Completion Risk Rating Criteria

Cross-Sector

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This report updates and replaces *Completion Risk Rating Criteria*, dated Dec. 16, 2020

Applicable Criteria

Infrastructure and Project Finance Rating Criteria (May 2023)

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Scope

This criteria report specifies Fitch Ratings' methodology for assigning new and monitoring existing issue ratings and Issuer Default Ratings (IDRs) for entities exposed to completion risk globally. Ratings exposed to this risk may be constrained by either the completion risk credit view or the operating phase credit view of the project.

The *Completion Risk Rating Criteria* supplements and is applied in conjunction with the sector-specific criteria reports. The criteria includes general concepts for the analysis of entities in construction that may also be applicable to entities not rated under the *Infrastructure and Project Finance Rating Criteria*. These general concepts, where applicable outside infrastructure, will be incorporated into the relevant analytical sector's criteria via reference to this criteria.

Projects are not subject to this criteria if they have existing revenue streams not dependent on project completion to pay debt service, or if projects are in a very advanced stage of construction providing high visibility on the commencement of the operational phase and cash flow generation (see *Credit Implications of Attribute Assessments* section).

A project's rating may also not be constrained by completion risk but dictated by its credit view during the operating phase for simpler construction projects, where completion of the project within time and budget is not considered to be challenging (see *Instances When Completion Risk Is Not a Rating Constraint* section for all conditions necessary to apply this approach).

Key Rating Drivers

Qualitative Project Attributes: Fitch considers four qualitative attributes in its analysis of completion risk: Complexity, Scale and Duration (CS&D); Contractor Expertise and Implementation Plan; Availability of Replacement Contractors; and Contract Terms. The combined scoring of these attributes establishes the maximum notching achievable (MNA) for the project above its contractor's credit quality.

CS&D — specifically complexity — is considered the qualitative attribute with the highest influence in determining the MNA. However, the MNA is constrained by the weakest of the four qualitative attributes.

Contractor Replacement and Security: Once the MNA is established, Fitch takes the following steps to form its completion risk credit view for the project: determine contractor credit quality; establish specific time to default for the contractor; select relevant contractor-replacement scenario; and assess the adequacy of performance and liquid security relative to replacement and delay costs.

Fitch will consider payment and performance bonds, LOC retainage and other similar products from creditworthy counterparties in assessing the adequacy of the security package as part of its analysis.

Each Key Rating Driver (KRD) above is treated equally, with neither having greater importance. Ratings in project financings are unlikely to exceed the 'A' category due to unique risks associated with single-purpose transactions.

Framework

Fitch's approach to evaluating completion risk encompasses two steps, each corresponding to a KRD: qualitative project attribute assessments and contractor replacement and security analysis. The initial evaluation of attributes analyzes the specific project features, such as the complexity of the task to be performed, proposed technology being implemented and expected time frame to completion, to establish the maximum notching a project can achieve above its contractor's credit quality. This initial step also takes into consideration the adequacy of the contractor's experience, the feasibility of the implementation strategy, the available pool of replacement contractors and the provisions of the overall construction contract to ensure lenders are adequately protected.

The second step assesses the level of lender protection provided by the contractor's credit quality and its security package to decide the actual notching above the contractor's rating, provided the qualitative assessments do not act as a constraint. This assessment compares available security against the pertinent contractor replacement scenario. The contractor credit quality is the basis for the second step of Fitch's assessment. It establishes the possible assumed time to default scenarios that are then evaluated in conjunction with the independent engineer's (IE) contractor replacement analysis.

All together, these two KRDs determine the overall Completion Risk Assessment on a five-point scale: High Stronger, Stronger, High Midrange, Midrange and Weaker.

Transaction structures during construction can take many forms, including but not limited to:

