



Delivery
models

09 Designing a delivery model for a disaggregated giga project in the context of project finance

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Introduction



An increasing number of projects, including large scale energy transition projects, are now of such a scale that it is not feasible for them to be delivered pursuant to a single Engineering, Procurement and Construction (**EPC**) contract to achieve a turnkey solution.

Such projects are complex, novel, in terms of their extensive scale and cost, have numerous interfaces and, in some cases, are multi-jurisdictional. They are '**Giga Projects**'.

A Giga Project is not a traditional project – with a single asset, single revenue stream and single turnkey solution – which we have seen project financed by commercial debt providers or undertaken on balance sheet over the last few decades (**Traditional Projects**).

Giga Projects are characterised by a number of features:

- a capital cost in the (many) billions of dollars
- they are comprised of a number of facilities that form part of an overall system, for example, a hydro, geothermal, solar or wind facility providing energy to an electrolyser creating green hydrogen, which is then used to produce green steel
- one head contractor or contractor joint venture cannot or will not:
 - design and construct the entire system
 - bring all of the required technical expertise
 - carry the contingent liability of the capital cost on their balance sheet
 - raise the required security
 - procure the required insurance
 - provide adequate liability caps
 - satisfy the requirements of multiple equity investors and the debt syndicate
- they are delivered by an Owner via an Engineering and Procurement and Construction Management (**EPCM**) or Project Delivery Partner delivery model so as to leverage a wider range of industry expertise from engineering consulting and management partners
- to secure pricing and maintain schedule, the Owner may contract directly with suppliers and original equipment manufacturers of crucial equipment or long lead items, as opposed to relying on indirect relationships through a Works Contractor

- they utilise varied sources of finance made up of institutional and non-institutional equity, Export Credit Agencies (**ECAs**) and commercial banks (all **Financial Stakeholders**)
- a suite of other advisers necessary to bring the Project to Financial Close working collaboratively, appointed at an early stage and whose roles may change throughout the lifecycle of the Project.

Market considerations are a significant constraint in the delivery of Giga Projects. Contractor, designer and supply markets' appetites for accepting risk has been dampened by adverse project outcomes (sometimes involving the acceptance of extreme risks), COVID-19 and the Ukraine War related complications and rapid unforeseen cost escalations.

The combination of the above features is leading to the use of disaggregated package structures.

Disaggregation can be used as a means of making participation in Giga Projects more palatable by:

- reducing scope size and diversity
- reducing programme durations for each disaggregated package
- making financial exposure more commensurate with risk and profitability.

As discussed below, disaggregated structures present different risks to all stakeholders; however, the risks inherent in the departure from traditional EPC contracting models can be managed to maximise the prospects of Giga Project success, provided that the risks are understood and strategies are developed to mitigate them.

The purpose of this paper is to explain some of those measures, particularly in the context of the concerns of Financial Stakeholders.

This paper deals with the following topics.

- What are the key risks in disaggregation?
- How do these risks affect investment and bankability?
- What steps can be taken to mitigate risks and enhance bankability?

It is recommended that this paper be read along with several other PwC papers, including the suite of EPC and EPCM papers and the Export Credit Agency Financing paper, all contained in the publication 'Investing in Energy Transition Projects'.

Executive summary

Disaggregation can increase project risk by unwinding the EPC single point of responsibility that is a feature of Traditional Projects, replacing it with a delivery system that, in the absence of careful preparation and management, can lead to the proliferation of interfaces, the diminution of delivery certainty and the exacerbation of Owner risk.

Financial Stakeholders are resistant to committing to Giga Projects with such heightened risks because of:

- the issues associated with the elimination of the single point of responsibility principle
- the increased possibility of project failure
- the commercial complexities arising out dispersed liability caps, liquidated damages and insurance
- the practical and legal problems associated with completing the Giga Project in the event of default.

The risks of disaggregation and the unwillingness of Financial Stakeholders to participate in disaggregated Giga Projects can be materially mitigated by:

- engagement of an Integrated Management Team (**IMT**) from an early point
- the preparation of specifications and Front End Engineering Designs (**FEED**) that take interfaces into account
- the development of a tendering and contracting strategy that recognises the characteristics of disaggregation and takes steps to manage them
- proactive Owner action based on an issues notification and resolution system that is directed to identifying and solving problems quickly.

Disaggregation risks

The EPC contracting model brings the advantages of contracting with a single, expert, well capitalised counterparty, which, with the exception of limited Owner-retained risks, accepts all delivery risks and responsibilities.

Further, Works Contractors or EPC Contractors are usually international organisations with deep relationships with the finance community, including Financial Stakeholders, and with suppliers and subcontractors.

EPC contracts:

- provide a single point of responsibility for delivery
- are entered into with expert, well capitalised, reputable contractors
- are less complicated to administer than a suite of disaggregated contracts
- minimise Owner interface risks by allocating the entire scope of works, spanning design to commissioning, to the EPC Contractor
- centralise liability for delay and performance liquidated damages
- maximise the availability of security and liability caps.

Disaggregation unwinds that single point of responsibility and the associated advantages.

As a consequence, the Owner and Financial Stakeholders are exposed to increased risks, some of which are:

- system failure arising out of the management of interfaces between logistics, designers, suppliers, and contractors and the integration of technologies, products, and designs to produce an end to end system that fulfils its requirements
- the lack of adequate competent resources to perform the functions usually undertaken by an EPC Contractor
- performance guarantees are difficult to define and are dispersed among the contracts that are entered into to deliver the Project (**Delivery Contracts**)
- delay and performance liquidated damages are more difficult to calculate and administer
- the securities and liability caps are lower in absolute value and are dispersed among a number of Delivery Contracts
- liability for failure is more difficult to establish where the root cause of that failure cannot be clearly traced to one Delivery Contract, or multiple Delivery Contractors are implicated (and for this reason, it is important that each Delivery Contract deals with the implications of default, force majeure, delays and other critical items under and across other Delivery Contracts to help ascertain whether a particular issue has been caused by the Owner and/or other Contractors)
- disputes are more complex and expensive and often directly involve the Owner.

From an engineering perspective, the absence of a single point of responsibility leads to the erosion of control over the end to end design and construction of the system.

From a legal perspective, the absence of a single point of responsibility leads to difficulty in identifying responsibility, and allocating it fully, where either defects arise in the end to end system, or the system underperforms, as gaps in defects and performance regimes between interfaces can be leveraged by contractors. As discussed below, this makes the resolution of disputes more complex, uncertain, costly and time consuming.



Effect of disaggregation on bankability and investment

Limited recourse project financing and equity investment prior to completion and well established operation of a Project expose Financial Stakeholders to the risk of non-repayment or realisation of returns where the Project fails to such an extent that the revenue generated by the Project is insufficient to cover debt repayment and/or dividends. In such a situation, the Financial Stakeholders are left to take over the Project, attempt to finish it (if it is incomplete) or rectify performance problems (if operating) and then sell it, if possible. That will often result in substantial loss.

The EPC contracting model reduces that risk both financially and from the point of view of practical design and construction. To put it simply, if things don't go as planned, there is a reasonable prospect that the downside can be reduced by having recourse to and being able to work with, a single, well capitalised contractor that has provided substantial security.

In contrast, where there is substantial disaggregation in the contracting of the delivery of a Project, there is no such single source of accountability in circumstances where critical claims or disputes arise in that Project. Financial Stakeholders are confronted with:

- a complex web of design, supply and construction contracts
- dispersed securities and individual liability caps
- contractors with diverse levels of financial capacity
- complex contract administration with contracts at various stages
- no single influential relationship to call on
- a complicated (and possibly futile) exercise to determine the cause of the problem or the Project's failure.

In other words, there is a substantial chance that they will inherit a mess.

Financial Stakeholders are therefore wary of complex, interfacing disaggregated Projects and measures must be taken to increase their level of comfort.

This paper examines how that comfort level can be raised. In particular, it addresses issues that are likely to be raised through the credit/investment committee approval processes undertaken by Financial Stakeholders. In doing so, this paper outlines:

- an appropriate overall contract structure
- the role of an IMT
- the role of a Project Design Partner
- the role of a Project Delivery Partner
- the role of the Risk Management Partner
- the role of the Project Advisory Partner
- key provisions to augment the Delivery Contracts
- the role of the Financial Stakeholder Technical Advisor (**FSTA**)
- the role of the Independent Certifier (**IC**)
- a suitable dispute resolution system.

Contract structure

Due to the necessary tailoring of the structure to the particular Project, disaggregated delivery systems will vary but will likely feature several of the contractual arrangements listed below. This list excludes a detailed breakdown of the agreements with Financial Stakeholders and inter-financier arrangements, such as priority agreements.

