

APPLYING EARLY CONTRACTOR INVOLVEMENT IN MARINE INFRASTRUCTURE PROCUREMENT

Complex construction projects that use traditional procurement practices are often impacted by significant cost overruns and delays. Early contractor involvement (ECI) is a concept that strives to involve the contractor collaboratively at an early stage of a project's development to mitigate or otherwise eliminate those risks. In August 2022, PIANC published the report "A framework for early contractor involvement in infrastructure projects" to help industry practitioners in choosing and best implementing ECI. This article is intended to develop on key aspects of the PIANC report and look at the factors that can lead to a successful maritime ECI project.

A framework for early contractor involvement in infrastructure projects

The PIANC report "A framework for early contractor involvement in infrastructure projects" and is available as a free download for PIANC members (and 215 EUR for non-members) on the PIANC website. At some 183 pages, it provides a detailed introduction into the understanding and the application of early contractor involvement (ECI) in waterborne transport infrastructure projects. It is the only comprehensive guidance document available on the subject of ECI in the construction industry. It offers a practical approach to all industry practitioners to assist in the application of ECI in the waterborne transport infrastructure sector.

The report also identifies the hallmarks of successful ECI process, which have been established over many years, such as dealing with good faith, transparency, equal treatment of all parties, fairness, clarity through clear rules of engagement, confidentiality and protection of intellectual property. The stated aim of the report is to further promote and support the use of ECI in the global construction sector. It provides guidance to industry practitioners so clients, consultants and contractors in how to successfully implement ECI for the betterment of the industry as a whole.

The PIANC report states that the definition of early contractor involvement is a strategy

initiated by infrastructure owners (clients) towards main contractors and optionally expanded to consultants, stakeholders and subcontractors. The purpose being to optimise values in project delivery and objectives, through their participation and knowledge sharing in stages of project planning and design prior to project execution.

When drafting the report, the authors noted that there was no single dominant concept or approach to ECI. Diverse regions and countries appear to deal with ECI differently. The common denominator identified was that ECI is a strategy initiated by infrastructure owners (clients) towards main contractors and optionally expanded to consultants, stakeholders and subcontractors. The purpose being to optimise values in project delivery and objectives, through their participation and knowledge sharing in stages of project planning and design prior to project execution.

It is important to note that while the principles of early contractor involvement may be universal, the specific practices and methods for implementing ECI can vary greatly depending on the region and industry. To ensure success, clients and contractors should take into account the best practices and lessons learned from previous ECI

projects in their specific region and apply them to their current project, while also considering the unique local conditions and challenges. This can include factors, such as cultural differences, regulatory requirements and market conditions such as the availability of resources. By taking a localised approach to ECI, clients and contractors can tailor their project to the specific needs and constraints of their region, leading to a more efficient and successful outcome.

A shift to more collaborative contracting

The “business as usual” model of procurement is usually driven on a pure transactional basis by the client seeking the lowest price from tenderers for their project – using either a completed design or for tenderers to price the client’s requirements on a design and construct basis. With design and construct, using a traditional tender process there was little scope for innovation and cost savings as usually the client’s requirements were fixed. Contractors would be reluctant to propose valuable innovative alternatives as there is always a threat that the tender could be cancelled and re-tendered on the basis of their own alternative, now exposed to the competition.

As Jon Davies, CEO Australian Constructors Association stated in a social media post [LinkedIn, January 2023]: “There is

significant wastage of skilled resources through inefficient tender processes, but the bigger problem is the myopic focus on selecting the lowest price at the tender box to the detriment of all else. The practice of accepting the lowest bid at the tender box is a completely false economy and is the direct cause of the adversarial contracting environment in which we now find ourselves.”

The traditional procurement approach invariably leads to cost and time overruns during project execution. The causes of these overruns have been studied extensively [Arcadis, 2022 Global Construction Disputes Report, Bent Flyvbjerg and Gardner, 2023].

A detailed study by Flyvbjerg and Gardner of some 16,000 major projects from large buildings to bridges, dams, power stations, rockets, railroads, information technology systems and even the Olympic Games, revealed a massive project management problem. Only 0.5% were completed on time and on budget, and produced the expected benefits. In other words, 99.5% of large projects failed to deliver as promised.