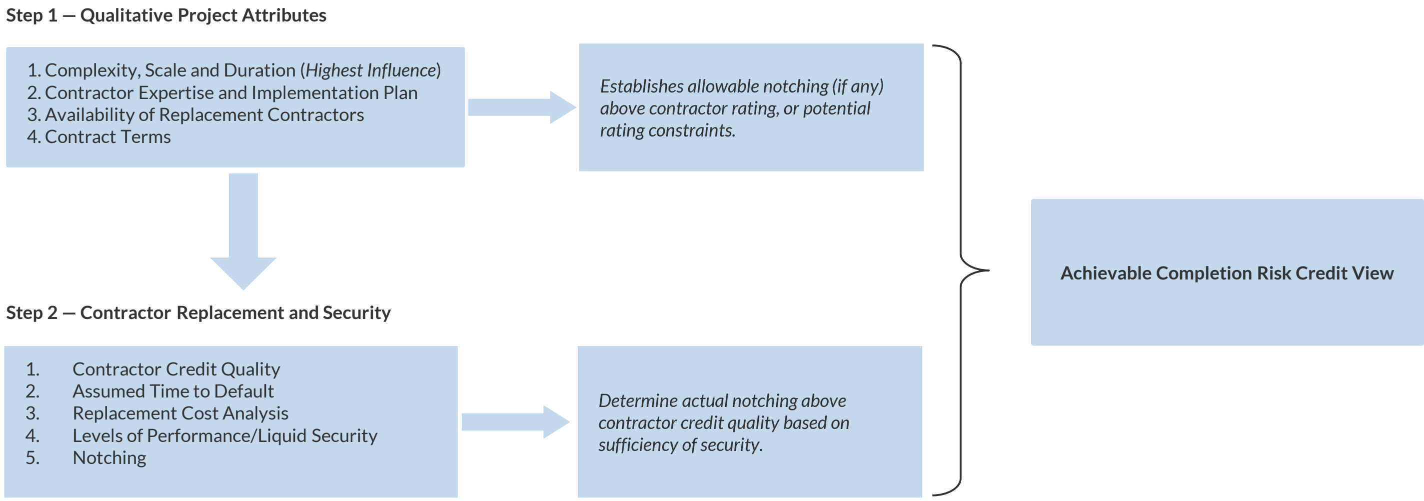
- A full, irrevocable and unconditional completion guarantee from a project sponsor, parent of the contractor or a third party that assumes the obligations of the construction contractor will result in that party's credit quality being substituted for the construction contractor while evaluating the completion risk credit view.
- A partial guarantee of completion by a third party, including a related party or parent of the contractor, will be considered in financial terms as a part of the transaction's security package.
- Projects with joint and several joint venture (JV) construction contracts could be evaluated under a less-severe replacement analysis, as the remaining capable contractor will be contractually obligated to complete the project if one or more of their partners do not perform under the contract or become insolvent.
- Credit enhancements from funded contingencies that provide flexibility to cover cost escalations attributable to the project or concession owner from events that do not involve performance breaches by the contractor are excluded from performance and liquid security available for contractor replacement.

For projects exposed to completion risk and operating risk, the rating will be constrained by the lower of the two credit views.

Defined Terms

CS&D	Complexity, scale and duration
IE	Independent engineer
JV	Joint venture
LOC	Letters of credit
LD	Liquidated damages
MNA	Maximum notching achievable
RCP	Replacement cost premium

Completion Risk Assessment Approach



Source: Fitch Ratings

Credit Implications of Qualitative Project Attributes Assessments (Lowest Assessment Will Limit Notching)

Step 1	High Stronger	Stronger	High Midrange/ Neutral	Midrange/Neutral	Weaker/Negative
	Lower Risk ←		Completion Risk	→	Higher Risk
Complexity, Scale and Duration	Eight-Notch Limitation	Six-Notch Limitation	Five-Notch Limitation	Three-Notch Limitation	Contractor Credit Quality or Sub-Investment Grade (IG)
Contractor Expertise and Implementation Plan	Eight-Notch Limitation				Sub-IG or Unratable
Availability of Replacement Contractors	Eight-Notch Limitation		Five-Notch Limitation		Contractor Credit Quality
Contract Terms	Eight-Notch Limitation				Sub-IG Absent Mitigations
Final Step 1 Assessment	Overall Assessment Based on the Lowest of Assessment Scores, which Will Determine the Maximum Notching Achievable				

Source: Fitch Ratings

Qualitative Project Attributes

Complexity, Scale and Duration

The initial step in completion risk analysis is assessing the project's relative CS&D, the attribute with the highest influence in determining the MNA. However, the MNA is constrained by the weakest of all these qualitative attribute assessments. Project complexity examines the nature of the project, the history and performance of the typical methods and technology available to construct the project, and the environment in which it is to be developed. In particular, projects utilizing methods or technologies with limited to no tested performance and those with significant logistical or access constraints pose significant challenges to timely and cost-effective completion.

The complexity attribute also provides a framework to review several pertinent risks in infrastructure, which historically led to material delays and cost overruns. This includes environmental and geo-tech risk focusing on what is known about site conditions and how it is mitigated; third-party interfaces for permits, supplies and equipment; and logistics framework for assessing the options and resources available.