1. **Facility Documents:** the various financing agreements between the Owner and its guarantors and the Financial Stakeholders
2. **FSTA Contract:** between the Financial Stakeholders (or their representative), the Owner and the FSTA
3. **Integrated Management Team Contracts:** between the external members of the IMT (Project Design Partner, Project Delivery Partner, Risk Management Partner and Project Advisory Partner: **External Team Members**) and the Owner (where applicable – see section 6 of this paper)
4. **Bank Side Deeds:** between the Owner, the IC, the External Team Members (respectively) and the representative of the Financial Stakeholders, primarily to deal with the rights and obligations of the parties in the event of termination of those contracts and the insolvency of the Owner
5. **Delivery Design Contracts:** FEED, design consultancies and supply contracts
6. **Delivery Supply Contracts:** supply arrangements, including Free Issue Material (**FIM**)
7. **Delivery Design and Construction Contracts:** contracts pertaining to the construction of the Project, including EPC contracts and ECI contracts
8. **Bank Side Deeds:** between the Owner, the relevant Delivery Contractors and the representative of the Financial Stakeholders primarily to deal with the rights and obligations of the parties in the event of termination of those contracts and the insolvency of the Owner
9. **Deeds of Novation:** between the consultants, suppliers originally engaged by the Owner (where required to secure pricing or schedule) and the Works Contractors to which the relationship is novated
10. **Interface and Integration Deeds:** between the Owner and the Works Contractors with interfacing Works Contractors (and possibly consultants, logistics providers and suppliers)
11. **Independent Certifier Deeds:** between the Owner, the IC and the Works Contractors
12. **Key Subcontracts:** between the Works Contractors and Key Subcontractors
13. **Key Subcontract Step In Deeds:** between the Works Contractors, Key Subcontractors and the Owner
14. **Key Subcontractor Bank Side Deeds:** between the Works Contractors and Key Subcontractors and the representative of the Financial Stakeholders, primarily to deal with the rights and obligations of the parties in the event of termination of those contracts
15. **Expert Determination Agreements** and
16. **Arbitration Agreements.**

A structure diagram is set out in **Schedule 1**.



Owner and Integrated Management Team

Financial Stakeholders will require demonstration that the Owner is capable of managing the Project.

The first step to enable Financial Stakeholders to become comfortable with the Project is to establish an Owner team that is well resourced, has the expertise and experience and can handle the engineering, logistical and commercial challenges presented by the Project.

The approach that is ultimately taken for a particular Project will depend on the extent to which the Owner:

- wants to and has the capacity to be an active project developer using its own resources
- prefers to, or must, utilise external resources. In this circumstance, an IMT, comprised of the Owner and the External Team Members, can be used to supplement the Owner's resources.

The Owner's approach can be determined by reference to the following criteria.

Drivers	Context
Limited Owner resources	<ul style="list-style-type: none"> • Delivery of projects is not the Owner's core business or the Owner otherwise wants to retain a thin organisational structure and outsource the majority of the project delivery functions. • Owner does not see value in investing in developing its own project delivery systems and processes for a stand-alone project and wants to leverage an IMT's expertise and purpose built project delivery systems and processes.
Owner-side resource constraints in heated market	<ul style="list-style-type: none"> • Booming market conditions with a large number of competing existing projects and project in the pipeline. • Owner needs rapid access to an additional pool of client-side resources to properly staff its project and wants to leverage an IMT's established network of existing resources and expertise.
Larger more complex projects with greater disaggregation required	<ul style="list-style-type: none"> • Owner is forced to split the project scope into a number of packages in response to specialised technology needed and/or contracting market constraints and competition issues.
Project delivery in foreign country or different industry sector or asset type	<ul style="list-style-type: none"> • Owner is expanding its business into new markets and needs to develop infrastructure assets in those countries/sectors to support the business' expansion. • Owner has significant internal domestic project delivery experience but limited experience in those countries or access to resources on the ground in those locations. • Alternatively, the Owner may have delivered projects in the country but not the type of assets needed.
Criticality of achieving project objectives and on time project delivery	<ul style="list-style-type: none"> • Owner is embarking on the delivery of a major strategic infrastructure asset that is critical to the overall business strategy. • The ramifications to the business if the project is not delivered on time and in accordance with other objectives are such that it requires an additional level of project assurance and the Owner is prepared to pay a premium to secure the necessary resources. • Owner engages an IMT to gain access to additional 'best in class' global project delivery experience to enhance its existing project delivery capability with experience and lessons learned from delivering projects under similar brownfield conditions and levels of public scrutiny, with the aim of delivering a world class project that might well exceed existing domestic standards. The aim is not to achieve gold standard, the aim is to create an even higher tier.

Membership of the IMT might change over time and its functions will vary according to the stage of the Project.

The critical advantage of utilising an IMT is that it provides the Owner with access to high levels of expertise from disparate organisations, each of which will bring differing, objective perspectives to the Project. Impartiality is a key benefit of utilising an IMT with appropriate External Team Members.

The External Team Members might be comprised of:

- a Design Delivery Partner
- a Project Delivery Partner
- a Risk Management Partner
- a Project Advisory Partner.

Each of the External Team Members must contribute their expertise and work collaboratively with the Owner and the other External Team Members to:

- review the Owner's assumptions about and expectations of the Project
- prepare and review the preliminary feasibility study
- develop the bankable feasibility study, including:
 - risk assessment, monitoring and mitigation, including insurance
 - HR/IR
 - government relations
- establish and review budgets
- establish and review programmes
- identify and assess Project risks
- develop the Project delivery system
- liaise with the contractor and supplier markets
- develop tender processes
- make threshold design decisions
- develop a logistics strategy
- consider arranging early procurement, especially for long lead items.

Continuity

Financial Stakeholders will be concerned to ensure that the expertise and resources provided by the External Team Members are available throughout the key phases of the Project.

While an unconditional commitment to see the Project through to completion might not be viable at the time of entry into the contracts appointing the External Team Members, these contracts can be structured with timelines and phases that permit the parties to take stock and continue, amend or terminate their involvement in time to minimise disruption to the Project.

Changing roles

The composition of the IMT and the roles of the External Team Members might change with different stages of the Project.

At the outset, the focus of the IMT's efforts will be on the achievement of Financial Close. The early establishment of the IMT is critical. Early involvement facilitates better alignment and collaborative practices, and in turn ensures a proactive approach and commitment to achievement of Financial Close and the Project goals instead of a reactionary approach. From an engineering perspective, early involvement is conducive to lean, 'get it right the first time' practices and minimises re-design and re-work.

This will entail a substantial amount of pre-construction work, including design, procurement, approvals, Financial Stakeholder Management and early works, but it will not involve the commencement of the main construction project.

After Financial Close, some External Team Members might take on more arm's length roles in the design and construction of the Project.

For example, the Design Delivery Partner might become a principal designer and the Project Delivery Partner might move to more of an EPCM contractor role.

In those circumstances, new agreements will be required and the roles of those parties on the IMT will require review.

General contract features

Each External Team Member will enter into an **Integrated Management Team Contract** with the Owner.

Subject to the comments made below in relation to the Project Design Partner, there are five fundamental legal elements involved in the Integrated Management Team Contract:

- The scope of the roles of the external organisations must be clearly described.
- The term of the contract must be agreed, particularly whether the role will continue into Project delivery.
- The role of the external organisations is advisory only. With the exception of the Project Design Partner, they will not undertake actual design or construction activities as part of the integrated team and third party reliance will not be granted on deliverables.
- If any such design and construction activities are performed by the external organisations, they must be done under appropriate separate contracts, with clear provisions in relation to conflicts of interest. The appointment for such activities may not be guaranteed, and the external organisations must be prepared to participate in tender and other procurement processes if required.
- The ability to make claims against the External Team Member is limited, other than in respect of design services.

Project Design Partner



The role of the Project Design Partner is to provide overall advice and direction to the Owner in relation to:

- the design of the end to end system
- equipment selection
- FEED
- Delivery Contract design briefs.

The Owner and the Project Design Partner will enter into the **Project Design Partner Contract**.

The Project Design Partner Contract should be prepared in the light of the following context.

- This contract will include actual design services that go beyond the provision of advice. Critical decisions will be made by the Owner in reliance on the services provided by the Project Design Partner.
- The Project Design Partner might assume the role of a principal designer as the project progresses. If that occurs (and there are significant practical benefits that flow from that continuity) the parties should consider whether the Project Design Partner should continue as a member of the IMT and, if so, how the two roles can be accommodated given the different types of service and the potential for conflicts of interest.
- The Project Design Partner's early design outputs, including the FEED:
 - will be manifested in the form of equipment selections, Project schedule and embedded designs that will be implemented through the Delivery Contracts
 - can irretrievably set the course of the Project.
- The following key considerations will have to be taken into account in preparing the Project Design Partner Contract:
 - **Liability:** The actual engineering scope in the Project Design Partner Contract will give rise to significant potential liability. The interests of the Owners and the Financial Stakeholders will require the Project Design Partner to be liable for its negligence and breaches of contract.
 - **Liability cap:** Such liability will require bankable liability caps and associated requirements for professional indemnity insurance. If the Project Design Partner Contract is novated in whole or in part, as discussed below, that cap will be shared with the novatees.

- **Delivery Contract risk:** In the absence of provisions to the contrary, the Owner will bear the risk of the design work performed by the Project Design Partner. Those designs might be the fundamental basis of the Project's detailed design and effectively lock subsequent designers, suppliers and Works Contractors into fixed design pathways. Financial Stakeholders will expect that Owner held risk to be mitigated. The mitigation measures can include:
 - verification of the key design assumptions by the FSTA, designers, suppliers and Works Contractors
 - early engagement and design workshops to facilitate such verification
 - in some cases the novation of parts of the Project Design Partner Contract.

None of the above measures are perfect and will not always be viable. For example, incoming designers, suppliers and Works Contractors might not accept a verification responsibility in the absence of the opportunity to undertake a root and branch re-design, and novation can be commercially unsatisfactory, especially on a piecemeal basis.

It will be worthwhile considering two further matters in connection with the Design Partner Contract.