The highlighted events and challenges mentioned in Figure 1 are being felt post-pandemic and construction industry parties are looking to alternatives to the business as usual approach for potential projects.

Present | Causes of cost overruns

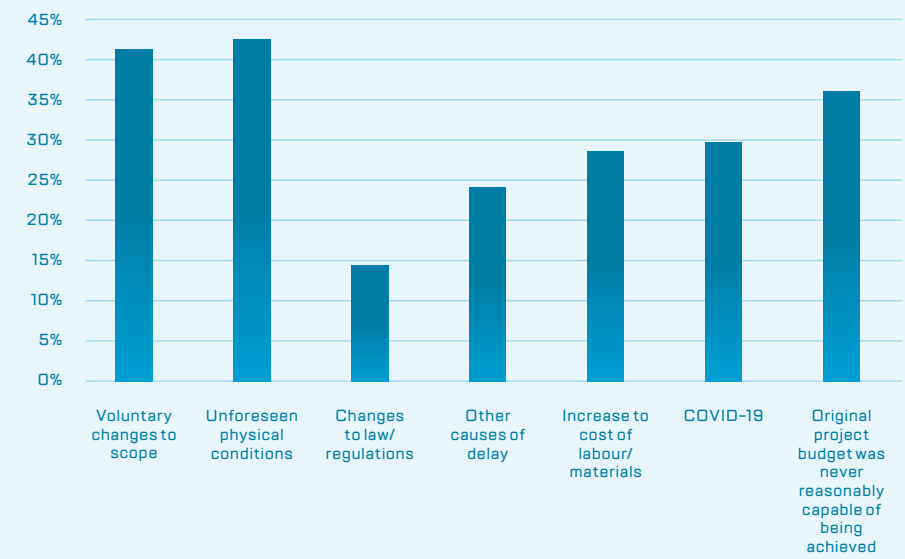


FIGURE 2

Causes of cost overruns. Study carried out in Australia, 2022.

Alternative project delivery using methods such as ECI is increasingly being seen as a valid alternative to ensuring a project is delivered within budget and completed on time. The diagram in Figure 2 gives a typical spread of cost overrun events and causes (Kelly and Judd, 2022).

Of note in Figure 2 is the high incidence of unforeseen physical conditions as a major cause of cost overruns. A proper assessment of physical conditions is vital for any marine infrastructure project. This is where the application of ECI can have a direct and positive impact.

ECI contract models

One established ECI model is the Bouwteam approach in the Netherlands, which is a non-competitive model in which the client has an active, central role. It particularly aims at finding the right solution for the project. This non-competitive model combines the strengths of established contract models such as DG2020 with effective organisational methods outlined in the manual “Handreiking Bouwteams” (Construction Handbook), resulting in a robust framework. It has been successful

in the Netherlands and its principles, contractual framework and/or organisational aspects could be used quite easily outside a Dutch context.

Another established model is the Competitive Dialogue in the EU, a competitive model structured as a procurement framework. It particularly aims at finding the right party to deliver the project when the client does not have a single, predetermined solution in mind. This approach has been successful applied on numerous demanding infrastructure projects in the EU. It could be adapted to other regions with similar regulatory environments and project scopes.

Additionally, the NEC4 contract with clause X22 (early contractor involvement) is a well-established model for ECI projects. It is widely used in the UK, Hong Kong and increasingly in other countries, and specifically caters for projects where the contractor is involved at an early stage. The NEC4 contract allows for a collaborative relationship between the client and contractor, with a focus on achieving project objectives and delivering value for money. The contract is flexible and adaptable to different types of projects and procurement

methods, and its focus on collaboration and risk management makes it a suitable option for clients and contractors looking to implement ECI in their projects.

Bouwteam and Competitive Dialogue are distinct ECI models each with their own defining characteristics and processes. On the other hand, the NEC4 contract model offers greater flexibility and customisation, enabling the client and contractor to adapt the approach to the specific needs of their project. The contract provides clear guidelines and scope for the ECI phase, effectively placing the contractor in the centre.