A project will typically have a mix of factors within these attributes, and the overall assessment will not necessarily be aligned with the weakest factor. For example, a project may have costs exceeding USD2 billion (a weaker attribute) but are low complexity (stronger), can be built in less than five years (midrange) and with a highly predictable cost profile (stronger). The overall assessment may be deemed to be 'Stronger' or 'High Midrange' for project CS&D, depending on the project's specific facts and circumstances.

A project with some weaker attributes may be deemed to be 'Midrange' or 'Weaker', depending on which subfactors are viewed as weaker. For example, a project with earthworks of unusual scale, untested technology or high environmental/geo-tech uncertainty may be deemed 'Weaker' if there are significant risks that are not within the capacity of a contractor to cover based on prior track record or industry experience. Fitch will also take into consideration the amount of project float built into the schedule, as well as the contractor's local experience in the area and its ability and plans to self-perform works.

The overall CS&D assessment will have a direct impact on the MNA above the contractor credit quality with the appropriate amount of third-party security.

A project may not get full notching if the risk level is materially elevated relative to other projects with a similar assessment.

For example, a simple linear road project with a 'High Midrange' CS&D assessment, with proven technology and limited third-party interfaces, such as existing infrastructure, and limited material third-party approval requirements may be assigned the upper-end MNA of five notches. However, a light-rail project in a similar location also with a 'High Midrange' CS&D assessment may be deemed to have an MNA of four notches due to the greater relative project complexity.

A light-rail project with proven technology but considerable third-party interfaces, such as existing infrastructure in an existing city center, and material third-party approval requirements may be viewed as 'Midrange' and consequently be assigned an MNA of three notches.

The completion risk credit profile of projects with a 'Weaker' assessment may be constrained to the contractor's rating or sub-investment grade without sufficient mitigants.

The table in *Appendix A* provides the detailed factors that drive the CS&D assessment. The final assessment is based on a qualitative determination of the individual factors and not based on any predetermined quantitative weighting.

Contractor Expertise and Implementation Plan

Contractor expertise and planning is viewed as neutral to the credit view if the project demonstrates a solid contractor team and implementation plan, or negative to the completion risk credit view if it is considered insufficient. The project's CS&D needs to be matched by the use of contractors, subcontractors and suppliers of key equipment with suitable experience and capacity, otherwise the completion risk credit view is likely to be constrained to sub-investment grade. Similarly, the project's schedule, cost budget and related contingencies must correspond with the potential for delay and cost overrun.

The greater the complexity of the works, the greater the potential for increased costs and delays, which is an important part of Fitch's analysis. Such risks can be largely mitigated by the use of contractors with considerable expertise and experience in the specific industry and subsector, and projects of a similar scale. Although most project completion risk credit views see no uplift from having these specific attributes alone, projects with a 'Weaker' assessment for CS&D may benefit from a best-in-class contractor. While completion risk credit views may be constrained, some uplift above the contractor credit quality may be assigned based on mitigation provided for specific risk exposures.

The table in *Appendix B* provides the detailed factors that drive the Contractor Expertise and Implementation Plan assessment, which is a binary assessment.

Availability of Replacement Contractors

In project financing, the risk of construction cost overruns and delays and asset performance are usually passed in the first instance to a specialist contractor or group of contractors. To rate the project above the contractor, a key part of Fitch's analysis considers how easy it would be to replace the contractor(s) if they did not perform under the contract or became insolvent. A 'Stronger' or 'Midrange' assessment would indicate replacement is a good possibility and would allow the completion risk credit view to exceed Fitch's credit view of the contractor. A 'Weaker' assessment indicates replacement is not likely and the dependence on the contractor is high, which could then constrain the project's completion risk credit view to the credit quality of the contractor.

The contractor replacement analysis will vary depending on the contractor set up. Projects with a single contractor or multiple contractors with joint and several obligations, but varying financial and market strengths and technical and resource capabilities, will be evaluated in a replacement analysis, whereby an entirely new contractor or team of contractors needs to be brought in to complete the project. Projects with multiple contractors with joint and several obligations under the contract, and equivalent financial and market strength and technical and resource capabilities, may reconstitute the construction JV with a viable recovery plan acceptable to the project sponsor or grantor in case of default by a member. Hence, these JVs may be subject to a much less-severe replacement analysis.

The table in *Appendix C* provides the detailed factors that drive the Availability of Replacement Contractors assessment:

- Projects with a 'Stronger' assessment are eligible for an MNA of up to eight notches above the contractor credit quality.
- Projects with a 'Midrange' assessment are eligible for an MNA of up to five notches above the contractor credit quality.
- Projects with a 'Weaker' assessment are constrained to the contractor credit quality.

