Independent Project Analysis, Inc. | Volume 12, Issue 1 | April 2020

# IPA Newsletter


## Weathering the Pandemic:
## An Unsettled Capital Projects Industry

Productivity has slowed as owner companies have taken unprecedented actions to slow down the spread of the coronavirus globally. Earlier in the year, companies began implementing travel restrictions, work-from-home directives, and other protocols to protect personnel from the coronavirus. Supply chain disruptions are having a major ripple effect, with IPA clients reporting extreme delays in engineering work and equipment procurement. Project systems around the world are suspending and, in some cases, canceling major capital projects and shutting down plants. Many companies have indicated they are or are planning to reduce capital expenditure. As a result, force majeure invocations on engineering and construction contracts are rising, some real and some not. Like the rest of the world, the capital projects industry is on edge.

The COVID-19 pandemic crisis has revealed major flaws in the capital project industry's delivery model. While the pandemic will eventually pass, success in the short-term depends on how well owner companies understand how to effectively mitigate the risks presented in the current landscape. The organizations that choose to be proactive now by learning from what they and their peer companies are facing will set themselves up for improved capital effectiveness in the long term.

IPA has been the global leader in driving capital effectiveness since 1987. Just as we have done during numerous global and regional crisis events in the past, we will partner with our clients to help them successfully navigate through the coronavirus pandemic and help them implement lasting change. In this issue, we offer perspectives on what companies should be considering now due to the uncertainty of the COVID-19 pandemic. These reports are the first to appear in a special section on IPA's website dedicated to addressing coronavirus-related matters. IPA plans to add more articles as the pandemic unfolds. Visit www.ipaglobal.com/covid19 for the latest updates.

### IN THIS ISSUE:



**Independent Project Analysis, Inc.** is the preeminent organization for quantitative analysis of capital project effectiveness worldwide. At IPA, we identify Best Practices to drive successful project outcomes.
**www.ipaglobal.com**

# COVID-19 and Force Majeure—Real and Not

**By Edward Merrow, IPA President and CEO**

Almost every engineering and construction contract contains a force majeure clause in the terms and conditions. Force majeure excuses a party from performing under the requirements of the contract as long as the force majeure event is in effect. At least some aspects of the COVID-19 pandemic will qualify as force majeure under most contractual terms, especially if the contractor's inability to perform stems from some government action. Most contracts provide schedule relief and some provide a degree of cost relief as well. Even if cost relief is not explicitly outlined in the force majeure clause, it is possible claims to that effect will be made and disputed anyway.

Force majeure claims are obviously important under lump-sum contracts, and force majeure is likely to be most hotly contested if not allowed under those contracts. But force majeure is also relevant for contracts that have cost and/or schedule incentives, because contractors may demand those incentives be re-baselined due to force majeure. Furthermore, contractors may seek force majeure relief under any contract with liquidated damages (LDs) for late completion in which the LDs are triggered.

Over the past few weeks, Independent Project Analysis, Inc. (IPA) analysts have seen a number of instances in which force majeure was invoked on capital projects, especially to excuse delays by contractors. Some of these have surely been reasonable invocations of force majeure, although whether and to what extent they are allowed will depend on the wording of the particular contracts.

However, we are also seeing a number of instances in which contractors are seeking to invoke force majeure due to the pandemic for projects that were already in a good deal of trouble in terms of cost and schedule. It is these projects that concern us here.

## What should owners do to protect themselves from the possibility of faux (false) force majeure?

### Step 1: Re-Baseline Now

If a project may be subject to a force majeure claim and that project is running late or over budget, the owner should immediately start re-baselining the project. A subsequent paper will detail the technical aspects of re-baselining, but, for now, suffice to say that the re-baselining must be comprehensive. Secure all documentation from contractors in native form (e.g., the Primavera schedule). Especially important will be an assessment of procurement as of the re-baseline date. Additional delays in procurement are possible due to the pandemic, but if procurement is already running late, much of the ultimate delay may devolve from that fact. In other words, if the procurement had been on time to start with, it could well have missed the pandemic's effects.

### Step 2: Escrow All New Baseline Documents

All documents that make up the baseline, including any studies, should be date stamped and escrowed with a neutral third party who can attest to the date and that the documents have not subsequently been changed. This is a necessary step to authenticate the new baseline.