By studying and applying the best practices and lessons learned from previous ECI projects in a specific region, clients and contractors can improve the chances of success for their current project, while also considering the unique local conditions and challenges. Models such as NEC4 contract, Bouwteam and Competitive Dialogue each have their own specific characteristics and processes, providing clients and contractors with different approaches to tailor their ECI framework to their specific project needs.

ECI during site investigation

The CEDA information paper “Site Investigation” (Focus group on soil investigation, 2021), identified that inappropriate or insufficient soil investigation is widely acknowledged as one of the most important factors leading to cost increase, time overruns, claims and ultimately disputes between the client and contractor. Surprisingly, project site investigation is a phase where contractors have little to no involvement whatsoever.

For the contractor, having reliable and relevant soil information in time is essential to be able to provide a well-prepared tender. The better the quality, and appropriateness of the results, the more accurately the contractor can determine the most efficient dredging methodology, and corresponding price, to the benefit of the project and the client. “The earlier the consultants and contractor are involved, in the preparation and execution of the soil investigation, the more guarantees the owner has that later disputes and delays can be avoided” (CEDA information paper, Site Investigation, 2021).

Having tendering contractors involved at an early stage as part of an ECI process and influencing the extent of any site investigation and formulating a targeted geophysical and

Current events and challenges affecting the construction market



Social and economic factors

- Russian invasion of Ukraine
- COVID-19 pandemic
- Climate change
- Inequality
- Population growth
- Natural resource demands

Impacts to the construction industry

- Supply chain impacts
- Material cost increases
- Delays
- Labour shortages
- Impact to bottom line
- Increase in claims activity

Mitigation techniques

- Proactive risk management
- Alternative project delivery
- Contingency planning
- Pre-purchasing materials
- Constructability review
- Willingness to compromise

FIGURE 1

Current events and challenges. Arcadis, 2022 Global Construction Disputes Report.