Contract Terms

The design-build or construction contract provides assurance that there is an appropriate level of risk transfer. It also provides clarity on responsibilities; price; targeted dates for completion; approach to dispute resolution given the need for interface between the project owner, concession owner, and parties to the primary construction contract and related contracts; the nature of performance security to be provided; and the events of default and cures. Fitch will assess the contract terms in the context of the overall project and transaction structure. More specifically, the following provisions are viewed positively:

- Clear design and scope of work matching the requirements of the concession, off-take contract or other foundational agreements with an appropriate risk allocation. In the event the grantor, off-taker or owner requests design or scope changes, the impact on construction costs and schedule is fully compensated under the concession or offtake agreement.
- Fixed-price and date-certain contracts that provide protection from material variability in cost and schedule. Notably, the absence of these provisions or significant carveouts associated with cost and schedule elements without alternative methods of mitigation suggest the transaction structure is meaningfully exposed to the risk of timely completion.
- Adequate dispute resolution and arbitration arrangements to ensure works continue apace, even through contractual disputes.
- Reasonably achievable milestones and other performance thresholds.

The Contract Terms assessment is binary. If the aforementioned contract characteristics are not present, the project is likely to be limited to the sub-investment-grade area. Projects using target price construction contracts may still achieve investment-grade completion risk credit views if the cost and delay risks are adequately mitigated through other means. Fitch would assess these mechanisms on a case by case basis.

The level of risk transfer is limited for projects using a progressive design-build contract because the entire construction price is not fixed at financial close and is finalized once the design has significantly progressed. Therefore, the projects with these contracts are exposed to potential cost escalations until the time the design-builder issues a guaranteed maximum price (GMP). In evaluating these projects, Fitch would assess the adequacy of contingency maintained at the project in comparison to IE's estimates for potential cost escalation that can happen from financial close to the time a GMP is established. Fitch may apply margin above an IE's view (similar to the margins applied for contractor replacement discussed in the *Replacement Cost Analysis* section and also illustrated in *Appendix F*).

Fitch would also consider qualitative factors, such as the timeline for finalization of the GMP under the progressive contract, in which a longer time frame would lead to greater uncertainty with respect to construction price. Other factors, such as progress in design and components priced at financial close, would also be important. Advancing the design and pricing of high-risk elements at financial close reduces the cost escalation risk. Lastly, Fitch would also consider any plausible equity sponsor support for the projects if the construction costs increase by the time a GMP is established. Support considerations are addressed separately under the *Ownership and Sponsors* section of the *Infrastructure and Project Finance Rating Criteria.*

The table in *Appendix D* provides the detailed factors that drive the contract terms assessment.

Credit Implications of Attribute Assessments

The assessment scores for the four attributes and analytical judgment of relative risk will dictate how many notches, if any, the project's completion risk credit view be above the applicable contractor credit quality. Each attribute score carries with it an MNA above the contractor credit quality the project can achieve. The specific number of notches per attribute score is identified in the *Credit Implications of Attribute Assessments (Lowest of Attribute Assessments Will Limit Notching*) table. Note the number of notches by which a project is eligible for uplift is constrained by the lowest attribute assessment score.