### Step 3: Secure Releases

Many contracts, especially lump-sum engineering, procurement, and construction (EPC) contracts contain clauses that require contractors to announce any claims they are developing. If a project's contract has such a clause, the owner should be securing those releases monthly. If the contract does not have such a clause, demand the contractor announce any claims they have in development at the new baseline. We know from experience that such releases deter the back-dating of claims. Claims that are said to have started long ago are difficult to defend because the owner was unaware that such a claim was in the making.

### Step 4: Exercise All Audit Rights

We would hope owners have exercised all audit rights for major contracts right from the start. But if you haven't, make an attempt to do so now. We say attempt because if owners have not been exercising those rights, they may find it quite difficult to do so now because contractors will sometimes argue that unexercised rights were lost, regardless of what is stated in the contract.

If indeed force majeure is invoked on a project, seek to be fair to the contractors involved. It does not help us at all if the result of this pandemic is to bankrupt our contractors. On the other hand, the pandemic should not be used as a reason for underperforming contractors to be excused.

IPANewsletter
Independent Project Analysis, Inc.
Volume 12, Issue 1
April 2020





IPA improves the competitiveness of our customers through enabling more effective use of capital in their businesses. It is our mission and unique competence to conduct research into the functioning of capital projects and project systems and to apply the results of that research to help our customers create and use capital assets more efficiently.

IPA www.ipaglobal.com

IPA Industry COVID-19 Response Survey:

# Owners Report Major Supply Chain Disruptions

**By Jason Walker, IPA Prinicipal Deputy Director, Research**

Industrial sector capital projects are feeling the strains of the ongoing coronavirus pandemic as supply chains have been disrupted and measures to protect personnel from the virus have slowed productivity, according to a just-completed industrywide survey conducted by Independent Project Analysis (IPA), Inc. Over 20 companies representing all major industrial sectors provided detailed responses on how the coronavirus pandemic is currently affecting their capital projects and project systems. The companies also answered questions regarding supply chain disruptions, portfolio implications, and actions they have taken to mitigate work process disturbances as the COVID-19 virus has put much of the world on edge. The survey results reveal that many capital projects are being affected in a significant way. Most owner companies are responding quickly to the crisis; however, the crisis has exposed weaknesses in sourcing strategies. Companies are now searching for any promising opportunities to adjust going forward.

IPA's COVID-19 survey collected data from 21 owner companies in 6 different industrial sectors on these topics: supply chain disruptions, effects on internal operations, portfolio implications, and mitigation strategies.

Nearly all companies surveyed (about 90 percent) have created and implemented internal plans for dealing with COVID-19 with various implications on daily operations. All the companies IPA surveyed have established travel restrictions of some kind. Most have moved toward a work-from-home environment and cleanliness regulations, especially at sites, have been implemented. These targeted plans have enabled work to continue but at a reduced level of efficiency.

IPA COVID-19 WEB SURVEY

## How Is COVID-19 Affecting You?

IPA has set up a brief, anonymous survey to collect data regarding COVID-19 and the potential implications on capital projects. If you are interested in participating, visit the link below and click the "Take the Survey" button.

**www.ipaglobal.com/covid19**

While internal owner operations have been affected, capital projects in execution have seen major delays due to supply chain disruptions. Owners report that they are experiencing delays in the procurement of equipment and fabricated modules of up to 20 percent. In some cases, supply chain delays have been estimated at well over 20 percent. These delays are not limited to Asian vendors. In fact, recent data from the field suggest that Asian vendors are beginning to ramp back up whereas Western supply chains are shuttering amidst a backdrop of growing uncertainty. Roughly 40 percent of owner companies are currently experiencing supply chain disruptions outside of Asia, and Western delays are becoming more and more prevalent. One major European fabrication yard told IPA that it just sent home approximately 75 percent of its workforce, significantly delaying the fabrication of subsea production systems on an ongoing tieback project for an oil and gas operator.

Supply delays are not limited to vendors and fabrication yards. Engineering related activities are also experiencing significant delays. Owner companies are reporting that work efficiency in engineering has suffered in Asia and has been extended to the home office. As one major chemicals company that IPA surveyed put it, “There is simply not enough engineering work force available to continue with capital projects.” Presently, reported delays in engineering activities are up to 8 weeks and growing. To compound the issue, only 1 out of 3 vendors and engineering contractors has provided detailed plans outlining how they are responding (or will respond) to coronavirus related interruptions.