- **Task order structure:** It might be useful to adopt a task order structure under the Project Design Partner Contract to facilitate novation and to regulate the scope as the project progresses. As a general principle, the earlier the design responsibility shifts to the Delivery Contractors the better, provided that the Design Delivery Partner is able to maintain consistency of designs in relation to the end to end solution.
- **Separate contracts:** If the Project Design Partner progresses to become a conventional design consultant, a separate agreement will be required. If the Project Design Partner continues as part of the IMT, it will be important to differentiate the scopes of service to which the different contracts, or, preferably, increase the levels of insurance, security (if applicable) and liability caps to match the expanded role.

Project Delivery Partner

The role of the Project Delivery Partner is to provide overall delivery related advice and direction to the Owner in relation to:

- procurement
- budgets and programmes
- project controls and governance
- contract management and administration
- interface and integration management
- testing and commissioning
- initial determinations and valuations.

The Owner and the Project Delivery Partner will enter into the **Project Delivery Partner Contract**.

The Project Delivery Partner Contract should be prepared in the light of the following context:

- The Project Delivery Partner Contract might not include scope for the actual performance of design and construction work. Rather, the scope is more likely to be for the delivery of services in order to augment the Owner's resources.
- The Project Delivery Partner should give comfort to the Financial Stakeholders that the Project is well supported by an adequately resourced, expert delivery partner.

The following key considerations will have to be taken into account in preparing the Project Delivery Partner Contract.

- **Liability:** While the Project Delivery Partner might not perform design and construction, it will provide critical management services which will be relied on by the Owner. As such, the Project Delivery Partner will have potential contractual and tortious liability which will be the subject of appropriate caps and insurance. If actual design and construction work forms part of the scope, the applicable caps and insurance requirements will require further consideration. It is also important to note that there is a likelihood the Project Delivery Partner will insist on a cap that is substantially lower than Financial Stakeholders may want.
- **Scope:** It is essential for the Owner and the Project Delivery Partner to have clear agreement in relation to the scope of the Project Delivery Partner's services. In this context it is particularly important to ensure that the parties are clear about the extent to which the Project Delivery Partner is responsible for the accuracy of the Project budgets and programmes. More particularly:

- Is the budget review an independent cost estimate or an aggregation of prices received from market soundings and other sources?
- Are the Project Programme and sub-programmes the result of the application of the Project Delivery Partner's expertise as a programmer or the synthesis of feedback received from the market?

This is ultimately an issue of reliance: to what extent are the Owner and the Financial Stakeholders relying on the budgets and programmes in proceeding with the Project and has that reliance been accepted by the Project Delivery Partner? Usually, in practice, the Owner and the Financial Stakeholders will rely on the budgets and programmes (with appropriate contingencies); however, the Project Delivery Partner will not warrant their accuracy and, to the contrary, will require express terms that clearly define its role as an aggregator of estimates and forecasts by others, rather than as a provider of original specialist advice.

- **Targets:** The Project Delivery Contract should set out the Project targets that the Owner is aiming to achieve. Those targets might relate to time, capital cost, operating cost and system performance and environmental/social outcomes. In addition to establishing a framework of project drivers, those targets can form the basis of a pain share/gain share regime that incentivises performance.
- **Self-performance:** It is not uncommon for the Project Delivery Partner to undertake actual design and construction work. While such self-performance might be convenient, it must be undertaken in the context of strict probity obligations, both because of the effect of self-performance on market perception and because of the jeopardy to the Owner of having significant work undertaken by a party embedded in the Project with significant inside knowledge and an obvious conflict of interest.
- **Delivery Contract system and terms:** The Project Delivery Partner cannot perform its role without agreement as to the delivery system to be implemented and access to an agreed set of contracts that will form the basis of the Delivery Contracts. In combination, they will encapsulate the Owner's and the Financial Stakeholders' agreed risk profile and method of Project delivery.

- **Processes:** The Owner and the Project Delivery Partner must agree:
 - a delegations framework so that it is clear what the Project Delivery Partner is authorised to do without specific approvals
 - the process for
 - procuring the Delivery Contracts
 - expending funds
 - resources and cost ramp up to reflect the availability of funds and progress to financial close
 - obtaining instructions from the Owner
 - generally conveying and receiving information. In this context it is particularly noteworthy that the Project Delivery Partner is the only Project participant who will have clear end to end vision of the progress of the Project.

- **Roles:** The Project Delivery Partner is likely to play three separate roles under the Delivery Contracts:
 - as agent of the Owner for the purposes of contract administration
 - as an independent valuer of business-as-usual claims, such as progress claims
 - as an initial independent determiner of more contentious claims such as extension of time (**EOT**) and variation claims (provided that the contracting parties and the Financial Stakeholders are aware of this role and are comfortable with any potential conflicts this may raise).

Those roles should be clearly defined in the Project Delivery Contract and reflected consistently in the Delivery Contracts.

If the Project Delivery Partner assumes a different role after Financial Close, similar considerations will apply to those set out in relation to the Project Design Partner.



The Risk Management Partner

The Risk Management Partner will develop:

- a project wide insurance strategy and
- a sophisticated risk analysis and risk mitigation strategy.

Both of those services are critical to the Owner and Financial Stakeholders in the context of a Giga Project.

It is essential for the Owner and the Financial Stakeholders to understand the extent of cover that can be provided, the types of loss that can be insured and the terms, including deductibles, available across the Project.

The extent to which insurance can underwrite risk in a Giga Project is more restricted both because of the value of the project and its potential risk; and because of the reluctance of insurers to over-expose themselves to liability should one or more insurable events detrimentally affect the project.

Risk is different in the context of Giga Projects.

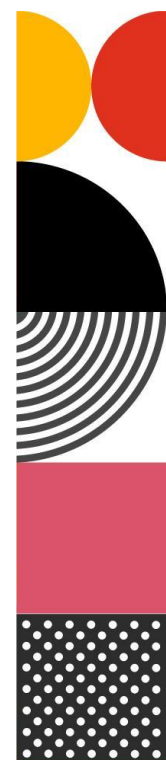
First, scale is an innate risk factor. The effort and organisation required to undertake a multi-billion dollar, technologically, transcontinental project is fundamentally different to a Traditional Project.

Secondly, the range of risks is wider and can include political, economic, climatic and geotechnical issues, especially in transcontinental projects.

The Risk Management Partner should be selected on the basis of relevant international reach and expertise. The Risk Management Partner should also fully understand the importance of adopting a proactive approach to risk identification and mitigation as part of its role. The Risk Management Partner services are more sophisticated than the mere identification of insurance options.

The following key considerations should be taken into account in preparing the Risk Management Partner Contract.

- **Liability:** The Risk Management Partner's advice and recommendations are crucial to the Project and can lead to substantial loss if it is incorrect. Accordingly, the Risk Management Partner will require a reasonable liability cap and professional indemnity insurance cover. It should be noted that any reports or advice will also be conditional on the accuracy of the information provided by the owner and other statistical data relied by it.
- **Reliance:** The Risk Management Partner will require reliance on its services to be confined to the Owner and a closed class of third parties, each of whom will be required to execute a deed limiting the Risk Management Partner's liability and the right to disclose the advice to others.
- **Intellectual property:** While the Risk Management Partner will be prepared to licence or grant full IP ownership of its reports to the Owner, it will not (and possibly cannot) grant IP rights over the underlying materials that are the basis of its reports. Such material is often statistical or factual and is not capable of sustaining IP rights.



The Project Advisory Partner

The Project Advisory Partner is the glue that holds the IMT together. It may consist of one entity or a combination of entities, such as a law firm, tax firm and investment bank. It is responsible for the formation of the IMT, monitoring its operation and assisting all of the External Team Members to understand their roles and collaborate with each other and the Owner.

The Project Advisory Partner's other roles will include:

- establishment of Project systems, including in relation to:
 - communications
 - IT
 - finance
- legal advice
- tax advice and structuring
- development of Project contracts
- advice in relation to debt and equity raising
- financial modelling and economic review
- assistance with procurement
- administration of the IMT
- management of relations between the IMT members
- market insights, intelligence and updates.

The Project Advisory Partner's role will continue throughout the Project's implementation.



Delivery contracts

Delivery contracts: Consultancy

The Owner will enter into numerous consultancy agreements which will mostly be on customary industry terms.

The key issues with respect to these contracts in a disaggregated project are:

- the extent to which consultants are entitled to rely on information provided by or on behalf of the Owner
- the extent to which design consultants are required to work with other design consultants, suppliers and contractors to ensure that interfaces are managed and the design is integrated on an end to end basis. This function may, in part, be facilitated by a BIM system or similar
- the possibility that the consultancy agreement will be novated to one or more Works Contractors. If the delivery strategy entails such novations, then, if practicable, it will be important to include a task order system for the procurement of services so that they can be novated in parts to different Works Contractors
- the extent to which the design consultants are required to verify any design assumptions that are embedded in preliminary designs or FEED packages that are provided by the Owner
- it is important to have a clear understanding about whether the design consultant is responsible for the detailed completion/documentation of a concept design or FEED that has been provided by the Owner (and can rely on the assumptions embedded in those preliminary designs) or whether it must review and validate the concept design or FEED and then undertake the detailed design.

Delivery contracts: Supply

In a disaggregated model the Owner will often enter into more supply contracts than usual, especially in the context of renewable energy projects. This is attributable to a number of factors, including:

- the relatively significant scope of equipment supply as opposed to the performance of onsite work
- the cost savings that can be achieved through FIM
- the time savings that can be achieved.