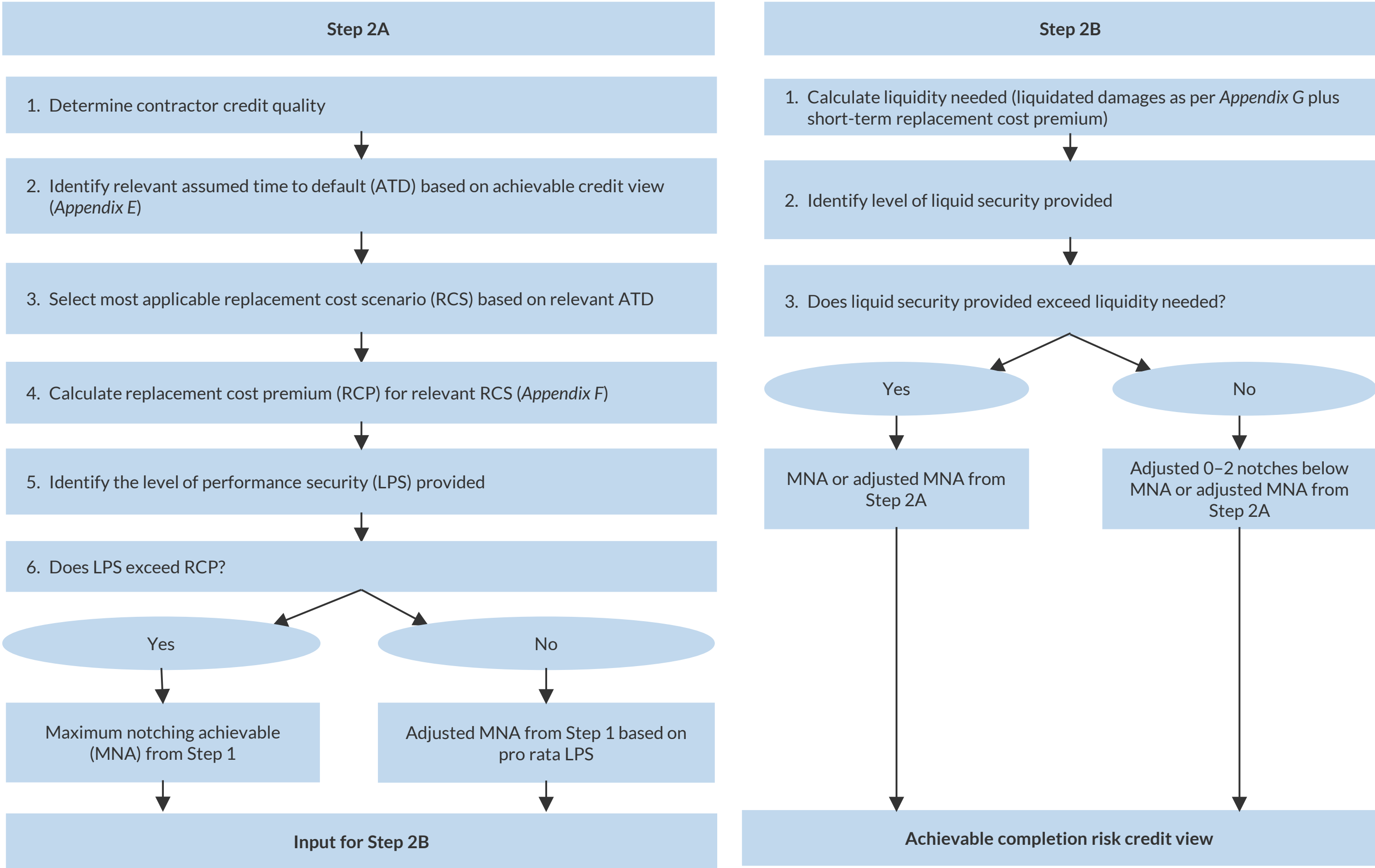
The potential MNA related to each assessment may not be for the entire uplift if the level of risk is materially elevated relative to other projects with a similar assessment. The completion risk credit view for 'Weaker' projects from a CS&D perspective may be capped at 'BB+' based on assessment of relative risk. 'Weaker' projects with strong risk transfer and material levels of contingency, performance security or other liquidity may be given up to a two-notch uplift above the contractor credit quality based on an overall project assessment to reflect any added flexibility to facilitate completion. Similarly, 'Weaker' projects where risk is perceived to be greater than the contractor can bear may have their completion risk credit view below the contractor credit quality.

A project near completion with greater than 90% advancement in construction, no material outstanding design issues and predominantly 'High Stronger' attributes for the complexity sub-assessment scores — including, technology, environmental/geo-tech risk, major equipment/assets and permitting/third-party approvals/external interfaces — will not be subject to this criteria.

This criteria does not address risks present in the ramp-up phase. However, where material risks exist during the ramp-up phase (project capacity, availability, warranties, dedicated reserves and facilities, etc.), Fitch will incorporate them in its operational phase analysis, which is covered in the *Infrastructure and Project Finance Rating Criteria*.

Contractor Replacement and Security

Contractor Replacement and Security Analysis: Step 2



Source: Fitch Ratings

Once the MNA above the contractor credit quality based on attribute scores (i.e. step 1) is determined, the actual level of notching is subject to the level of performance and liquid security to cover the replacement cost estimate and liquidity needs in the selected assumed time-to-default scenario.

Contractor Credit Quality

Fitch assesses the credit quality of the primary contractor(s) working under various contractual agreements. In instances where there is a joint and several arrangement between multiple contractors, with no material carveouts of shared liability, Fitch's analysis will focus on the contractor with the strongest credit profile.

For projects in a more advanced stage of construction — usually defined as greater than 75% of projected spend completed, and where major design, right-of-way, geo-technical, third-party obligation and foundation milestones are achieved, or related risks are mitigated and no material disputes between parties are outstanding — Fitch may determine a contractor's credit quality is not a material driver of its completion risk credit view. Therefore, Fitch may not perform its full completion risk analysis at the new issuance stage and during surveillance. Fitch will instead rely on discussions with the project sponsor, the construction contractor and informed technical experts, as well as any available public information to assess remaining construction works.

