NAC Executive Insights

Pricing Work as a Team: Joint Venture Estimating in the Heavy Civil Infrastructure Environment

Key Points

- Select the right partner for your company and the project.
- Establish and follow the rules for estimate comparison.
- Discuss differences from variations in means and methods, production rates, and/or work schedules.
- Compare costs at the group level; the purpose of the comparison is to agree to the overall cost of the project, not necessarily the cost of each individual component.
- Principals will agree upon an appropriate fee to cover the partners' General and Administrative (G&A) expenses plus expected profit.
- Ensure compliance with Federal Trade Commission/Department of Justice *Antitrust Guidelines for Collaborations Among Competitors.*

Introduction

A simple definition of a *joint venture (JV)* is: "An association of two or more companies engaged in a singular, for-profit business enterprise without actual incorporation." A simpler definition: two or more contractors agree to partner up for one or more projects.

The purpose of this paper is to summarize basic elements of a joint venture partnership and provide an understanding of the JV estimating process. Discussion of the selection of joint venture partners clarifies the reasons why joint ventures can be beneficial. Also discussed are important issues to consider prior to formalizing an agreement, the standard elements of which are listed as a guide.

Next, the paper details the joint venture estimating process. While similarities to sole venture estimating do exist, several additional steps are needed to ensure a major benefit of joint venturing: namely, development and achievement of an accurate "check estimate." The "check estimate" provides every member firm the confidence that the bid price is achievable while allowing for profitability. The estimate steps include alignment of estimating tools and content and multiple comparisons. Finally, an overview of the closeout process and information about commonly used tools are provided.

Why Joint Venture? – Partner Selection

Reasons for engaging in a JV vary from company to company and project to project but can be distilled into three main motives.

1. **Provides a Check Estimate.** During procurement, or the bid phase, each partner prepares a complete and independent cost estimate based on their preferred means and methods. Following a comparison of estimates and reconciliation of differences, the partners will be assured they are all looking at the same job, have agreed upon achievable costs, and the projected costs are not overly conservative.

2. **Shared Resources.** Joint venturing with one or more firms allows for the sharing of personnel to staff the project adequately. Because this also lends itself to shared experience, it also should lead to a more project-specific qualified staff. Shared equipment fleets and knowledge can also be a competitive advantage.

3. **Shared Risk.** Heavy civil construction projects carry substantial risk—so much so that an entire industry has blossomed around the identification, tracking, and mitigation of risk. By bringing in one or more partners, financial risk is spread amongst partner firms according to JV membership percentages. Of course, in the same way, profits are split along the same percentages.

   In addition, a joint venture allows for the sharing of risk in terms of resources. Each member firm contributes team members to the effort, freeing other resources to be spread to other efforts and reducing the risk of coming up short when staffing is required elsewhere.

4. **Compliance with Collaboration Guidelines**. The *Antitrust Guidelines for Collaborations Among Competitors* issued by the Federal Trade Commission (FTC) and the U.S. Department of Justice (DOJ) provides guidance regarding collaborations among competitors, which are allowable where they are procompetitive. If the formation of the collaborative entity (the JV) involves an efficiency-enhancing integration of economic activity in the relevant market and its procompetitive benefits outweigh its anticompetitive harms, then it will likely not pose a problem. As noted in the aforementioned collaboration guidelines: "Efficiency gains from competitor collaborations often stem from combinations of different capabilities or resources."

   Participants may combine complementary technologies, know-how, or other assets to enable the collaboration to produce a [project] more efficiently or to produce a [project] that no one participant alone could produce." Thus, the issue is not the collaboration itself, but rather the effect and intent of such collaboration. Where the arrangement improves competitiveness, it will generally be fine.

In this regard, it is important for JV member representatives not to share anticompetitive information (such as information pertaining to other bids, pricing, or other competitively sensitive information unrelated to the JV itself).

Summary. When forming a JV, it is important to consider the assets, experience, culture, and makeup of potential partners, and to comply with applicable legal requirements. In general, procompetitive alliances can be:

> **Complementary**: For example, a bridge builder joining up with a roadway contractor to pursue a project with a major crossing and multiple interchanges; or
>
> **Reinforcing**: For example, two tunnel contractors partnering on a tunnel contract of such size neither could handle it alone.

Other critical factors include location and local areas of work; client relationships; and equipment needs (both key and unique). Finally, it is wise to establish alignment on risk and project-specific financial expectations up front.

Joint Venture Agreement

The JV agreement is the legally binding document outlining the rights and responsibilities of each member company. The specifics of each agreement will differ, but critical items that should be addressed include (but are not limited to):

- Purpose statement
- Type of entity (Partnership vs. LLC)
- Capital contributions
- Rights and responsibilities
- Bonding
- Bidding guidelines
- Sharing of profits and losses
- Distributions, decisions, default, and termination

Joint Venture Estimate Instructions

JV estimate instructions are issued by the JV sponsor to the other member companies. These instructions are needed to ensure that each member company is comparing “apples to apples,” i.e., making sure the format and structure of each estimate is the same, so any variations revealed during the estimate process are true differences. Some of the items included in the estimate instructions are:

- Cost types
- Resource rates including labor, material, subcontracts, and equipment
- Bid items

- Direct Cost Summary Groups (D-Groups)
- Indirect Cost Summary Groups (I-Groups)
- Comparison Sheets: worksheets which will be automatically populated as each partner enters their data and ultimately compares direct and indirect costs at the bid item level. This ensures all companies in the JV are estimating the same list of bid items.