While Owner initiated procurement can be advantageous, its extent should be considered in the context of the following questions:

- Are the Owner and the Financial Stakeholders prepared to accept the time, cost and fitness for purpose risks in relation to the procurement?
- Has the Owner factored in supply chain uncertainty?
- Does the Owner intend to novate the supply contract to a Works Contractor?
- Does the equipment selection mandate future design and/or construction decisions by hard wiring in technologies?

The Owner should also be mindful that supply contracts are often less detailed than EPC contracts and can be on vendor terms. This gives rise to further issues, particularly whether:

- the liability cap and security provisions are adequate
- the security can be held until the equipment has been successfully commissioned or must be returned on delivery
- the law of the contract is appropriate
- the dispute resolution provisions are consistent with the project wide dispute resolution strategy.

Delivery contracts: EPC

Works contracts (often EPC contracts) will generally make up the bulk of the Project. They will range from conventional civil works through to technology driven design and construct arrangements.

The Financial Stakeholders will have particular interest in the EPC contracts because they will:

- be the source of most of the security and available liability caps
- have significant well capitalised counterparties
- be the biggest aggregation of design and construct warranties.

The EPC contracts can be expected to follow largely industry accepted terms, however, there are a number of special issues that must be considered in a disaggregated project. These issues are fundamentally concerned with the management of interfaces, integration and Owner inputs. From a legal perspective, the fewer the interfaces and Owner inputs the lower the risks; however, the practical exigencies of procurement and engineering must sometimes prevail over legal risk.

Interface and integration are connected, but not identical issues; however, in broad terms, both are concerned with the interaction between contracts where there is a physical, temporal or technological connection in the context of liability and the performance and fitness for purpose of the end to end system.

In a traditional EPC contract the interface and integration issues are comparatively limited because the EPC Contractor substantially accepts the risk and responsibility to produce a project that is fit for purpose, by a nominated time and for an agreed price.

In a disaggregated project there is no such single point of responsibility and control. The Owner must knit together its own inputs with the inputs of various designers, suppliers and contractors to produce the end to end system.

While this paper focuses on the legal aspects of this process, successful management of interface/integration will be the result of careful engineering and, in particular:

- clear scope delineation between packages
- a detailed understanding of the interface/integration issues
- a general willingness of all Project participants to cooperate
- step by step design, defects, testing and commissioning processes that identify and solve issues as quickly as possible.

Contractual interface and integration strategies

- **The contract structure should reflect the engineering interfaces**

- This will require each of the relevant EPC contracts (**Subject Contract**) to recognise the role of the interfaces and the relationship with other contracts (**Interface Contracts**).
- The relationships between a **Subject Contractor** and the **Interface Contractors** should be documented directly between them in an **Interface and Integration Deed**, which will set out, the rights and obligations of the Contractors as between each other and the dispute resolution process that will apply between them.
- One of the purposes of the Interface and Integration Deed dispute resolution system should be to insulate the Owner from liability to a Subject Contractor where that liability arises out of the breach of another EPC contract or the Interface and Integration Deed by an Interface Contractor.

- Interfaces between a Subject Contractor and designers and suppliers might be able to managed by Interface and Integration Deeds, but this will not always be the case. In such circumstances, the Owner's risk minimisation will be based on:
 - novation, and/or
 - product/design verification by the Subject Contractor, and/or
 - a detailed design and procurement process that limits the possibility of interface inconsistency.
- **The tender process should result in the identification of as many interface/integration points as possible**
 - This can be achieved through a combination of Owner nominated interface/integration points and specifications and tenderer nominations. This will be a critical element of the tender process.
 - The interface/integration points will flow two ways:
 - **TO** the Subject Contractor in the form of the interface/integration points and specifications provided by the Owner and Interface Contractors (**Input Interface Specifications**).
 - **FROM** the Subject Contractor advising the Owner and Interface Contractors of its interface/integration points and specifications (**Output Interface Specifications**).
 - The result should be a series of warranties given by the EPC Contractor in the EPC contract and the Interface and Integration Deed to the effect that:
 - in relation to the Input Interface Specifications:
 - › it is aware of and has tendered on the basis of the Input Interface Specifications
 - › if the requirements of the Input Interface Specifications are fulfilled by the Interface Contractors:
 - its scope of works will integrate with the nominated interfacing scopes
 - it will not have any claim or defence against the Owner or an Interface Contractor on the basis of interface issues
 - in relation to the Output Interface Specifications:
 - › it has fully stipulated the integration/interface conditions and is aware that they will be included in Interface Contracts by the Owner
 - › it will not change or augment the Output Interface Specifications without notifying the Owner and the Interface Contractors
 - › will bear the time, cost and performance risks of any such change or augmentation.

- ***The tender process should obtain tenderers' views in relation to potential suppliers and their products***

Tenderers can be required to include their views in relation to potential suppliers, supply terms and product selection as part of the tender process, both in order to reduce risk generally and also to enhance the ease of supply contract novation if desired.

- ***An ECI process can clarify scope, price, programme and interfaces***

Early contractor involvement, whether at tender stage (as a competitive ECI) or after appointment of a preferred contractor, can be used to clarify key issues, including interface points, prior to the finalisation of the relevant EPC contracts.

- ***The overall Project governance system should include an interface and integration group to identify, monitor and resolve interface and integration issues***

A sample governance structure for delivery activities is set out in **Schedule 2**.

- ***The issues notification process should identify interface and integration issues and, together with the dispute resolution process should be a single, seamless system for issues identification and resolution***

A sample issues process is set out in **Schedule 3**.

- ***The design development process should involve Interface Contractors***

The extent to which the process set out below is practicable must be assessed on a case by case basis.

The tender stage designs will be developed throughout the lives of the EPC contracts. To the extent practicable, the design development stages should include the Interface Contractors who should be given the opportunity to review those designs that concern the Input Interface Specifications.

If an Interface Contractor considers that a design does not fulfill the requirements of or is not consistent with an Input Interface Specifications, it must raise the issue.

If the issue is not resolved, it will be an Interface Dispute under the Interface and Integration Deed and subject to the dispute resolution process set out in the Interface and Integration Deed.

If the Interface Contractor does not raise the issue, it waives its rights in relation to whether the design complies with the Input Interface Specification.

This process will rarely be perfect. As a general rule, the process will diminish in its effectiveness in line with the generality of the Input Interfaces because where a requirement is stated only in general terms, it will be easier to assert compliance with them.

- ***The defects process should involve Interface Contractors***

It is desirable for the Interface Contractors to be involved in the defects process at fixed times including prior to mechanical completion.

If the Interface Contractor identifies a defect, the Subject Contractor should be required to rectify it unless it is disputed. Such a dispute will be an Interface Dispute. It is important that defects are fixed as soon as possible, rather than delaying while the parties undertake a dispute resolution process to determine who was at fault. It is helpful to have an accelerated dispute resolution process for these situations.

It should be noted that if mechanical completion is not achieved due to a failure to fulfill an Output Interface Specification, there might be delay liquidated damages consequences for the Subject Contractor. Accordingly, it will be important to determine which Output Interface Specifications are prerequisites to mechanical completion under the Subject Contract.

- ***The testing and commissioning process should involve Interface Contractors***

In some instances, the testing and commissioning processes will determine whether the Output Interface Specifications have been fulfilled. The Interface Contractors should be provided with the test and commissioning results in those instances so as to verify compliance.

The overall testing and commissioning programme might have to be sequenced in a manner that demonstrates that the end to end system operates as required.

- ***The completion process might be more complex***

The need to establish end to end performance might require the individual EPC contracts to have a multi-stage completion process featuring:

- **Conditional Mechanical Completion**, being when the relevant Works have been completed and have passed their individual commissioning/ functional tests
- **System Mechanical Completion**, being when the end to end system has been completed and has been successfully commissioned
- **Steady State Operation**, being when the Project has been operated satisfactorily for a period that indicates that the Project is capable of sustained acceptable performance (and permits a commercial refinance to reduce borrowing costs).

These stages will have different contractual consequences in relation to matters such as:

- the timing of handover
- the assessment of delay and performance liquidated damages
- the timing of the defects liability period
- the return of security.

Set out below is a table that illustrates how these issues can be categorised.

Issue	Conditional Mechanical Completion	System Mechanical Completion	Commercial Operation
Hand over	The Owner will probably take possession of the Works at Conditional Mechanical Completion and be responsible for insurance, maintenance and site security. This might be achieved by passing possession on to a following contractor.		
Delay Liquidated Damages (DLDs)	DLDs will probably be linked to Conditional Mechanical Completion.		
Performance Liquidated Damages	These will probably be referenced to the performance of the Works rather than the end to end system, however, appropriate testing might not be possible at Conditional Mechanical Completion. The issue will be addressed on a contract by contract basis.	Possibly.	Possibly.
Defects Liability Period (DLP)	The DLP will commence at Conditional Mechanical Completion.	This might be a possible end date, especially given that the operator will be in possession of the Works.	Possibly, in conjunction with the Operator.
Security return	A percentage step down will occur at this stage.	A further percentage step down will occur at this stage.	Possibly, a further percentage step down will occur at this stage.