In instances where projects have a CS&D assessment of either 'High Stronger' or 'Stronger' — effectively indicating the project is of limited complexity and short duration — Fitch may treat the contractor credit quality as equivalent to a 'B−' when a formal assessment of credit quality is not practical and there is considerable evidence that construction is progressing toward a timely completion.

In all other situations, Fitch may also treat the contractor credit quality as 'B−', provided the contractor has a solid operating track record, can be replaced with minimal delays at an acceptable cost, and there is no evidence that the contractor is already in default or bankrupt. However, the completion risk credit view would be capped at sub-investment grade in such situations.

Assumed Time to Default

IEs typically provide multiple replacement contractor scenarios with varying times of contractor default during the construction phase of a project. Under Fitch's approach, the assumed time of a contractor default in the replacement scenario is a function of the contractor's credit quality and the achievable completion risk credit view. Those contractors of lower credit quality (i.e. 'B') will need to show sufficient third-party credit enhancement under a worst-case scenario (most expensive premium) to achieve an investment-grade completion risk credit view, while those of greater credit strength will be assessed on a less-severe replacement case.

See the table in *Appendix E* for assumed time to default based upon contractor credit quality.

Replacement Cost Analysis

Fitch's approach to rating a project above the contractor credit quality is heavily dependent upon the IE's view of the cost to replace. Replacement cost estimates are not subject to standardized or publicly accepted criteria, and are subject to a range of quality and variability. Fitch assesses the quality of the IE report, and if it is deemed of acceptable quality, Fitch then uses the study and the replacement cost estimates in its analysis.

To address the degree of variability in point estimates, Fitch assesses the margin available above the amount specified by the IE (i.e. the IE View) in the context of the contractor's credit quality. Intuitively, higher than expected replacement costs pose a larger risk to projects with contractors of weaker credit strength (i.e. sub-investment-grade characteristics), and therefore Fitch will use a margin above the IE's projections as part of its analysis for weaker contractors. This estimate of the replacement cost is referred to as the Replacement Cost Premium (RCP).

For contractors with higher credit strength (i.e. investment-grade credit characteristics), the RCP will typically be the same as the IE's point estimate. Projects with contractors of greater credit strength are likely to have greater visibility if they experience problems during project completion, and consequently have more options and resources available to stabilize the contracting arrangement and achieve project completion. This should result in a lower overall RCP for the project. Projects with contractors of weaker credit strength are likely to have a quicker path to default, and consequently have fewer options and resources available to achieve project completion. This results in a higher overall RCP.

In instances with multiple contractors of equal credit quality and technical ability providing joint and several guarantees, Fitch expects the surviving contractor to honor the contract price if one or more of its partners were to go away, thereby exposing the project to more limited cost increases than if an entirely new contractor was required to be brought in to complete the project. In such circumstances, Fitch will look to the IE to analyze potential breakage costs that will need to be absorbed by the project in developing its RCP. This will effectively be a much less-severe replacement analysis given the availability of a replacement contractor within the original contract.

For substantiated IE Views, section 1 of *Appendix F* provides the margin above the IE View as a function of contractor credit quality.

The IE View may not be satisfactorily substantiated in some projects, while there is no IE view provided at all in others. In instances where there is a partially substantiated IE View, Fitch may use a hybrid approach by using section 2 of *Appendix F* for the unsubstantiated portions and the IE View for project segments that are well substantiated to arrive at the RCP. Fitch may also seek other sources of relevant information to assess the risk and use the information in conjunction with the contract price, the contractor's credit quality, the CS&D assessment, and the indicative minimum levels of performance security provided in section 2 of *Appendix F*. The percentages in section 2 of *Appendix F* are subject to adjustment up or down to determine the RCP based on project-specific factors and Fitch's risk analysis.

Levels of Performance Security

Fitch defines performance security as funded contingency (held by the trustee), payment retention, LOCs and surety bonds available to ensure project completion. Performance security in the form of committed standby subordinated liquidity facilities will also be considered if it is deemed to be highly likely to be available when needed.

Fitch assesses whether the project company has sufficient credit enhancement through such performance security to meet the forecast costs of replacing the contractor. This credit enhancement will in part determine the actual number of notches by which the project's completion risk credit view can exceed the credit quality of the contractor(s).

The table in *Appendix F* identifies the minimum levels of performance security based on the contractor credit quality and the CS&D attribute assessment.