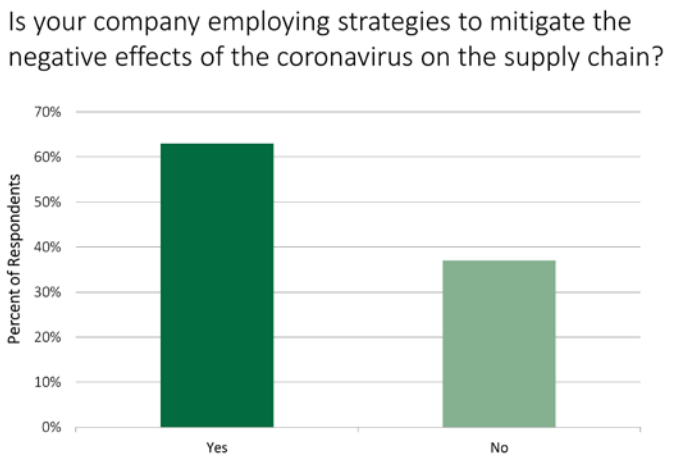
### Mitigation Efforts

Most owner companies are taking specific actions to mitigate the effects of the coronavirus on supply chains. They reported strategies to include looking for alternate vendors, tracking the country of origin at the widget level, developing relationships with contingency supply chain vendors, increasing owner engineering resources to catch up in China as the local vendors resume work, and asking suppliers to utilize alternate inventory locations. Still, a number of owner companies are struggling to respond in an ever-changing supply chain landscape. One owner company reported that, while they are developing plans, “all current plans are bound to fail.” Other companies have simply done nothing to mitigate supply chain disruptions. Surprisingly, nearly 2 out of 5 owner companies have taken NO actions to reduce the effect of the coronavirus on the supply chain (Figure 1).

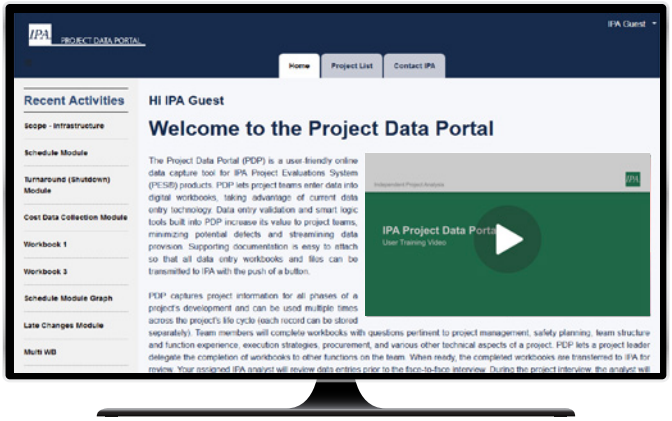
Supply chain disruptions, along with downward market trends and growing uncertainty, have led some owners to either postpone or outright cancel major capital projects. For example, an ongoing midsize chemical project located in Asia is experiencing heavy supply chain disruptions and has been stopped indefinitely as a consequence. Outside of Asia, a multibillion dollar megaproject in South America has temporarily suspended construction activities out of concern for the health and safety of the construction labor force. These specific case studies represent a small sampling of the many reported project delays. A growing number of project systems are now planning to delay major capital projects and reduce annual capital expenditure. One major oil and gas company is further reducing annual capital spend by 20 percent.

Many of these challenges are temporary since the pandemic will eventually pass. However, some changes may be useful to keep as owners learn from what they are currently experiencing. The COVID-19 crisis has highlighted a weakness in our current project delivery model. Our supply chains, regardless of industry, rely heavily on efficient sourcing of equipment and fabricated modules from a single region. As a result, there is an opportunity for owners to de-risk their supply chains by building in redundancy and maintaining a variety of qualified suppliers. The coronavirus has forced owners to establish additional supply chain relationships and the success of our project delivery model in the future depends on how well we maintain these relationships. Now is the time to implement lasting change to mitigate future disruptions.