Delivery contracts: Interface and integration deeds

The purposes of the Interface and Integration Deeds are to:

- clarify the roles and responsibilities of the designers, suppliers and contractors whose scopes interface with each other or must be integrated with each other
- deal with site related issues such as safety and access
- establish administrative and technical processes such as in relation to handover, completion and defects
- set up a dispute resolution system to matters that relate to interface and integration issues. As stated above, it is helpful to establish an accelerated dispute resolution scheme and adopt a 'cure first, allocate blame later' principle.

Interface and Integration Deeds can be established on a contract by contract basis or on a project-wide basis under a mechanism which invokes that at the direction of the Owner.

While the primary role of the Interface and Integration Deeds is the prevention of disputes and the enhancement of interface and integration management, a secondary role is to insulate the Owner to the greatest possible extent from liability in interface and integration disputes.

A key challenge is to persuade Works Contractors and suppliers to enter into arrangements, such as Interface and Integration Deeds that not only create rights, but also establish direct liabilities, preferably eliminating liability of the Owner. In particular, non-defaulting contractors will look to the Owner if they cannot recover against a defaulting contractor, for example, because of its liability cap. Non-defaulting contractors will want the Owner to share the pain. That issue can be addressed in part by:

- prescribing clear priorities and processes in relation to liability caps and security
- establishing a separate dispute resolution stream for interface disputes (see below)
- contracting with reputable and well capitalised contractors and suppliers
- minimising interfaces
- allowing tenderers to bid as consortia with joint and several liability.

Delivery contracts: Security package

One of the inherent characteristics of project financing is its non-recourse nature. There are few, if any, securities available outside those created by the project documents. Accordingly, Financial Stakeholders are keen to ensure that the project delivery structure establishes sufficient security.

This is achieved in the following ways:

- **Bank Side Deeds** that create pre-emptive rights for Financial Stakeholders to step into and control all key agreements to which the Owner is a party after Owner default
- **Step In Deeds** that extend the Debt Financier's pre-emptive rights down the contractual chain to agreements such as those between the Works Contractors and Key Subcontractors
- the requirement that all significant Delivery Contracts require contractors and suppliers to provide readily accessible unconditional security and parent/third party guarantee/indemnity security in favour of the Owner (which will be controlled by the Financial Stakeholders through the facility documents)
- readily accessible unconditional security to support any advance payments, especially for FIM
- generally appropriate payment terms monitored by the FSTA.

Readily accessible unconditional security requires that the security is:

- in the form of an unconditional bank/insurance company bond
- given by an approved and adequately rated institution
- capable of easy enforcement.

In this regard, it is important to carefully scrutinise the terms of any bank or insurance bonds/guarantees provided as part of the security package. Those instruments might be subject to the **ICC Uniform Rules for Demand Guarantees URDG 758 (URDG)**. The URDG sets out rules for making and honouring demands on unconditional bank guarantees.

The rules are generally consistent with the approach taken in Australia, however, Articles 34 and 35 stipulate:

- the governing law of the guarantee is the place of the guarantor's branch that issued the guarantee
- the jurisdiction for the resolution of disputes is a competent court in the location of the guarantor's branch that issued the guarantee.

Ideally, that risk can be mitigated by:

- requiring that the securities be issued by Australian entities or the Australian branch of a foreign entity
- ensuring that the law of the security is the law of an Australian State
- the Australian courts are given exclusive jurisdiction.

Of course, the ability to achieve such mitigation is dependent on the parties' bargaining power, particularly the willingness of foreign banks to be subject to a different jurisdiction. That issue is best addressed by ensuring that the underlying contract stipulates the form of the security and includes an approved form.



Financial Stakeholders' Technical Advisor

The roles of the FSTA are to:

- undertake due diligence on the technical/engineering aspects of the Project, including designs, site conditions and factory inspections and testing, on behalf of the Financial Stakeholders, which is usually set out in a due diligence report
- certify the payment of progress claims to the Financial Stakeholders (more particularly debt providers) to permit the release of funds to the extent provided by the Financial Stakeholders
- attend at testing and commissioning
- review and verify testing and commissioning data
- verify that the various stages of completion have been achieved.

It should be noted that payment certification by the FSTA in the context of the loan facility documents will not be binding on payees under the Delivery Contracts. Their entitlements will be governed by the Delivery Contracts and the applicable security of payment legislation.

The FSTA is paid for by the Owner.

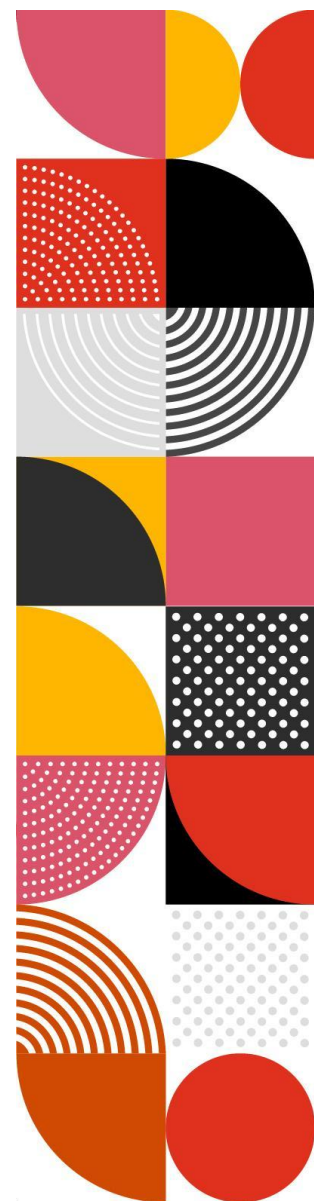
The FSTA might be appointed by the Owner prior to the formation of the financier syndicate, in which case:

- it must be a well known organisation acceptable to the Financial Stakeholders
- the agreement must be prepared on the basis that:
 - amendments might be required by the Financial Stakeholders
 - it can be novated to the Financial Stakeholders (more particularly debt providers)
 - probably, that from such novation, the obligations of the FSTA are owed solely to the Financial Stakeholders (and not to the Owner).

The issue of reliance will arise in relation to the materials prepared by the FSTA, particularly the due diligence report. Market practice is that the recipient of any such materials must sign a letter agreement or a deed poll:

- confirming that it will not disclose the materials
- setting out the purposes of reliance
- agreeing a liability cap and exclusion of indirect and consequential loss in relation to reliance.

In most situations, it is prudent to engage the FSTA early in the design and development process to improve their understanding of the Project and give additional comfort to the Financial Stakeholders.



Independent Certifier

The decision to appoint an IC or a panel of ICs is one of the central considerations in the structuring of the Project.

It is closely connected with the certification process and the dispute resolution system.

The use of an IC has the advantage of bringing objectivity to the assessment process. The IC can also build up familiarity with the Project and the parties, thereby making better and more sustainable decisions.

The IC does add an expense, however, that expense is minor when compared with the cost of numerous disputes, even if they are not significant.

At its most broad, the role of the IC will encompass:

- resolution of ambiguities in technical documents
- certification of progress payment claims
- determination of progress claim disputes
- valuation of variations and other contract adjustments
- determination of disputes concerning valuation of variations and other contract adjustments
- assessment of extensions of time
- determination of disputes concerning extensions of time
- certification of stages of completion
- determination of disputes concerning stages of completion
- determination of disputes concerning defects.

For all of the functions set out above, the IC can be the initial determiner of the matter or, more usually, the initial determiner of a dispute that arises out of a decision made by the Owner's representative under the contract (usually the Project Delivery Partner). If the IC is the initial determiner of a dispute, the issue is then whether the determination is final and binding or merely a step on the dispute pathway. This issue is discussed in further detail below.

The IC Contract is a complex agreement which is characterised by the following features:

- An initial overarching IC Deed is entered into by the Owner and the IC. That deed sets out the terms of the IC's appointment, including in relation to:
 - services
 - payment
 - liability caps and exclusions
 - insurance

- independence
- standard of care
- the use of subconsultants for specialised tasks (such as Programme/EOT assessments).

As each applicable contract is entered into by the Owner a separate deed is entered into by the Owner, the IC and the contractor that:

- retains the IC for the specific contract
- binds the contractor to the terms in the deed between the IC and the Owner and makes any amendments that are agreed
- specifies the specific services in relation to that contract
- allocates or otherwise sets out how the IC's overall liability cap is to be accessed.

The final point is of particular importance.

As discussed below, among the reasons for the appointment of an IC is that its decisions are made independently and not on behalf of the Owner. If the determination is final and binding, the parties cannot have recourse against each other but must claim against the IC on the basis of negligence or a contractual ground under the IC deed. The IC will have a comparatively modest liability cap that must be able to be used by all of the contractors and the Owner. Such sharing can be on a first come first served basis or specially allocated. In practice, this really means that the parties have agreed to live with the final and binding IC determinations.

The IC can be a single organisation or drawn from a panel of organisations. The second approach is appropriate where the IC has resource constraints or the issues that arise under the Delivery Contracts require a variety of experts.

Dispute resolution



The negative impacts of significant disputes are manifested through:

- time delays and cost
- distraction of key resources
- relationship damage
- reputational impact
- technical/temporal failure.

Almost all disputes are settled because the time, cost and risk involved militate against completing the process. That is not the case with mega-disputes up to giga-disputes, where the scale of the project is reflected in the scale of the dispute and make completing the process feasible and the loss unable to be sustained.

It is essential to develop a system that manages all disputes effectively and minimises the prospects of a significant dispute.

A well-prepared dispute resolution system combines three elements:

- prevention
- management
- resolution.