Estimating Tools

Each company is free to use their own estimating software to develop the estimate, provided the cost types and bid item structure match those of the JV sponsor. Two popular examples used by heavy civil contractors are:

- HCSS HeavyBid®
- InEight® Estimate

Process

1. Quantity Comparison

A quantity comparison spreadsheet is provided to each partner by the JV sponsor to fill in and return. Neatline quantities are compared. The quantity comparison highlights differences in takeoff quantities between each partner. The sponsoring company's designee will contact his or her counterparts to discuss and resolve differences for each item. In the final version, each item will have an agreed upon value for every partner to use in their estimate.

2. Independent Estimate Development

For the most part, JV partners prepare cost estimates the same as they would for a sole venture. However, because the estimate will be compared to those of their partners, special rules apply. The rules are those discussed previously in "Joint Venture Estimate Instructions." The instructions must be followed for estimate comparisons to be orderly and efficient. Even though estimate instructions set out the rules, they can be and often are amended throughout the estimating process. The most important rule regarding revisions is that they are developed and deployed by the sponsoring partner. This is not to say minority partners cannot recommend revisions to plug prices or the addition of bid items; they often put forward such suggestions. Otherwise, partners are free to utilize their customary estimating procedures and software.

Any and all changes must flow through the sponsor to ensure all partners are following identical instructions.

One possible exception is the structure of indirect costs. Since the sponsoring partner develops the estimate comparison sheets, indirect costs will be prepared in the sponsoring partner's format. Minority

partners are expected to structure their indirect cost estimates to match those of the sponsoring partner (and the estimate comparison sheets).

3. Internal Estimate Review

The internal estimate review is not impacted by a JV environment. The JV estimate instructions do not placed constraints on the estimate prepared by the other parties. The instructions are solely for JV comparison purposes. A partner's internal review of the estimate prepared for the JV project should have no variation from a review for a sole venture. As mentioned above, the sponsoring partner's indirect cost format is likely to be necessary for estimate comparison. This does not mean the minority partners cannot use their own format—initially. Minority partners often use their own indirect cost formats for estimate development through the internal estimate review. This allows the internal team to cost items per their own records and for the partner's management to review this portion of the estimate in a familiar format. It is then incumbent upon the partner's estimator to reformat the indirect costs to match the sponsoring partner's format ahead of the JV estimate comparison. Typically, this reformatting can be completed within one day.

4. Estimate Comparison - Zero Read

The Zero Read is the first step in the JV estimate comparison process. Whenever a partner or partners do not follow the joint venture estimate instructions, the cost comparison process becomes unduly complicated. Simple math errors or keystroke mistakes can lead to unintended differences in estimates (also known as "busts"). Utilizing material and/or subcontractor plug prices other than those defined will lead to a lengthy and arduous First Read (described below), and arbitrary addition of bid items will render the Estimate Comparison Sheets (see #5 below) useless. Therefore, any deviation from the estimate instructions must be discovered and corrected during Zero Read. To make the actual estimate comparisons (First and Second Reads discussed below) more efficient, the Zero Read was created to find and fix such unintentional differences.

During Zero Read, partners work to eliminate easy-to-correct estimate differences. This read ensures that all partners have:

- Used the issued material and subcontractor plug prices.
- Used the same labor rates and burdens.
- Used the agreed upon quantities.
- Placed costs in the correct bid items/account/categories.

The number of differences found during a Zero Read is directly related to how well partners adhere to the JV estimate instructions and the quantity comparison.

Differences **not to be resolved during Zero Read** are the result of variations in means and methods, production rates, and/or work schedules. To do so would prevent truly independent cost estimates—one of

the major benefits to a JV. However, it is beneficial to note the differences to ensure they are acknowledged and discussed during First Read.
The main instruments used during Zero Read are the quantity comparison and cost comparison sheets developed for the First and Second Reads. The first step is for all partners to submit to the sponsoring partner cost and quantity data for each bid item. The sponsoring partner will use this data to populate JV Cost Comparison sheets developed specifically for the project at hand. These "sheets," discussed in detail below, display each partner's estimated costs and quantities, side by side, for every bid item and bid item group. This allows everyone to easily see where differences occur.

For overall productivity, it is beneficial for estimators to break into smaller review groups based on discipline/comparison groups. As differences are identified, estimators make revisions. It is essential that the estimators in attendance are authorized to make these changes.
Following the Zero Read, each partner resubmits to the sponsoring partner revised cost and quantity data for each bid item. The sponsoring partner uses this data to repopulate JV Cost Comparison sheets for use in the First Read. With proper attention to JV estimating instructions and quantity comparison sheets, the Zero Read can easily be completed in one day.