**Figure 1:** Nearly 2 out of 5 companies have yet to develop strategies to mitigate disruptions.



# IPA's New Project Data Portal (PDP) Makes the Capital Project Data Provision Process Easier




- PDP is a centralized web-based application that enables project teams to securely provide IPA with project data
- Project leaders can easily delegate data provision responsibilities to function leads
- IPA analysts continue to review all data entries prior to face-to-face interviews

IPA is pleased to announce the release of its Project Data Portal (PDP), a user-friendly online data capture tool now ready for use with IPA's suite of Project Evaluation System (PES®[1]) products.[2] Beginning in April 2020, project teams will be able to input project cost, schedule, and other important information into a centralized web-based application with the aid of entry validation and smart logic capabilities, minimizing potential measurement defects and streamlining data provision. Supporting project files are easily uploaded into the portal, allowing teams to submit all project information to IPA en masse.

PDP is a time-saving data collection capability for IPA's existing and future clients. PDP captures project information for all phases of a project's development and can be used multiple times across the project's life cycle. The portal provides data fields pertinent to key project performance assessment areas—safety planning, project management, team structure and function experience, execution strategies, procurement, and other technical project assessment aspects. Project leaders are able to easily delegate the completion of data forms to various project functions. PDP also provides clients with the capability to automatically push project data directly to the portal via application program interface (API).

Pam Wertz, IPA Chief Development Officer, said while project teams and project system managers appreciate insights from project evaluations, they have always found the process of providing project data to be onerous. "IPA's Project Data Portal reduces the effort needed from client project teams in providing project-specific data," Wertz said.

A key benefit is the way in which the portal assists teams in the data provision process. The built-in smart logic and validation criteria ensure only applicable questions are displayed and minimize data errors. The included help feature provides definitions and coaching in getting answers right. "The Project Data Portal truly takes the guesswork out of the data gathering phase to make the process much easier for our clients to complete," added Wertz.

While project teams are in charge of completing digital PDP forms and deciding when data are transferred to IPA for review, IPA analysts review all data entries. During the face-to-face project interview, assigned analysts will collect any missing information and begin the next phase of the project evaluation.

Security is built into the fabric of IPA's products, infrastructure, and processes, so project teams can rest assured that all data stored in the PDP is safeguarded. The portal is built on the Atlassian platform, with the Amazon Web Services (AWS) cloud as the hosting service provider.

Industry-leading owner companies have come to rely on IPA's PES products to improve the effectiveness of their capital projects. The release of PDP makes the data provision process easier for project teams than ever before.

For more information, contact Pam Wertz at pwertz@ipaglobal.com or Hunter Mayo at hmayo@ipaglobal.com.

[1] PES is a registered trademark of IPA.

[2] Versions for site benchmarkings and petroleum exploration and production (E&P) projects will be forthcoming.

# Shutting Down a Capital Project Quickly? Here Is How to Stop It and Set Up for Restart at Key Phases

**By Deb McNeil, Director, IPA Capital Solutions**

We are sometimes faced with very difficult decisions that go against our natural instincts to solve problems and move forward. This current medical crisis, the COVID-19 pandemic, is one of those challenges. If you need to shut down your capital project quickly to respond to a location lockdown, an outbreak among the workforce, or the company's financial situation, some actions can minimize the effects and allow a more robust recovery.

The first two things to decide are:

1. How hard or fast do you need to stop activities? *and*
2. How soon might you be able to restart?

The most difficult element is the uncertainty about restart possibilities. The choice is between taking more time to get information and materials organized before stopping, allowing for an easier, faster restart, or making a hard stop and paying a longer restart penalty. Decisions can only be made based on the best available information.

In all cases, the immediate action that affects cash flow preservation is stopping all purchase requisitions and prioritizing all outstanding purchase orders on materials not yet delivered (or ownership not transferred). Purchasing and legal review of contracts should summarize the cancellation terms available to the project. Trade-off analysis on whether or not to cancel the materials will depend on many factors, including how critical the material will be at restart, lead time vs. estimated restart time, cancellation terms vs. proceeding with goods receipt and payment, and relationship with the supplier (is this a long term partner or a one-off?).

The next factor to consider is where the project is in its life cycle. Projects that have most materials delivered and are in construction are actually the easiest to stop unless the project is in the middle of a turnaround that affects the operating facility. In that case, plans to isolate the changes and move the facility back to operational state are the top priority. Pre-startup safety reviews are a critical activity and must have knowledgeable resources assigned.

If the owner chooses a hard shutdown in the field, installation work packages need to shift to equipment protection and close up activities. Do not forget to protect the equipment in laydown areas.