The dispute resolution system must take into account a number of key issues when considering those matters, particularly:

- the number of interfaces
- international jurisdictions
- project scale
- the concerns of the Financial Stakeholders.

Prevention

Dispute prevention/minimisation can be enhanced by the following elements:

- a realistic identification of key project risks and how to manage those risks most effectively
- a well defined and thorough tender process that leads to the selection of the best contractor on realistic terms
- an ECI process that defines the Project scope, price and Programme on the basis of the best possible information
- at the time of contract execution, the alignment of the level of scope certainty and risk allocation in relation to the development of the scope

- clear, consistent, constant communication
- predictive project management tools and processes that facilitate the identification of issues at the earliest possible stage.

Management

The Project will require a system of governance that manages issues that have the potential to develop into disputes in a manner that focuses on:

- early issue identification
- issue evaluation
- solutions
- pan-project communication, especially in relation to interfaces.

This is best achieved through a combination of:

- a realistic notice system that involves:
 - early issue notices
 - detailed issue notices
 - notification to interface parties
- a governance system that facilitates communication at:
 - contract level
 - strategic level
 - with interface parties, and
- a claims process that:
 - maximises early resolution/finality
 - restricts the number of claims that can move into arbitration or litigation
 - results in the exchange of information about the issue so that it can be managed.

A sample governance process for claims is set out in **Schedule 2**.

Resolution

Effective resolution requires disputes to be resolved:

- as soon as sensibly possible
- as economically as sensibly possible
- in a manner that is likely to be acceptable to all stakeholders, including the Financial Stakeholders
- consistently across contracts
- at the appropriate point, with finality.

Resolution options

Disputes differ widely and the processes for their resolution should be tailored for the specific dispute type.

- This involves categorising and charting the applicable resolution process by reference to:
 - subject matter
 - quantum (of money and/or time)
 - whether an interface is involved
 - the point at which the parties are prepared to accept finality.

The process must also take into account:

- relevant legislation, such as security of payment and proportionate liability legislation
- whether it is an international dispute
- the role of insurance
- the nature of the parties' relationship.

Fundamental to any dispute resolution system is the point at which a determination becomes final and the parties must accept it without any further rights of appeal or re-hearing.

In developing a dispute resolution system, the parties should take into account the following further matters:

- What type of disputes do they want to have resolved while construction is underway and what type are they willing to have resolved after the completion of construction?
- To what extent do the parties wish to control the appointment of the determiner and the process utilised?
- How much are the parties prepared to spend on the process and different types of disputes?
- What level of reliability do the parties and the Financial Stakeholders require for different levels of disputes?

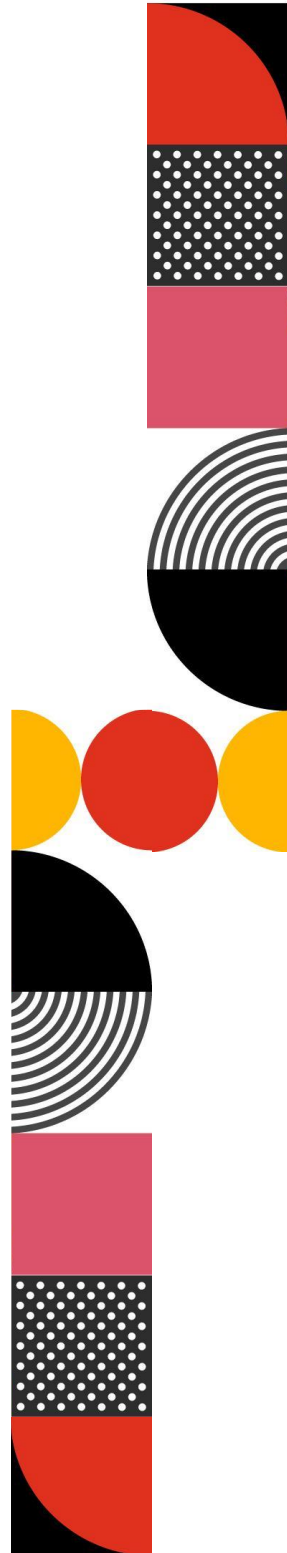
Set out below is a sample table that categorises different types of disputes, how they are resolved and the point of finality.

The numbers indicate the sequence of the applicable steps.

The red boxes indicate the point of finality.

This is a sample only and the process must be analysed on a case by case basis. It should also be noted that other dispute resolution alternatives, such as a dispute avoidance board can be considered.

It should also be noted that these processes commence after the issues process set out in **Schedule 3** has been completed.



Dispute type	Owner's Rep	External executive intervention	IC	Mediation	Expert determination	Arbitration	Court
Variation valuation up to \$10M	1	2					
Variation valuation \$10M to \$50M	1	2	3	4	5		
Variation valuation over \$50M	1	2	3	4	5	6	
Progress Payment claim	1	2					
Recourse to security							1
Intellectual property breach							1
Existence of a Latent Condition	1	2					
Defects with a rectification cost up to \$10M	1	2			4		
Defects with a rectification cost \$10M to \$50M	1	2	3	4	5		
Defects with a rectification cost over \$50M	1	2	3	4	5	6	
Achievement of a stage of completion	1	2					
Provisional sum calculation	1	2					
EOT up to 60 days	1	2					
EOT 60 to 120 days	1	2	3		4		
EOT over 120 days	1	2			4	5	
Delay costs up to \$10M	1	2			4		
Delay costs \$10M to \$50M	1	2	3	4	5		
Delay costs over \$50M	1	2	3	4	5	6	

Each of the potential processes have characteristics that should be considered when preparing the relevant contract.

Owner's Representative

The Owner's Representative will often be the first level determiner of claims because they can do so quickly and with the most available information.

When drafting the contract it is important to ensure that the Owner's Representative is not acting as the Owner's agent for these purposes, but is an independent determiner. The reason for the distinction is to avoid the possibility that the claimant can raise a dispute against the Owner not just on the basis of the circumstances of the claim itself, but also on the basis of the Owner's failure to ensure that Owner's Representative has acted in an honest and reasonable manner. Technically, progression to the next stage of the disputes process should be on the basis of a de novo consideration of the claim itself, rather than on the basis of a failure to determine it in an honest and reasonable manner.

External executive intervention

External executive intervention is an opportunity for senior executives to resolve the dispute, possible on broad commercial grounds, rather than solely by reference to the specific merits of the claim itself.

The intervention should involve executives at a senior level who are somewhat removed from the day to day management of the contract and who are able to make decisions on a more objective basis.

Independent Certifier

The IC is appointed by all of the parties to the dispute.

The parties will be obliged to co-operate with the IC, including in relation to the provision of information.

The critical issues to be considered are:

- the matters where the IC's determination will be final and binding
- whether such final and binding status should be subject to review in cases of errors of fact or law that appear on the face of the determination.

If the parties are seeking early finality in relation to the category of disputes that are to be determined by the IC, they must be aware that the error of fact or law exclusion can open the door to a further round of litigation/dispute that can be used tactically to prolong the dispute process.

Mediation

Mediation can be used as the final stage of negotiation before a dispute moves into the imposition of a determination of an external party.

It can often be an effective means of dispute resolution, but it suffers from the following disadvantages:

- It can take a considerable time to organise and complete. Accordingly, in the absence of a contractual mechanism that enables the mediation to be conducted speedily, it is often used in the second phase of the disputes process, as a step that is preliminary to external determination, rather than as a means of achieving a resolution while the Project is underway.

- If it is poorly managed, mediation can actually drive the parties further apart rather than bring them together. In this regard it is important to consider whether the mediation process should mimic the legal process with legal representatives presenting a case, or if it should be more focussed on commercial issues and pathways to resolution.

Expert determination

Expert determination is an attractive method for resolving predominately technical disputes. Accordingly, it can be useful where the claim concerns valuation, extension of time assessment, performance testing or the technical interpretation of specifications.

Its success depends on the selection of the appropriate experts and the use of rules and processes that are conducive to technical discussion rather than those which replicate legal debate. If possible, experts for various categories of disputes should be pre-selected in the contract.

Arbitration

Arbitration is sometimes preferred over Courts as a means of determining disputes because it is confidential and is perceived by some to be less expensive and more efficient.

The primary difficulties with all arbitrations, in the absence of careful contractual control, are that:

- arbitrators can be of varying quality and the better ones are busy
- they can descend into procedural complexity
- they are costly
- they are vulnerable to delay as the parties jostle in relation to the identity of the arbitrator, the terms of the arbitration and various other preliminary and procedural issues.

The parties can mitigate these risks in their contract by agreeing:

- the identity of the arbitrator or a panel of arbitrators
- the precise rules that will apply in different categories of disputes in relation to matters such as:
 - the extent of verbal evidence
 - the use of written evidence
 - the time allowed for submissions and evidence presentation
 - the time allowed for an award.

Arbitration must be viewed in domestic and international contexts.

In all cases:

- an appropriate domestic capital city should be nominated as the seat and venue of the arbitration
- the Delivery Contract and the rules of the arbitration should provide for the joinder of parties and the consolidation of disputes, especially in the context of interface disputes.

It is also prudent to assess the enforceability of any judgment or award when designing the dispute resolution system if the counter party or its guarantor is a foreign entity.

The ***Convention for the Recognition and Enforcement of Foreign Arbitral Awards (New York Convention)*** provides significant advantages for countries who are signatories to it. The New York Convention should be expressly adopted in the Delivery Contract.