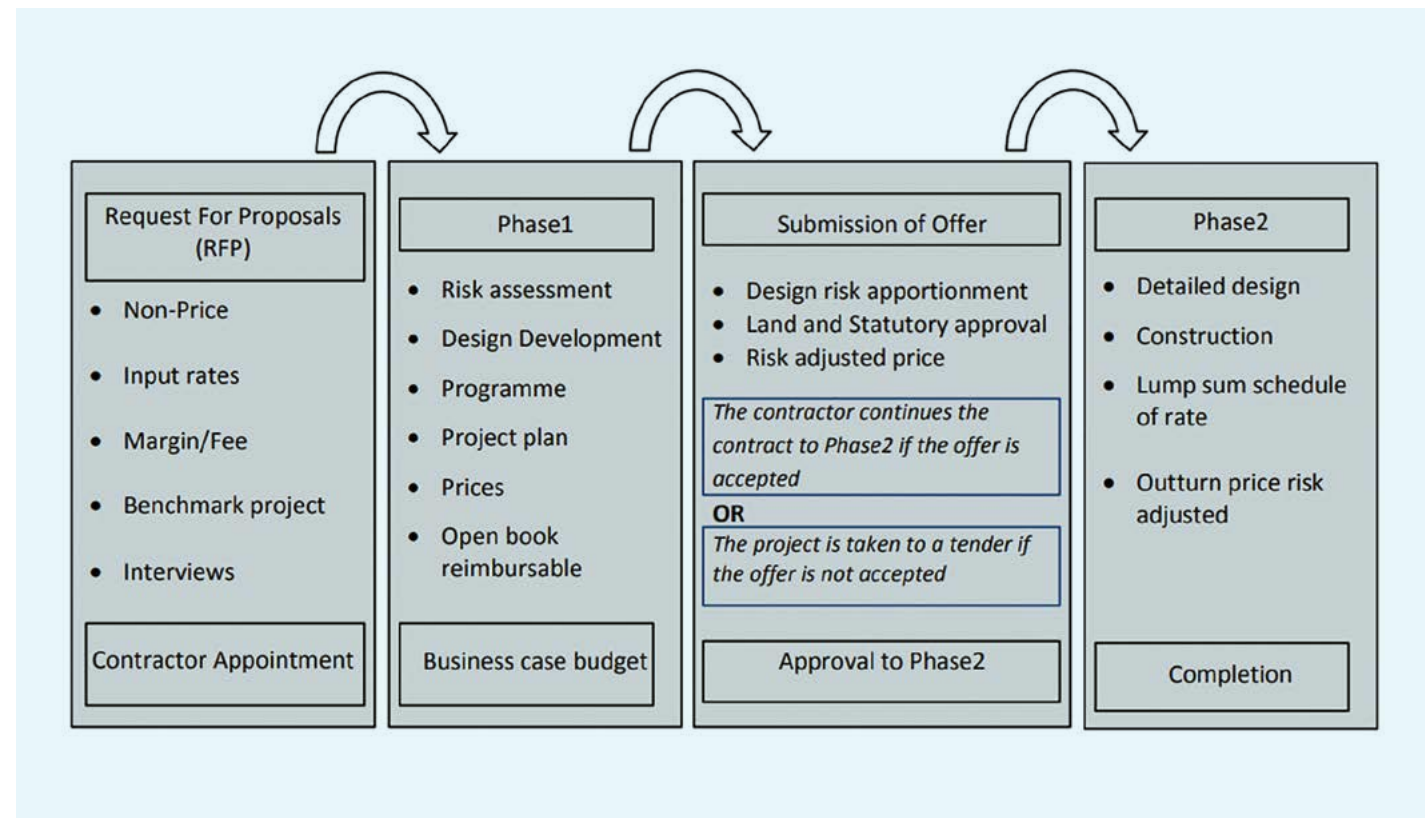


FIGURE 3
Details of the two phases of an ECI Contract adopted from Swainston (2006).

geotechnical assessment can reap dividends and a balanced risk sharing approach can ultimately lead to lower project cost.

An ECI during preliminary soil investigations, i.e. preparation of scope, witnessing and assessment of scope of tests (in situ and in laboratory) can be very useful. The contractor needs to assure itself that the data collection has been prepared by a competent soil investigation contractor, in accordance with accepted international standards. In this regard, as part of the ECI approach, the client should consider inviting potential tenderers to provide input to and witness the execution of the soil investigation.

Budgeting and open book pricing

Also another key aspect is the way that ECI can ensure that the client’s original budget can be “reality checked” by potential contractors without the time and expense of going to tender with a complete design. It is a misconception to think that ECI is solely a one-on-one process with a single bidding contractor. Having a competitive ECI process is still achievable and the PIANC report provides helpful guidance

on how best to do this. The usual approach is for a Phase 1 and Phase 2 offer. The phases are shown in Figure 3.

The Queensland Department of Main Roads’ “Standard contract provisions roads, Volume 6 Early contractor involvement (ECI) Contract” identified a number of mechanisms used in the ECI process to encourage and demonstrate appropriate attention to ensure value for money for the client these being:

- Open book arrangements in Phase 1;
- Selection of competent contractors and designers who have a proven successful track record;
- The use of an independent estimator to analyse and review target costs to validate the Phase 1 outputs;
- Rates based on benchmark projects provided by the contractor;
- A working environment that encourages innovative thinking;
- Integrated teams working together to achieve best value whole-of-life solutions;
- Competitive pricing of supplier and sub-contract components;

- A full understanding and allocation of project risks; and
- Provision for the client to terminate the contract if agreement is not reached on the Phase 2 offer.

When considering a marine infrastructure project, the client would be advised to employ an independent dredging consultant and production estimator to analyse and review the input rates and target costs to validate the ECI contractor’s Phase 1 prices.

With respect to the actual costs of marine equipment as these are capital intensive the discussion of how the ECI contractor has arrived at the rates and prices often turns on the valuation of the “cost” of the vessel itself. This is where in an ECI process of an “open-book” evaluation comes into the picture. Tenderers generally are not obliged to provide a detailed disclosure as to how their rates and prices are derived.