If time allows a more robust shutdown, workers need to document exactly where they are leaving progress in the field. Redlining the current status should take place on documents or within models archived in a central location. Uninstalled materials should be moved and checked back into warehouses or protected laydown areas.

Projects in detailed engineering/execution must also choose how hard of a shutdown to take:

**Structured Shutdown (Easier Restart)**

- Engineers complete in-progress deliverables or progress to an agreed upon end point
- The ideal "end-point" would be the end of Detailed Design (without materials being ordering)
- Documents cataloged and checked into a central document archive with a status log
- Current un-validated assumptions documented

**Hard Shutdown (Harder Restart)**

- Pencils down
- Documents moved off of local drives into a centralized location

A more detailed list of recommendations, drawn from lessons learned captured from IPA's database of projects that were stopped and restarted and from discussions directly with our clients, can be found in Table 1.

The hardest part of this situation is to look at the core competencies, skills, and resources that must be retained for a successful restart. Depending on the company's financial position, retaining core resources should be a priority. Who this is depends on the chosen project execution strategy. IPA research on Owner Core Competency can provide guidance. We are summarizing our research and will soon issue a companion article on this important topic.

Another question for the owner to ask is "How do I keep my core resources adding value with productive work?" Once the dust has settled on the shutdown, redirect resources to proven efforts such as work process enhancements that will allow the owner to restart its system in better condition than when it was when shutdown. IPA is able and willing to help owners frame up this work.

The COVID-19 pandemic is a very difficult situation for all of us. We are here to give owners and their projects whatever support we can. Good luck and stay well.

Table 1

## Stopping Projects During Front-End Loading (FEL [Project Definition])

1. Conduct a lessons learned exercise to ensure lessons and key project records are captured and up-to-date for the restart
2. Reach a natural stopping point in the project—it is much easier to restart a project at end of FEL 3 when FEL 3 deliverables are complete than mid-way through FEL 3
3. Maintain team continuity if possible—when stopping and restarting a project, consider maintaining key functions such as the project manager, lead engineers, cost estimating, and project controls functions
4. Complete environmental assessments and permits prior to stopping the project—may enable a much smoother and timely restart
5. Complete final status of project documents and decide where to locate them
6. Document a risk register before stopping the project—ensure this is on-hand for the restart
7. Develop a restart plan—include items such as a re-estimate, business case, etc.
8. Beware of changing engineering firms at restart—inefficiencies around verification and changes can drive poor cost and schedule performance
9. Create a decision log documenting key decisions up to when the project was halted—again an important tool for a smooth restart
10. Ensure engineering certifications do not expire while the project is halted—some locations have strict guidelines on expiration of design certifications
11. At restart, it is important to recycle the project—recalibrate FEL 1 deliverables and reconfirm business drivers and key assumptions
12. Update the risk analysis and register as soon as possible—the project may be exposed to new risks after restart

## Stopping Projects During Detailed Engineering

13. Consider long-term storage of equipment and other ordered materials and any periodic maintenance
14. When procuring major equipment, consider also procuring vendor data up-front as a separate deliverable
15. Beware of changing engineering contractors after the restart—that change of engineering contractor may increase detailed engineering costs by as much as 20 percent; additionally, the likelihood of late changes and claims increases with a new firm using existing design
16. Design criteria may change and must be considered as part of a restart
17. Environmental and permitting conditions may have changed since the project was halted—ensure these are understood prior to restarting the project

## Stopping Projects During Construction

18. Stopping a project in construction is a project in itself—detailed plans are required and a budget must be established
19. In most cases, all of the warranties and performance guarantees on procured major equipment will be void—work closely with vendors to understand limitations on warranties, etc.; must be done in a timely fashion
20. Major equipment and materials need to be maintained during storage
21. Typically, the initial ramp-up/startup of restarted projects is longer than expected, so incorporate this into project plans
22. Beware of any company or regulatory changes to codes and standards since the project was halted—these can cause major disruption to field and startup activities/duration

# Three Common Pitfalls of Reorganizing Project Systems

**By Lucas Milrod, IPA Deputy Director of Research, Organizations & Teams**

For those of us in or supporting capital project organizations, rumors and announcements regarding organizational reshuffling are commonplace. As the research leader of IPA's Organizations and Teams Group, I have had the pleasure of helping dozens of companies—including multi-national companies, with complex project systems in the chemicals, energy, refining, pharmaceutical, and mining sectors—create strong capital project organizations and teams. A good few of the reorganizations I have observed over the years are rather well rationalized. But I have noticed several pitfalls that frequently undermine reorganization efforts.