Court

Court based litigation has a number of advantages:

- The Courts are provided for no cost.
- Judges are experienced and of a generally high quality.
- Many Court procedures are now well suited for technical disputes.
- Judges are often skilled at controlling the abuse of the process or time wasting.
- The judgement is usually reliable and accepted by the parties.

However:

- demands in the Court system can lead to considerable delays in the resolution of cases
- expensive lawyers and experts are inevitably involved
- judges rely on experts rather than having inherent expertise
- Court proceedings are public.

Accordingly, the parties might consider that court proceedings should be confined to high value disputes with a significant legal element.

Conclusion

While disaggregation presents challenges, it also creates opportunities for cost savings, technology enhancements and more nimble relationships with key stakeholders.

The key to their structuring is to take into account and balance the requirements of all stakeholders from an early stage and to approach contract drafting in a realistic and specific manner on a case by case basis and, most importantly, to assess the key risks (including interface and integration) and to prepare scopes of work, general conditions and processes that facilitate the monitoring and management of those risks.

Through its expertise and experience in relation to Giga Projects, PwC can assist Project Owners, Contractors and Financial Stakeholders in understanding and delivering the appropriate structure and robust contract systems for disaggregated projects.

How to contact us



If you have any questions about this paper, please contact the editor, Damian McNair, Partner, Energy Transition.

PwC Australia has a dedicated Energy Transition business, consisting of a hub of 132 multidisciplinary and highly-skilled experts helping to facilitate Australia's successful transition to a decarbonised economy by 2050. We are helping accelerate our clients through the energy transition and their related ESG priorities as Australia moves to a net zero economy.

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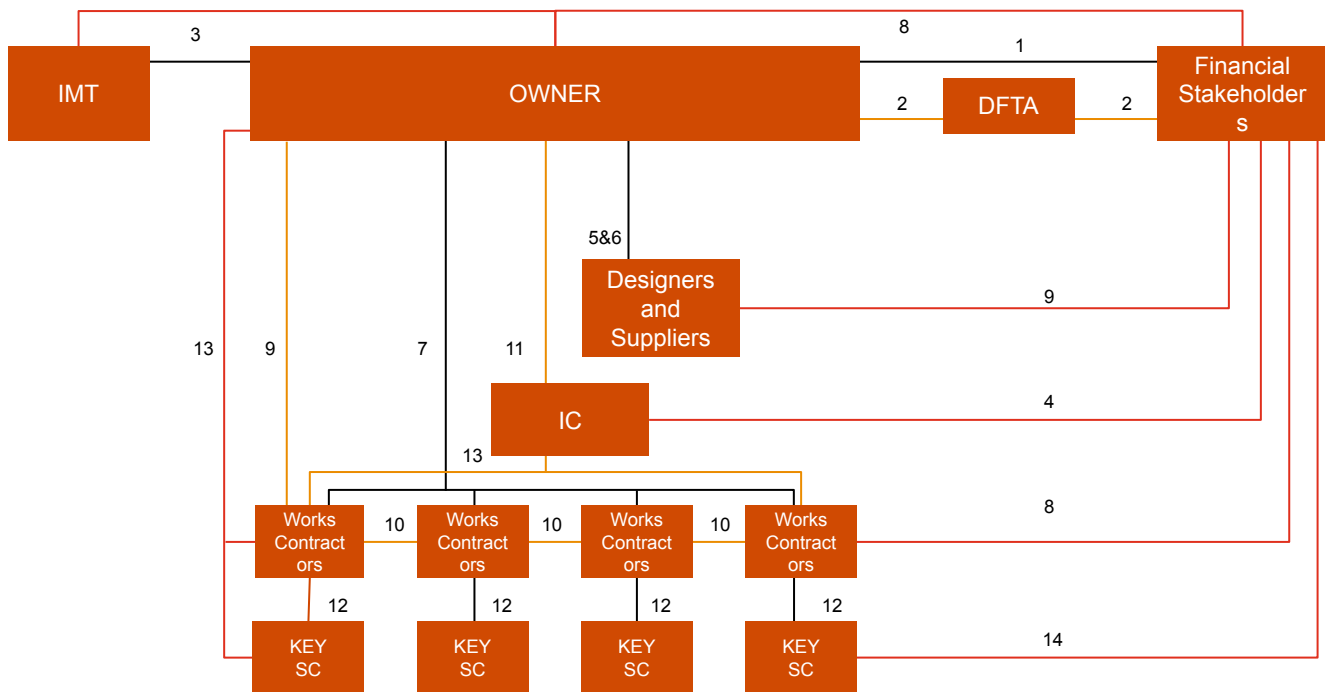
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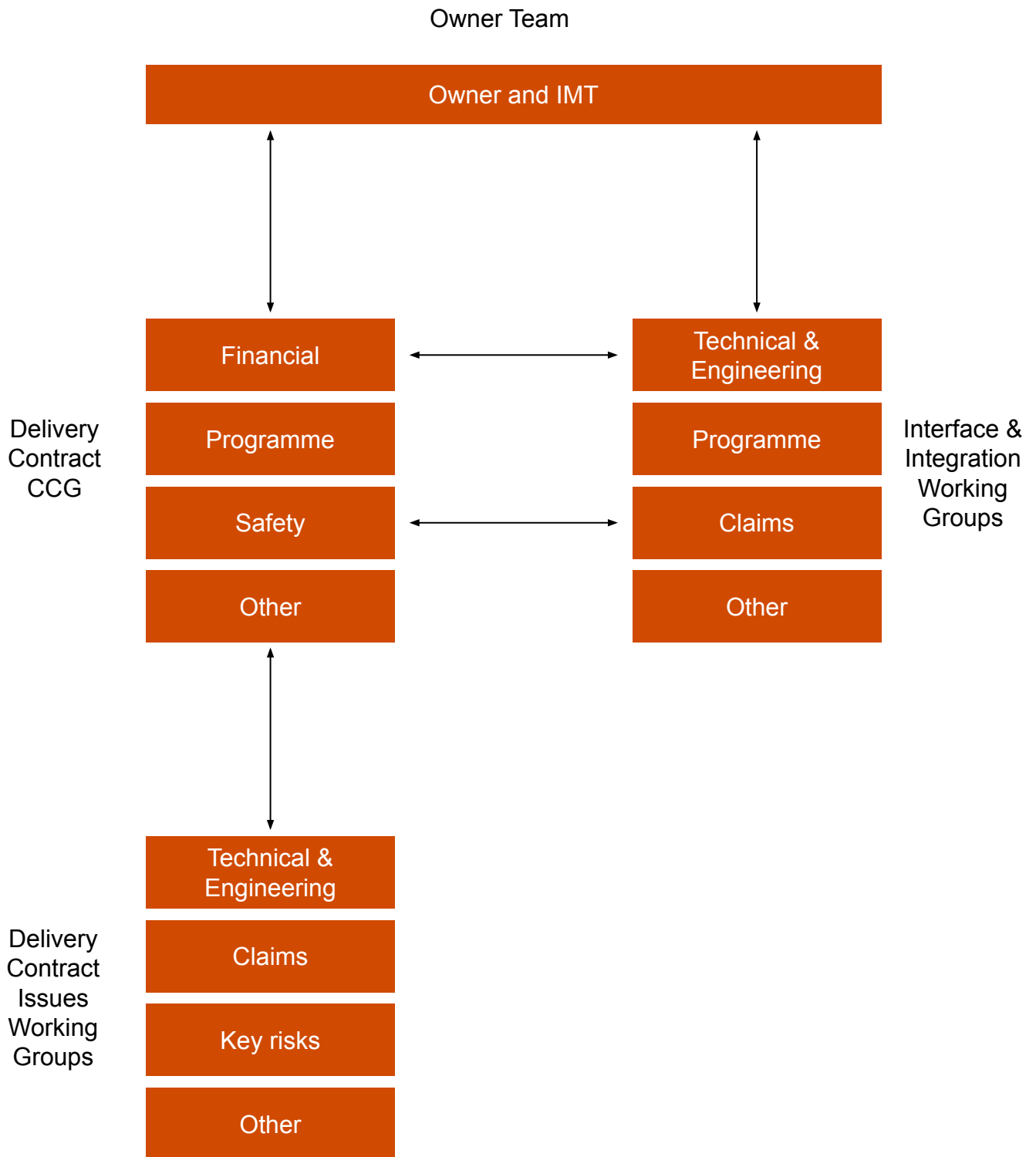
Schedule 1



Schedule 1 notes

1. **Facility Documents:** the various financing agreements between the Owner and its guarantors, equity financiers and the Financial Stakeholders
2. **FSTA Contract:** between the Financial Stakeholders (or their representative), the Owner and the FSTA
3. **Integrated Management Team Contracts:** between the external members of the IMT (Project Design Partner, Project Delivery Partner, Risk Management Partner and Project Advisory Partner) and the Owner (where applicable – see section 6 of this paper)
4. **Bank Side Deeds:** between the Owner, the IC, the External Team Members (respectively) and the representative of the applicable Financial Stakeholders, primarily to deal with the rights and obligations of the parties in the event of termination of those contracts and the insolvency of the Owner
5. **Delivery Design Contracts:** FEED, design consultancies and supply contracts
6. **Delivery Supply Contracts:** supply arrangements, including FIM
7. **Delivery Design and Construction Contracts:** contracts pertaining to the construction of the Project, including EPC contracts and ECI contracts
8. **Bank Side Deeds:** between the Owner, the relevant Delivery Contractors and the representative of the Financial Stakeholders primarily to deal with the rights and obligations of the parties in the event of termination of those contracts and the insolvency of the Owner
9. **Deeds of Novation:** between the consultants, suppliers originally engaged by the Owner (where required to secure pricing or schedule) and the Works Contractors to which the relationship is novated
10. **Interface and Integration Deeds:** between the Owner and the Works Contractors with interfacing Works Contractors (and possibly consultants, logistics providers and suppliers)
11. **Independent Certifier Deeds:** between the Owner, the IC and the Works Contractors
12. **Key Subcontracts:** between the Works Contractors and Key Subcontractors
13. **Key Subcontract Step In Deeds:** between the Works Contractors, Key Subcontractors and the Owner
14. **Key Subcontractor Bank Side Deeds:** between the Works Contractors and Key Subcontractors and the representative of the applicable Financial Stakeholders, primarily to deal with the rights and obligations of the parties in the event of termination of those contracts
15. **Expert Determination Agreements** and
16. **Arbitration Agreements.**

Schedule 2



Schedule 2 notes:

The Project's overall governance structure will be complex and made up of numerous elements, including forums that directly involve the Debt Financiers.