With open book pricing, the contractor will share all information and documentation of the financial costs of the work under the

contract on a transparent and full disclosure basis. In addition, revealing details of how it has determined how it will recoup the cost of the vessel over its operational life. Such information should be treated as confidential by the client.

The dredging industry has for many years used cost standards for various types of dredging vessels to calculate the allowance for Depreciation and Interest (D&I), and Maintenance and Repair (M&R) costs, using a publication from CIRIA. CIRIA is the United Kingdom’s construction industry research and information association. CIRIA published its “Cost standards for dredging equipment” in 2005 with an updated issue in 2009. Each year, the International Association of Dredging Companies (IADC) publishes a time-cost factor index for various groupings for updating these costs.

CIRIA offers a benchmark for estimating a contractors pricing but it is only part of the picture as there are many other pricing variables to consider. Costs specifically excluded in CIRIA are the costs of the contractors technical services department (overhead), crew cost, staff cost, lubricants, fuels and water, laying up and idle time, additional wear to dredging components,

spare parts, insurance, mobilisation and demobilisation, general overhead and profit among others. Therefore, this is where a dredging consultant can assist to benchmark the details disclosed by the ECI contractor.

The testing of the ECI contractors rates and prices, and the basis of the valuation is on the premise of a reasonable “price” as would be derived under a competitive tender situation. The rationale is that the rates and prices identified by the ECI contractor will form the basis, either directly or indirectly, for the value of the works to be carried out so should be as market competitive as possible.

The intention of a two-phase ECI approach will normally be to maintain the competitive element in the preparation of the rates and prices, and that open book pricing forms the basis of the assessment. In this respect, the use of CIRIA may seem to be subjective as it is not the contractor’s “cost” but rather it is an assessment of the partial allowable and commercial price. It assists greatly however, in a reality check of the ECI contractors “core” pricing.

While CIRIA deals with the dredging equipment pricing, it needs to be realised that marine infrastructure projects have become more

complex and multiple disciplinary over the last decades. That complexity has led to other activities becoming just as important in the total pricing of a project. Marine infrastructure projects require more design and engineering, procurement, environmental and sustainable solutions. Those activities can benefit from the use of a specialised dredging consultant who can reality check pricing, review estimates, prepare tailor-made cost models and can also be involved in the execution stage of the project.

Claims from contractors can arise when there is uncertainty. A dedicated dredging consultant who is involved from the early stages of a project can seek to de-risk a project, avoid claims and mitigate risks through implementing ECI techniques such as open book pricing. In the event of a claim situation arising, full history and involvement in the early stages of a project can prove to be invaluable for good project management and dispute resolution.

Regulatory and permitting process

Clients are continually facing increasing technical complexities, increasing regulatory and environmental restrictions coupled with tremendous internal and external pressures to deliver projects on time, within budget and with unchanged scopes. With marine infrastructure,



FIGURE 4
Pricing of marine equipment using CIRIA tables provides benchmark rates.



At a glance - Early Contractor Involvement

Guidelines for use

An ECI model is attractive to contractors, due to the embedded relationship principles and overall collaborative approach. ECI is suited to large scale, complex or medium to high-risk projects, because it allows an integrated team time to gain an early understanding of requirements, which facilitates innovation and value for money. Clients should also consider this model in circumstances where:

- the project risks are difficult to quantify fully, and innovative approaches are needed to manage this
- project delivery timeframes are constrained
- they are interested in moving away from a transactional model towards a collaborative model, where there is insufficient capability or capacity to fully resource a relationship based model such as an alliance
- there's identified value in participating in a collaborative arrangement to drive innovative outcomes and knowledge transfer
- there's a need to obtain cost certainty while demonstrating transparency
- there are uncertain or complex design or construction interfaces, and flexibility in scheduling and delivery is required.

FIGURE 5

New Zealand Government information sheet on early contractor involvement.

the permitting process is recognised as being a complex and time consuming constraint to get a project to market.

The permitting process can take many months or even years from the start of the application process. Decisions at an early stage as to how the project is to be constructed and the choice of equipment and the manner in which material is dealt with and any environmental impact, can have significant time and cost impacts. This is where the involvement of an ECI contractor can have direct and tangible results.

