoration Projects Appear More Expensive than DBB Analysis Shows

All parties that I have interviewed have identified their difficulty in understanding where CPRA's \$46 million estimated design-bid-build procurement project cost comes from. It appears that this estimate in part derives from the costs of a subset of restorations including but not limited to BA-30, BA-39, BA-42, BA-43, and BA-48. However, even looking at those projects the source of the \$46 estimate for a 600-acre restoration are not clear where the numbers came from.

Working with some of the contractors, we pulled the numbers in Table 1 from CPRA files suggesting that past CPRA design-bid-build projects have even higher costs than outcome-based proposals you received. Net acreage shows the actual costs CPRA will have paid for the marsh acres that are expected to remain 20 years after construction. Whereas, the highest scoring bid from the outcomes-based process would provide 480 acres of marsh in 20 years (80% of 600 acres constructed), the average expected for these projects is 52% of constructed acres will remain as intertidal marsh in 20 years. Using those CPRA estimates, the average per acre cost of these projects is \$121,000/net acre. The top scoring outcome-based bid would provide the 480 acres of marsh at \$108,000/net acre.

Table 1. Planned and Achieved Marsh Restoration Acreages and Per Acre Costs for Past CPRA Projects

| CPRA Project | Cost | Constructio n Acreage | Cost/ Const Acre | Net Acreage | Cost/Net Acre |
|---|---------------|--------------------------|------------------|----------------|---------------|
| Cam 1 | \$ 39,112,114 | 385 | \$ 101,590 | 165 | \$ 237,043 |
| Bayou Dupont Sediment Delivery #3 | \$ 18,119,679 | 323 | \$ 56,098 | 118 | \$ 153,557 |
| Bayou Dupont | \$ 38,200,000 | 309 | \$ 123,620 | 283 | \$ 135,000 |
| Grand Bayou Ridge and Marsh | \$ 41,795,419 | 719 | \$ 58,130 | 336 | \$ 124,391 |
| NE Turtle Bay MC | \$ 44,109,317 | 687 | \$ 64,206 | 372 | \$ 118,573 |
| East Leeville MC | \$ 35,066,972 | 484 | \$ 72,452 | 322 | \$ 108,904 |
| Barataria Bay Rim MC | \$ 23,838,905 | 444 | \$ 53,691 | 251 | \$ 94,976 |
| Lake Hermitage Marsh Creation | \$ 34,800,000 | 1,600 | \$ 21,750 | 447 | \$ 77,852 |
| Little Lake Shoreline Project | \$ 29,500,000 | 1,373 | \$ 21,486 | 713 | \$ 41,374 |

We are not certain why the net acreage for past projects is so low and whether information about that is commonly known. In some cases, past coastal restoration pays for volume of sediment that is pumped – a volumetric measure not a performance standard. And some cases, CPRA appears to have either added to project costs to pump more sediment to achieve model targets for intertidal marsh creation and longevity. In other cases, CPRA appears to simply adjust project acres downward to match what was achieved, not what was planned and paid for. Certainly, if CPRA had simply asked for outcome-based projects to be 10% more successful than past ones in retaining marsh (i.e. a 62% net acre rate) 20 years post-construction, bids would have been substantially less expensive.

Administrative Costs Not Included

Interviewees provided information to suggest that CRPA estimated its administrative costs associated with tracking DBB procurement would equal 2% of project costs or \$1.3 million on a \$65 million project. Outcome-based procurement has significantly lower administrative costs, estimated at 0.5% of project costs or \$325,000 of the same project. This direct cost is not included in CPRA’s analysis.

Land Rights Appear to be an Unconsidered Cost Difference Between Past and OBPC Projects

Outcome-based contracting can allow restoration to reach parcels that simply are not available to CPRA with self-imposed constraints on paying for land acquisition. Restoring contractors bidding through the outcome-based process appear to offer an advantage to CPRA in that they can secure options on land for restoration that would be difficult for CPRA to secure using traditional procurement. This could be

especially valuable where the coastal restoration master plan identifies large areas which all need restoration, but whose landowners might have different levels of motivation to allow restoration. This value is not captured in CPRA analyses but is probably important in achieving your agency's goals.

Time Has Value in the Face of Land Loss

Louisiana is losing 0.8 football fields per hour of its land area, but nowhere is the value of a three-year slower CPRA-estimated project timeline factored into the Value for Money analysis or the restoration costs analysis. If outcome-based projects complete restoration roughly 3 years ahead of a similar DBB project, there should be a cost to DBB restoration and a non-project cost in higher storm damage and potentially higher sediment loss in the area of the restoration. While the cost of this may be small on an individual project, across all the projects in Louisiana's \$92 billion restoration master plan, those costs add up. Alternately, if a coastal wetland acre in Louisiana is worth \$6,000/acre/year in environmental services (including storm protection) as some studies suggest, then the additional value of time of a 600-acre restoration done in 2.5 years instead of 5.5 years is \$1 million.