In instances where there is an abundance of performance security above the identified contractor replacement cost, projects may achieve additional notching. For instance, projects with 'High Stronger' and 'High Midrange' CS&D assessments are eligible for eight and five-notch uplift beyond the six- and three-notch levels identified for 'Stronger' and 'Midrange' projects, respectively. The following guidelines specifically apply in these circumstances:

- Projects with a 'High Stronger' or 'High Midrange' CS&D assessment, which are eligible for up to an additional two-notch uplift above the typical six-notch 'Stronger' or three-notch 'Midrange' level, will be considered for this additional notching only if performance security is greater than 125% of the RCP.
- Projects with a 'Weaker' CS&D assessment, which may be eligible for up to a two-notch uplift above the contractor credit quality, will be considered for this notching only if significant levels of performance security are available.

Minimum Levels of Liquid Security

Provided overall performance security is adequate to ensure timely contractor replacement, the project retains adequate resources to ensure project completion. However, performance security may not cover the exposure to liquidated damages and other costs and penalties payable under the contract. Fitch identifies minimum levels of available liquid security, expressed in the number of days of liquidated damages required to cover potential exposure to delays, based on a project's CS&D attribute assessment. The minimum liquidity required will be informed by project specifics and the IE View, to the extent deemed credible. It may be lower or higher based on the level of delay risk.

The amount of liquidated damages (LDs) is largely a function of the project's CS&D, and therefore, no distinction is made based on contractor credit quality. In addition to liquidated damages, Fitch identified minimum levels of liquid security is also required to cover the short-term component of the RCP, such as tender costs, legal costs, ransom creditors and consultancy fees, among others.

A project with a JV with partners of equivalent financial and market strength, technical and resource capabilities, and an overall 'Stronger' Availability of Replacement Contractors assessment is exposed to delay risk, so this section will apply to such projects.

The table in *Appendix G* identifies the minimum levels of liquidity.

Notching

The adequacy of performance and liquid security will be used to determine the final notching. For projects with 'High Stronger' and 'Stronger' CS&D assessments, the RCP will be divided by six notches to determine the value associated with a notch. Similarly, for projects with 'High Midrange' and 'Midrange' CS&D assessments, the RCP will be divided by three notches to determine the value associated with a notch.

In instances in which the project has the ability to notch up from the contractor's credit quality based on attribute assessments, but does not have the performance security to cover the entire

RCP to go up the full number of allowable notches, Fitch will notch up on a pro rata basis. For example, for a project with attribute scores allowing up to six notches from the contractor credit quality, but only has performance security to cover 50% of the RCP, the completion risk credit view will be limited to three notches.

If there is insufficient liquid security, the project may not get the MNA and the final notching may be adjusted by up to two notches below the MNA. Analytical judgment of overall project risk will primarily apply in this determination. However, it is more likely an adjustment down of two-notches will be applied for projects on the stronger end of the spectrum (i.e. 'High Stronger', 'Stronger' and 'High Midrange' projects), with an adjustment of one notch on the lower end. Projects with extremely weak or no liquid security may be capped at sub-investment grade in the absence of any mitigations. Weaker projects may not be exposed to additional notching down if the unadjusted notching is viewed to already incorporate the added risk.

Projects with Multiple Contractors with No Joint and Several Responsibilities

In instances with multiple contractors performing different construction tasks with no joint and several guarantees:

- Fitch would perform the Qualitative Project Attribute Assessment (Step 1) and replacement cost analysis (Step 2A) for each construction task on the critical path of the project or considered material to successful project delivery. Fitch may decide to not apply the replacement cost analysis for contractors that are not material to timely project completion and easily replaceable without significant cost implications for the project.
- The level of liquid security (Step 2B) will continue to be assessed in line with *Appendix G* based on Fitch's view of the lowest of CS&D assessments (Step 1) among all construction tasks.
- For assessing levels of liquid or performance security available, Fitch may consider overall security and liquidity available at the project level provided that the project documents allow use of these sources to cover contractor replacement and delay costs.
- Achievable completion risk assessment and achievable completion risk credit view would be in line with the lowest of the determinations out of all construction tasks.