So, for instance, will the dredged material be disposed offshore or brought onto land and will it have a beneficial reuse or not? The choice of one execution method over another can have significant impact on the cost of construction and the ECI contractor can advise the client of these so informed decisions can be made at

an early stage. Environmental impact is also a key part of the permitting process with issues, such as turbidity, noise and marine mammal impacts being a key concern of both regulators and stakeholders.

One author has been involved with a project where a client undertook an extensive regulatory and permitting process involving addressing government bodies and key stakeholders concerns to allow drilling and blasting as the client considered the material to be removed was too strong to dredge. The contractor who was awarded the project elected to dredge the material using a powerful mega backacter negating any need to drill and blast. The operation of the backacter was ultimately successful and any need to drill and blast the material was avoided as the backacter worked under existing dredging permit approvals. In retrospect, the involvement of an

ECI contractor in the early stage of the permitting application process would likely have revealed this and so avoided a lengthy and expensive permitting and approval process based on drill and blasting.

Constructability reviews

Constructability is where construction knowledge is applied during the early stage of a project where errors and omissions in the permitting and contract specifications can be minimised to enable the contractor to construct a high-quality project that is biddable, buildable and executed using best industry practices. As with the regulatory process, this is where the input of an ECI contractor can have direct and tangible results.

A constructability review process carried out by an ECI contractor is designed to help improve the level of constructability of a project. The most important benefits

Early contractor involvement is especially important in offshore wind energy projects due to the complex and challenging nature of construction.

Construction risk assessment

There is no shortage of risk present on a marine infrastructure project. A construction risk assessment at an early stage of a project helps determine at-risk parties, create awareness around the risks present onsite, assess current loss prevention measures in situ, ensure contract requirements are upheld and decide if additional controls need to be applied. Contractors are generally aware of most financial risks, environmental risks, safety risks, productivity risks, as well as contract risks, however, this information is generally not fully exchanged as part of the normal procurement process. A construction risk assessment by an ECI contractor can help the client think "out of the box" and become aware of such potential risks and the possible mitigation actions or measures that can be applied.

Of the international forms of contracts available, only the NEC4 form of contract implements an Early Warning Register. This includes a description of the matter and the way in which the effects of the matter are to be avoided or reduced.

The NEC4 Early Warning Register is not for division of risk allocation but is a document to help promote risk management, after award of contract. As it only comes into existence at the award of contract it is helpful if an ECI contractor can contribute to preparation of a pre-contract Early Warning Register to highlight to the client what potential risk matters the contractor perceives.

An Early Warning Register's clear procedures also support effective risk management after contract award. Early warning identification at the ECI stage and the Early Warning Register are simple but effective risk management tools. Both encourage and require the ongoing assessment and management of risk throughout the period of the contract.

New frontiers: offshore wind

The past decade has seen exponential growth in the amount of offshore wind energy projects globally and with it came the creation of a new supply industry and specialised installation vessels to serve it.

The expansion of the number of projects will continue as four North Sea countries (excluding the UK) envisage a 20-fold increase in capacity. The EU member states of Denmark, Germany, Belgium and the

Netherlands will create offshore energy hubs and islands, and build 300 GW of offshore wind energy by 2050 (the Esbjerg Offshore Wind Declaration, May 2022). A tremendous increase from the present 15 GW of capacity. Offshore wind farms are multi-billion euro projects and such investments require extensive and careful planning throughout the entire supply chain. Fairly early on in the development of this new market, offshore wind energy developers realised that they had to work hand in hand with the installation contractor to get to final investment decision (FID) and the realisation of a commercially viable project.

The sector continues to develop bigger wind turbines, with 15 MW turbines forecast to enter the market in the next decade. These larger and heavier wind turbines require stronger installation vessels and cranes. The existing installation vessels are unable to install the designed 15 MW turbines and are either being upgraded or bigger installation vessels are being built and commissioned. Innovative concepts and designs are needed to develop next generation vessels able to lift over 1,500 tonnes.

The offshore environment poses unique technical and logistical challenges that require specialised knowledge and expertise. By involving contractors early, developers can leverage their expertise to mitigate these challenges and drive the balance of plant costs down.