Before exploring these pitfalls, it has to be mentioned that reorganization can mean different things in different contexts. Reorganizations can start in different places within the corporate structure. Sometimes, efforts are isolated to the project system, but often they are part of a larger, company-wide reorganization effort that necessitates project system change. The depth of the effort can also vary from relatively minor to a wholescale transformation. These considerations certainly influence the approach and scale of a change effort, but the fundamentals of this kind of change, and the things that often get in the way, are consistent.

Project system reorganizations encounter three common pitfalls:

1. The blind leading the blind: reorganizing without a clear vision
2. Pushing a rope: trying to make a change from the bottom up
3. Reorganizing is a hammer, everything else is a nail: jumping to reorganization to solve a perceived problem

### The Blind Leading the Blind

My team of analysts at IPA recently worked with a client group that had decided they needed to reorganize. The group had some pretty clear ideas about how things should change. But when my team asked some basic questions about the motivation behind reorganizing and what they were trying to accomplish, things started to unravel. In this case, the group's gut feeling was right; things did, in fact, need to change. Yet, they had difficulty articulating how change would help. The underlying problem was the group was fooled into thinking that any change alone would solve their problem.

IPA has found that clear vision is fundamental to effective project system change. When we work with systems on reorganization efforts, we work early on to establish organizational design principles. These are statements about what the organization exists to do and serve as a North Star through the rest of the change effort. Every decision and design element is filtered through these principles to ensure we are designing around the desired objective, not simply designing something that makes sense theoretically.

### Pushing a Rope

Sometimes those on the ground can more clearly see issues than organizational leadership. In fact, IPA's Team Functionality, Site Health, and Organizational Dynamics services are predicated on this idea. These insights are important, must be sought, and should be heeded. However, fundamental organizational change simply does not occur at this level. It must come from the top down.

This is not a new idea. Many change management frameworks highlight the need for leaders to drive change for it to be effective. However, my observation is that well-meaning, smart people waste a lot of time and energy trying to fix problems they will never be able to fix. These are your best people; those that see a problem and are not content to work around it but instead take it upon themselves to enact change. Not only do these people

end up wasting time and effort on a problem they cannot fix, but there is opportunity cost associated with occupying your best people with dead-end projects, and going through this cycle is often demoralizing.

When my team gets involved in a potential organizational change effort, one of the first things we ask is, "Who is involved, and who is driving the change?" If the answer does not include senior, usually C-Suite, company leadership, we either strategize an approach to get senior leadership buy-in or attempt to redirect the team to actions and changes within their control that may provide incremental benefit. If leadership does not fully own organizational change efforts, the efforts will fail, at best, and create ambiguity and chaos, at worst.

**Hammers and Nails**

Leaders may rely on organizational change as a cure-all to any problem where the solution is not apparent. An example of this is a company that I worked with not too long ago that experienced real challenges with project controls. After some study and thought, they determined it was an organizational issue because the right information was not getting to the right people at the right time. As IPA worked with this company, it became clear, however, that it was not so much a problem of information flow, but rather some fundamental things simply were not being done. Rather than change the organization, we worked on building competency in the controls function, and this eventually addressed the issue.

From time to time, a leader may also initiate a reorganization to draw attention away from operations problems, perhaps problems they are responsible for creating. It is well understood that reorganization takes a significant amount of time and tangible results should not be expected immediately. The reorganization, in such instances, may last long enough for a leader to move on to another position.

However, I believe most of the time leaders are genuinely searching for a toe-hold for progress and thus seek to empower project organizations to drive project system improvement. Organizational change is complex and opaque though and can therefore be used as a solution to almost any problem.

Effective organizational design is foundational to success, and reorganization is sometimes necessary to adapt to a changing environment. Companies must carefully consider whether the pursuit of change is fully understood from the top down to prevent a time-consuming and costly endeavor from worsening project performance in the long run.

## **Sally Glen** Named Director for IPA Operations in Australia

As director of IPA's operations in Australia, Sally Glen is responsible for strengthening IPA's relationships with global and local clients investing in capital projects in the mining and minerals, energy, power and infrastructure, airports, and other sectors. Glen is also responsible for overseeing IPA's project analysts and office staff based in Australia.