For delivery purposes the structure might consist of four primary elements:

- the Owner Team
- the Delivery Contract Control Groups
- the Delivery Contract Issues Working Groups
- the Interface and Integration Working Groups.

Owner Team

The Owner Team will be comprised of the Owner, the IMT members and other invitees nominated by the Owner.

The Owner Team will be responsible for:

- overall project control and direction
- monitoring claims
- interaction with key stakeholders, including Debt Financiers
- monitoring and resolving interface and integration issues.

The Owner Team will receive information through a reporting system from:

- the Owner's Representative
- the Contract Control Group
- the Interface and Integration Working Groups.

Owner level decisions might be implemented through:

- directions, including variation orders, which will be flowed down to the Delivery Contracts through the Owner's Representative
- amendments to Delivery Contracts.

Delivery Contract Control Group

The Contract Control Group (**CCG**) is the principal governance body for each Delivery Contract on an Owner/Delivery Contractor level, especially the EPC contracts.

An Owner's Representative will be a permanent member of the CCG.

The CCG will monitor issues such as:

- financial matters
- claims
- programme
- safety
- other matters agreed by the parties in which the Owner has an interest.

The CCG will report to the Owner Team and will provide information to and receive information from the Delivery Contract Issues Working Groups and the Interface and Integration Working Group.

Delivery Contractors will have further subcontract level governance bodies.

Delivery Contract Issues Working Groups

The Delivery Contract Issues Working Groups will monitor and seek to resolve specific issues that emerge in connection with the Delivery Contract and will report to the CCG.

An Owner's Representative will be a permanent member of the CCG.

At the outset, the parties might agree a range of key risks that should be the subject of an Issues Working Group and others might be added over time.

Day 1 Issues might include:

- specific technical issues
- key risks
- claims resolution.

The Issues Working Groups will be an important step in the dispute resolution process in relation to non-interface disputes. Claims will be explored, considered and negotiated in detail with a view to arriving at an early commercial and technical resolution and identifying areas of genuine dispute.

Interface and Integration Working Groups

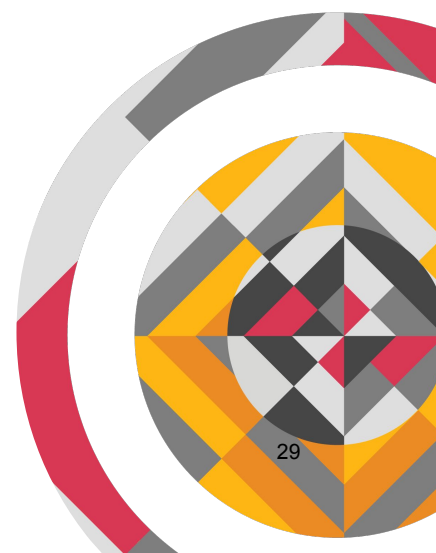
The Interface and Integration Working Groups are a key method for monitoring and resolving interface and integration issues in the disaggregated model. They will be as required to bring together the Delivery Contractors whose scope interface with each other, or whose works must be integrated for the project to operate successfully on an end to end basis.

Designers, suppliers and EPC contractors might be members of one or more Interface and Integration Working Groups. The Owner's Representative will be a permanent member.

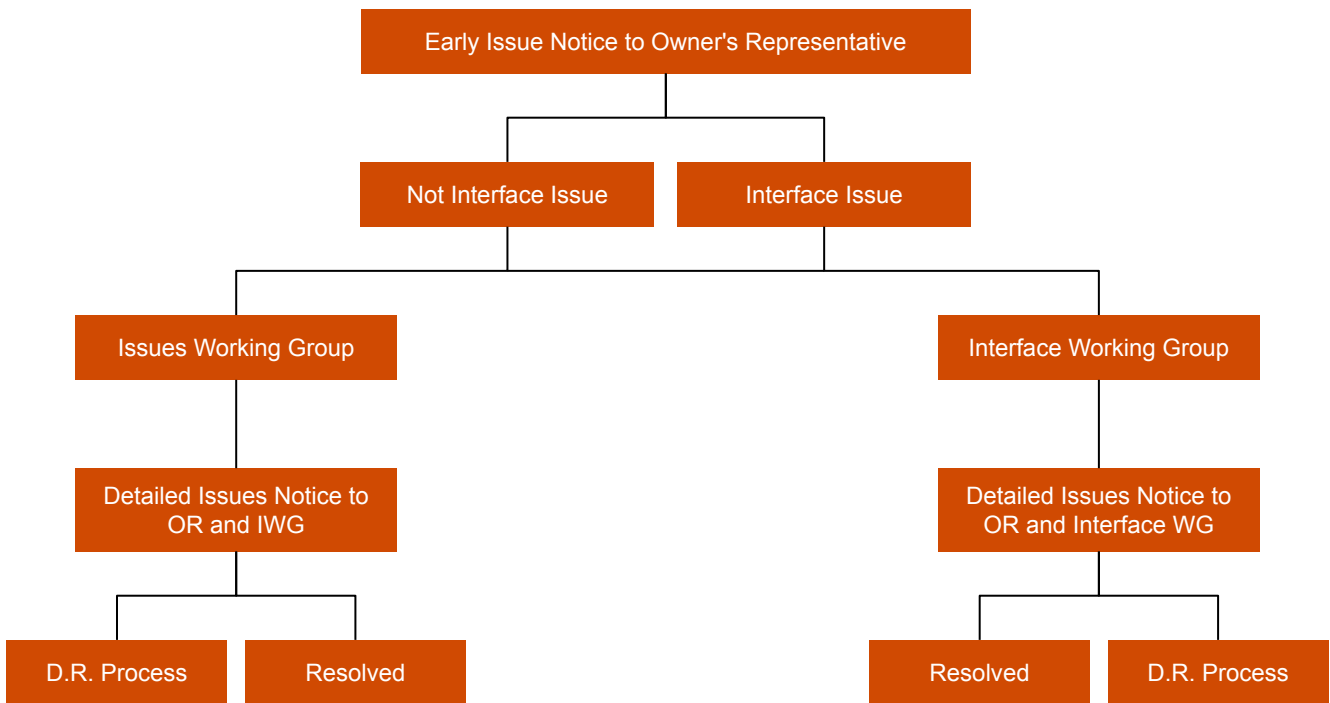
The Interface and Integration Working Groups will report to each CCG of Delivery Contractors who are members and directly to the Owner Team.

The purpose of the Interface and Integration Working Groups is to identify, monitor and resolve interface and integration issues.

The Interface and Integration Working Groups will be a stage in the dispute resolution process in relation to interface disputes. The use of the Interface and Integration Working Groups will permit interface disputes to be considered in the context of all relevant Delivery Contracts and encourage the development of solutions that take into account all related issues, rather than those that are confined to a single contract.



Schedule 3



Schedule 3 notes

The purpose of the issues notification process is to facilitate the consideration of issues in a manner that is conducive to problem definition and solution.

The process involves the following steps.

Step 1: An Early Issue Notice (**EIN**) is delivered to the Owner's Representative. That notice is designed to raise an alert in relation to the relevant matter and to permit the Owner's Representative to:

- broadly understand the issues
- determine whether they are an Interface Issue, that is, a matter that affects interfacing Delivery Contracts and/or integration issues.

Step 2: The Owner's Representative determines whether the issue is an Interface Issue and:

- if so, the Owner's Representative refers the EIN to the relevant Interface and Integration Working Group and advises the party who delivered the EIN of that reference
- if not, the Owner's Representative refers the EIN to the relevant Issues Working Group and advises the party who delivered the EIN of that reference.

Step 3: A Detailed Issues Notice (**DIN**) is delivered to the Owner's Representative and either the relevant Interface and Integration Working Group or relevant Issues Working Group. The DIN must contain detailed information about the problem, the applicable facts and circumstances and the potential financial, timing and cost impacts.

Step 4: The relevant Working Group, together with the affected parties, attempts to resolve the issues. To the extent that the issues are not resolved, the matter progresses to the applicable dispute resolution process.

There are a number of further matters to note in relation to the process:

- the content of the EIN and DIN should be adequate but reasonable
- sensible time periods/bars can be allocated to the notices
- the parties can decide whether the IC is involved in any of the processes.



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