5. Estimate Comparison – First Read

The First Read, also known as the Joint Venture Meeting, marks the beginning of the JV estimate review process. The purpose of the First Read is for partners to agree on the overall cost to perform the work. Follow-on activities, described in detail below, determine the price the JV will submit for the project.

This is often the first time for the estimators, operations staff, and principals of the partner companies to gather in the same room to discuss the project. All attendees must have a thorough understanding of the project prior to the meeting. Recognizing that procurements are fluid in nature, it is customary for the JV sponsor to provide a current project overview. The overview, often in the format of a brief PowerPoint® presentation, should address:

- Current bid date and the likelihood for postponement.
- Number of addenda received to date and the likelihood of additional addenda.
- Significant Requests for Information (RFIs) addressed to date and outstanding.
- Overview of the competition.
- Review of general drawings to orientate attendees for the ensuing discussions.

The next step is for each partner to explain their general approach to the project (specifics are discussed later during the more detailed bid item or cost group review). This includes reviewing construction schedules prepared by each partner as significant differences in schedule explain significant differences in cost.
At this point, the focus of the meeting becomes a thorough review and discussion of the Estimate Comparison Sheets. The level of organization of the comparison sheets dictates the level of effort required to reconcile partner estimates. Well-organized comparison sheets contain an overall summary sheet of

costs as well as project costs in groups arranged by work type or scope. Some companies refer to these groups as D-Groups (direct cost groups) and

I-Groups (indirect cost groups). Here, we will refer to all as "groups" or "cost groups." As stated above, the groups contain work items, or bid items, that are the same or very similar. Estimates for large heavy civil projects can contain hundreds of bid items. To review each one in detail would take several days and for the most part would be wasted effort.

The intent of the meeting is to agree to the overall cost of the project, not the cost of each individual component.

By reviewing work activities at the group level, partners assure themselves that costs per type of work are appropriate. When total costs in a group are similar or within a certain percentage amongst the partners, it may suffice to accept them as they are and move to the next group.
When cost disparities exist, it is often sufficient enough to examine a singular bid item within the group to identify differences in estimating philosophies. Most often, a company will estimate several comparable work activities in a similar fashion. When differences in one are identified, it is likely to be the basis of difference in the other items within the group. Identification of one difference generally points to others. The process of reviewing cost groups continues until all (direct cost, indirect cost, equipment, and other items) have been addressed. During the process, partners may discover items they want to revise for reasons such as: quantity errors not discovered during Zero Read; overlooked details of the work; or production updates based on another partner's rationale. Partners should note any revisions for inclusion in the Second Read cost estimate.
At the completion of First Read, partners **independently** decide what, if any, changes should be made to their cost estimates. Changes are made promptly following First Read.

6. Estimate Comparison – Second Read

In general, two "reads" are sufficient for partners to reach agreement. With very complex estimates or when JV estimating instructions are not closely adhered to, a third or fourth read may be necessary. The need for additional reads is not common and **may be a symptom of an underlying issue within the JV**.
After all partners have made changes to their estimates, partners submit revised costs to the sponsoring partner for inclusion in the Estimate Comparison Sheets – Second Read. Second Read comparison sheets are organized identically to First Read sheets. They also should include a direct comparison of each partner's First and Second Read costs.

To begin, each partner summarizes any changes made following the First Read. A measure of how well the First Read was conducted is if costs at Second Read are aligned and all partners are comfortable moving forward with the lead partner's estimate, as closeout can only occur with the lead partner's estimate. When all partners agree to proceed with the lead partner's estimate, the Second Read is concluded.

7. Risk Assessment

It is no secret—heavy civil construction is risky. Volumes have been written on the subject. Risks loom in every aspect of the industry: contractual, geotechnical, environmental, permitting, labor relations to name just a few. Contractors regularly review and analyze risks in parallel with estimating efforts. A discussion of risk should be part of every JV cost comparison meeting.

A benefit of joint venturing is sharing each partner's independent analysis of the risks. Some partners will identify risks not considered by others or risks other partners feel have been mitigated through means and methods. The result is an important discussion of specific project risks.

Numerous methods of listing and evaluating project risks exist. The authors do not endorse one approach over others. If enough thought and analysis occurs, outcomes will be similar and an agreed upon risk cost contingency may be added to the estimate.

Closeout

Closeout is the process of turning an estimate into a bid. This process in a JV environment is nearly identical to sole-venture closeouts, with a few small caveats. The closeout is usually managed by the sponsoring partner using their normal procedures, which can vary from company to company. It is important for all partners to fully understand the sponsor's process, not just for transparency but also for the benefit of non-sponsor team members who may be assisting. Large, complex projects require more closeout participants, and JV partner staff is the best place to recruit help. Access restrictions to estimating software and servers can restrict the level of assistance the non-sponsor team members provide. Accommodations in closeout responsibilities, tasks, and procedures may be needed to mitigate such restrictions. A cash flow forecast for the project should be completed so the principals understand the capital requirements. The principals of all partner companies should be kept informed throughout the process. In addition, the principals will agree upon an appropriate fee to cover the partners' G&A and expected profit on the project. This is the final decision.

About the Authors

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