Observing that owner companies and organizations are faced with a changed landscape for delivering capital projects in Australia, Glen says she will be focused on collaborating with clients to enable their organizations to manage project risk and strengthen their project systems. "Australia remains an important global center for resources projects, with constant capital project activity in both the energy and mining, minerals, and metals sectors. The region is also seeing increased investments in infrastructure projects and new energy ventures." At the same time, Glen added, "Volatility remains a market feature, and spend decisions must address the broad climate implications of delivering and operationalizing those assets. Capital effectiveness continues to be a pressure for all levels of spend."

View the full announcement at www.ipaglobal.com.

# Capital Projects Research Presentations Go Virtual for IBC 2020

The global coronavirus spread prevented capital projects industry leaders from gathering in March for the Industry Benchmarking Consortium (IBC) 2020 meeting in Northern Virginia. However, IBC member companies will still receive the latest research-based insights into the capital project systems performance issues currently facing owner companies via virtual meetings.

Facilitated by IPA, the IBC is a voluntary association of owner firms in the chemical, petroleum, minerals processing, food and consumer products, life sciences, infrastructure, and pulp and paper industries that employ IPA's quantitative benchmarking approach. Through benchmarkings of both large and site-based systems conducted by IPA, IBC member companies receive exclusive insights into how their capital project systems and project outcomes stack up against their industry peers with respect to safety, cost, schedule, and operational performance.

For the last 29 years, IBC member company representatives have attended an annual meeting to review how competitive their company has been at delivering capital projects compared to their industry peers over the past year. Presentations on critical industry trends delivered by IPA leaders, project analysts, and owner business and project professionals are a mainstay at annual IBC gatherings. This year, however, these important research presentations and industry discussions will be conducted in virtual settings with individual member companies.

New capital projects industry research to be presented exclusively for IBC 2020 member companies is summarized below.

### Contractor Prequalification: Making It Work

For major projects in which a partner contractor will not be employed, it is common practice to prequalify the engineering and construction contractors who will be considered for the project. Depending on the contracting situation, anywhere from 55 to 90 percent of projects do prequalification before a contractor is allowed to bid on or compete for a project.

A cursory review of the data suggests that prequalification doesn't matter. But when we control for the contracting strategy that is being employed, a very different picture emerges. In some circumstances, prequalification clearly improves project outcomes. In other circumstances, some prequalification activities are moot.

When we dive deeper into the actual practice of prequalification, we see a somewhat haphazard process. Some companies do very rigorous prequalification and may even overdo it by limiting the competition too much. Some potentially important elements of prequalification are routinely overlooked. This study examines what approaches and techniques in prequalification are effective in weeding out contractors who will struggle to do the work effectively while not being overly exclusive.

### Undisciplined Authorization Practices

In the 10 years since IPA provided its findings on undisciplined authorization practices (authorizing projects in FEL 2), we have observed no meaningful change in the frequency that this practice is allowed. IPA clients are continually choosing to pay more for projects via this practice. It is important for IPA (and Industry) to understand why. If early authorization was used for genuine market-driven, schedule-driven projects—and worked—IPA would endorse it as a useful practice. However, industry practice has been to use this authorization practice across all sorts of projects, especially sustaining/stay-in-business projects.

### Digitalization Opportunities Framework for Capital Projects

The projects industry is turning to digitalization as the fix to the many problems that have plagued projects over the past 20 to 30 years (maybe beyond). Many owners (>60 percent of those polled by IPA) are actively pursuing some digital initiative. However, because digitalization is a broad concept, most companies are still trying to understand where the value is (i.e., how digitalization can really improve projects).

At IBC 2019, IPA's Greg Ray offered perspectives on where companies should focus. For the Cost Engineering Committee (CEC) 2019 annual conference, IPA's Luke Wallace took a closer look at how companies were managing and leveraging information and provided a detailed diagnosis of the as-is state for the industry, as well as lessons learned from the companies who have made progress with digitalization. For IBC 2020, we plan to share IPA's Digitalization Opportunities Framework. The framework reviews the various systems relied upon among the major phases of a project, and identifies the opportunities and methods being used to integrate vital

project data. This research study presentation will also share what IPA has learned so far from its survey of IBC companies regarding digitalization implementation improvements and whether or not real value has been delivered.