The balance of plant (BOP) cost consists of offshore foundations, cabling and transformer platforms and is the one of the most challenging of problems in the offshore wind industry at the moment. In addition, it is linked to the development of support ports and fit for purpose installation and cabling vessels. Balance of plant can account for as much as 50% of the offshore wind farm cost and is one of the most complex and ripe areas for the contractor and its supply chain to produce cost savings.

Another advantage of early contractor involvement is that it allows for more innovation and creativity in the design and construction process. Contractors can bring new ideas and technologies to the table, which can lead to a more efficient offshore wind farm that is able to generate cheaper electricity without the need for government subsidies.



FIGURE 5

Installation of offshore wind turbines in the North Sea.

Early contractor involvement in offshore wind energy construction does not just generate cost savings but it leads to better communication and collaboration, innovation and creativity, and positive relationships between all parties. It is a practice that is becoming increasingly popular and is seen as a key way to improve the supply chain risk as well as the construction process and mitigate the unique challenges that the offshore wind energy industry faces.

All these matters fit well with the application of alternative procurement techniques in the entire supply chain and indeed in the past ECI was instigated in various forms. Now with a predicted “hot” market with wind turbine manufacturers ramping up output exponentially for the years ahead there is limited availability of installation vessels. There is likely to be a worldwide installation vessel shortage, which is a risk to planned project execution and some project developments may have insufficient or in a worst case scenario no installation asset at their disposal [H-Blix, 2022]. Early contractor involvement and vessel scheduling is therefore seen as vital.

Vessels are being booked many years in advance. Coupled with reducing the BOP as much as possible, this means that offshore wind clients are increasingly turning to work with preferred contractors and using ECI to a far greater extent as well as seeking to develop more long-term relational and collaborative contracts.

Indeed the FIDIC (The International Federation of Consulting Engineers) contracts committee are in the process of drafting a specialised contract drafted specifically to serve the offshore wind energy market. It is unclear at this stage to what extent the FIDIC contract drafters will address the clear need for a collaborative ECI process.

Establishing trust and rapport with your ECI contractor

In 1848, Johan Thorbecke (a Dutch politician) said, “Trust comes on foot, but leaves on horseback.” It is interesting to consider his words and how it succinctly describes the essence of trust and its vulnerability. Trust in business is not just important, it is essential.

To build trust takes time and it can be gone quickly, and perhaps forever if it is

The sector continues to develop bigger wind turbines, with 15 MW turbines forecast to enter the market in the next decade.

violated. Trust is essential for any kind of business relationship and the need for it in a construction project is no different. Perhaps it applies to a lesser extent for a one-off relationship than for a more collaborative relationship that ECI tends to offer.

In collaborative ECI relationships, you need to be able to rely on what your chosen partner is saying and your partner must be able to rely on you. Trust in a collaborative relationship is always two ways: it is impossible for you to trust your partner while your partner does not trust you. Without this mutual vulnerability, trust is impossible to build on and can thwart a successful collaborative partnership.

Building trust takes time and requires constant positive reinforcement. Earlier in this article, open book pricing was touched upon that reinforces a willingness from the contractor to be open for critical inspection. However, from the client side it also involves accepting that the contractor should have the ability to make a reasonable margin on the project and having a balanced project risk profile. ECI contractors have valid concerns about confidentiality of such critical inspection and can feel vulnerable with complete exposure of sensitive commercial pricing information.

The commercial challenge with a client taking an ECI contractor on board on a one-to-one basis is obvious; how to ensure competitive pricing? Although nothing will completely mitigate that challenge, building openness and freedom of communication between the partners at an early stage is vital. Generally the core means to reduce that risk/concern is using competitive

dialogue with more contractors in the Phase 1 stage. This will lead to selecting the contractor with whom the client feels most comfortable.

Unlock ECI success: an ECI advisor matters

Clients who regularly undertake construction projects on a repetitive basis are likely to have built up relationships with consultants, constructors and suppliers and will often turn to them first when embarking on a new project. These relationships may be loose or formalised in specific ECI arrangements or framework agreements.

However, the majority of clients who are new to ECI and are considering applying it, can benefit from the expertise of a consultant knowledgeable in ECI practices. What is essential is that the ECI selection process is systematic.

The role of the ECI adviser can broadly cover the following:

- Evaluate the potential for enhancing the project’s value through ECI;
- Guide in the selection and setup of the most effective ECI framework, such as the contract model, regulatory compliance, selection process, ECI organisation, scope and schedule;
- Assist in coaching, training, team building and running workshops with parties, intended to facilitate communication and collaboration;
- Record and document the project team relationships, the commitments made by each party and their expectations in a multi-party ECI contract; and
- To provide a first port of call in the event of misunderstandings or disagreements between project team members.

The precise selection process chosen by an ECI advisor may vary according to circumstances, such as the level of experience and knowledge of the client, the nature of the project and the specialisation of the ECI contractors being sought. The strongest recommendation and takeaway is to have an ECI advisor that has in depth experience and can build the best project partnering team for the client. It is unwise to skimp on costs when building the ECI team. These costs represent a small part of the overall project expenditure and will directly influence how the rest of the money is spent over the whole life of the project.

It should be noted that lawyers and law firms may offer ECI consulting services, but a legal background alone may not be the most appropriate for ECI and collaborative contracting as legal training is largely based on an adversarial approach and contract enforcement. A real change in mindset is needed.

The key to making the ECI and collaborative contracting process work lies in the ECI advisor building and maintaining strong teams. A good team produces far more than the sum of the efforts of its individual members; poor teams more often than not produce less. Right from the outset, it is essential that team building and maintenance are in the minds of the ECI advisor who is charged with bringing the team together. Getting the team right will be at the forefront from the first steps in the ECI process.

Conclusions

Early contractor involvement comes in many shapes and sizes, and when applied properly and with joint commitment it has consistently shown to result in a more positive and productive relationship between the client or developer and contractor and their supply chain. By working together from the start, parties can develop a better understanding and trust for each other, which can lead to a more collaborative and ultimately successful project.

The PIANC report “A framework for early contractor involvement in infrastructure projects” is an invaluable tool to assist industry practitioners and provide hands on advice as to how to apply early contractor involvement to the benefit of any potential project.

In summary, early contractor involvement in construction projects, whether onshore or offshore, brings many direct benefits, such as cost savings, better communication and collaboration, innovation and creativity, and positive relationships between all parties with a decreased risk of disputes and claims. It is becoming increasingly popular as an alternative procurement method and is seen as a key way to improve the construction process, de-risk potential issues and mitigate the unique challenges of any project.

Summary

The PIANC report “A framework for early contractor involvement in infrastructure projects” provides a detailed introduction into the understanding and the application of early contractor involvement (ECI) in waterborne transport infrastructure projects. It is at present the only comprehensive guidance document available on the subject of ECI in the construction industry.

Early contractor involvement in construction projects, whether onshore or offshore, brings many direct benefits such as cost savings, better communication and collaboration, innovation and creativity, and positive relationships between all parties with a decreased risk of disputes and claims.

In marine infrastructure projects, ECI can achieve direct benefits during the site investigation stage and when developing project budgets using open book pricing as well as when preparing constructability reviews and construction risk assessments. It has also been used effectively during the regulatory and permitting stage of a project.

Parties need to be open and mutual trust needs to be built in a collaborative relationship. With it comes vulnerability. Without acceptance of this trust is impossible to build on and lack of trust can thwart a successful collaborative partnership. ECI is becoming increasingly popular as an alternative procurement method and is seen as a key way to improve the construction process and mitigate the unique challenges of any project.



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David is a contract and procurement specialist based in Queensland, Australia, with 35 years' experience in marine infrastructure projects on a global basis. He has in depth knowledge of procurement practices, commercial management, contract and risk assessment, dispute avoidance, adjudication and arbitration. Together with co-author Kenneth Willems, David set up a consultancy, InfraMara to implement ECI and collaborative contracting in the infrastructure market. David has published a book dealing with adverse physical conditions and has previously published articles in *Terra et Aqua* on a range of subjects.



Kenneth Willems

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