### Allocation of Shared Costs During Shutdowns/Turnarounds

The term “turnaround” in the context of manufacturing refers to a period of time that a facility (refinery, chemical plant, etc.) is shut down to perform maintenance. A large portion of a site’s repair expenses are incurred during this brief interval of time. Depending on the process unit(s) affected and amount of maintenance or repair needed, the length of a turnaround typically ranges from 1 to 4 weeks. In some cases, turnarounds can be even longer.

Capital projects at sites often use the turnarounds to tie into or, to various extents, to modify the plant while it is not operating. IPA’s research and evaluations have shown that capital projects executed within turnarounds tend to bear additional cost burdens, usually to cover shared resources with the turnaround activity. Because sites have various ways of managing the interface between the capital

IPA IBC **2020** INDUSTRY BENCHMARKING CONSORTIUM

and turnaround effort and because there is no standard accounting method for sharing costs, we find that these additional costs vary widely.

The allocation of costs incurred during turnarounds is further complicated by KPIs and incentive structures at the site that focus on the cost to operate and maintain the site, not the capital costs. The assessment of turnaround prorates may be one way to shift expenditures from maintenance to the capital bucket.

### Constructability Reviews Update

This IBC study is an update to the IBC 2018 study that evaluated constructability reviews. This 2020 update will use data collected since 2018 to refine IPA’s operational definition of a “good” review. Further, a graduated measure of the application of this practice will be proposed.

# IPA Events and Presentations

**Upstream Cost Engineering Consortium (UCEC)**
June 23
Houston, Texas

The UCEC strives to improve upstream project and business results by providing metrics for better cost engineering. Member company representatives gather once a year to learn about and review new UCEC metrics packages prepared by IPA. The upstream metrics packages are used by companies to compare their upstream project cost and schedule outcomes with industry cost and schedule norms and, in general, boost business project estimate assurance and evaluation quality.

**ABA 2020 Forum on Construction Law Annual Meeting**
August 12-15, 2020
Chicago, Illinois

IPA Founder and President Edward Merrow will be the opening keynote speaker at the American Bar Association (ABA) Forum on Construction Law's Annual Conference. Merrow's presentation, titled "Why Megaprojects Fail So Often and Why You Should Care No Matter the Size of the Project," will review typical construction lawyer roles on behalf of the owner, designer, and contractor; how lawyers can contribute to project success; and how contributing to project success can be reconciled with obligations to the client.

**Cost Engineering Committee (CEC)**
September 22-23
Reston, Virginia

The CEC is a working subcommittee under the Industry Benchmarking Consortium (IBC) that assists cost engineers by providing metrics and tools that offer an unbiased snapshot of industry cost and schedule estimates and trends. The CEC focuses on all aspects of cost (or investment) engineering, including cost estimating, scheduling, and project control practices and metrics, with the goal of expanding the owner cost engineer's capabilities. The primary vehicles for accomplishing these objectives are validation metrics, Best Practices research, and practice sharing.

**Upstream Industry Benchmarking Consortium (IBC)**
November 16-18
Leesburg, Virginia

The UIBC is solely dedicated to the exploration and production (E&P) industry. It provides an independent forum for each participating company to view key metrics of its project system performance such as cost and schedule, Front-End Loading (FEL), and many others against the performance of other companies and share pointed and detailed information about their practices. The consortium highlights Best Practices, reinforcing their importance in driving improvements in asset development and capital effectiveness.

# Public Courses

THE IPA INSTITUTE
Advancing Project Knowledge

Due to COVID-19, all public courses planned for March and April 2020 are being rescheduled. View the full current schedule at: www.ipaglobal.com/events.

**AUGUST**

25-26 Best Practices for Mining Projects
*Curitiba, Brazil*

25-26 Project Management Best Practices
*Perth, Australia*

**SEPTEMBER**

22-23 Best Practices for Mining Projects
*Lima, Peru*

29-30 Best Practices for Site-Based Projects
*The Hague, The Netherlands*

**OCTOBER**

6-7 Project Leader Workshop
*Calgary, Canada*

**NOVEMBER**

10-11 Project Management, Cost Estimating, Planning, and Controls Best Practices
*Curitiba, Brazil*

24-26 Megaprojects: Concepts, Strategies, and Practices for Success
*Perth, Australia*