Forms of Performance/Liquid Security

When referring to construction security, Fitch considers funded contingency (held by the trustee), payment retention, LOCs and surety bonds. Fitch believes the following sources of construction security are adequate, as long as certain conditions are met:

- **Funded Contingency:** When held by the trustee with clear restrictions on use for purposes other than achieving the originally intended project scope, funded contingency provides the strongest lender security. Funded contingency designed to address open risks related to contractor interface, contract integration and related owner/sponsor exposures is viewed positively. If the contingency is available for changes in project design and scope without lender approval, it may be viewed as a credit negative.
- **Payment Retention:** When held and controlled by the trustee with no ability for the contractor to access without meeting pre-agreed completion milestones, payment retention also provides considerable lender security. In contractor disputes, its value comes from the leverage it provides the owner or sponsor. It provides liquidity in a clear default. Where payment retention is part of performance security, Fitch will use the amount assumed to be retained at the time of the chosen replacement cost scenario.
- **LOCs:** LOCs from creditworthy providers offer on-demand liquidity and are payable upon presentation of demand certificates in a form usually attached to LOCs. Draw conditions are typically limited to claims of contractor nonperformance. Irrevocable bank obligations to honor draws on LOCs independent of the credit position of the contractor, and performance by beneficiaries under the related contracts are critical. In contractor disputes, the LOC's value comes from the leverage it provides the owner or sponsor. LOCs provide liquidity in clear defaults.

- **Surety Bonds:** In most instances, surety (or performance) bonds do not provide liquid security. Surety providers offer active business, operational and financial oversight over a contractor's overall business, which can be beneficial to avoiding material contractor nonperformance and default on a particular project. They also have the financial and technical capacity to facilitate a transfer of responsibilities to a new contractor when they determine this is the most effective means to achieving project completion.

  In instances in which the surety bond has a liquid feature, Fitch would look for on-demand features similar to a LOC to treat it as akin to liquidity.

  In a dispute between the contractor and the owner or sponsor, the surety provider is aligned with the contractor. A surety bond is not a financial guarantee. It is in a potential contract default or contractor bankruptcy that a lender benefits, as the alignment of a surety provider's interests over a contractor's entire line of business provides increased incentive for the surety provider to step in on a timely basis to minimize loss and potentially avoid a default under an individual contract.

Appendix H identifies different form of performance and liquid security considered by Fitch.

Instances When Completion Risk Is Not a Rating Constraint

Fitch may not consider the completion risk credit view as a constraint to a project's rating in case all of the following conditions are met:

1. The project has a CS&D assessment of 'High Stronger' or 'Stronger';
2. The contractor has a solid track record of executing and delivering in same or similar project type, scale and region, coupled with existence of a deep market of replacement contractors, and;
3. Sufficient liquid security to cover delay liquidated damages through the longstop date and adequate performance security to cover the replacement costs of the contractor.

In such cases, the project rating will be dictated by its credit view during the operating phase.

In rare situations where completion of the project within time and budget is not considered to be challenging — due to very low complexity and simple scope of construction activities, a short construction period of around two years or less, and adequate contingencies built within the construction price — Fitch may not require a robust security package (condition No. 3 above) to apply this approach.

Surveillance

Once a rating is issued, Fitch's analytical approach will depend on the stage of construction. If Fitch's view on the contractor's credit quality changes materially, the reasons for the change will be assessed in conjunction with the stage of construction and the remaining works to be completed. If the project is progressing as expected per the IE, with no major concerns about access to labor or subcontractor performance, and there are no material disputes with the project owner and/or sponsor, Fitch is likely to keep the project rating unchanged until key construction milestones are achieved and construction is no longer considered a constraint to the rating.

In this case, an upgrade could be warranted if projected operating performance metrics support it. If there are concerns about future performance, such as significant delays, quality issues or material disputes with the project owner or sponsor, Fitch may choose to reflect the added risk by putting the project rating on Negative Outlook or Watch, and in certain circumstances downgrade the project based on a qualitative assessment of the risk.

Variations from Criteria

Fitch's criteria are designed to be used in conjunction with experienced analytical judgment exercised through a committee process. The combination of transparent criteria, analytical judgment applied on a transaction-by-transaction or issuer by issuer basis, and full disclosure via rating commentary strengthens Fitch's rating process while assisting market participants in understanding the analysis behind our ratings.

A rating committee may adjust the application of these criteria to reflect the risks of a specific transaction or entity. Such adjustments are called variations. All variations will be disclosed in the respective rating action commentaries, including their impact on the rating, where appropriate.

A variation can be approved by a rating committee when the risk, feature or other factor relevant to the assignment of a rating and the methodology applied to it are both included within the scope of the criteria, but where the analysis described in the criteria requires modification to address factors specific to the particular transaction or entity.

Criteria Disclosure

Fitch expects to disclose the following items in reports and/or rating action commentary:

- The completion risk credit assessment and whether completion risk is a constraint on the rating;
- Main analytical assumptions in respect of the contractor replacement scenario, such as the selected contractor replacement scenario and assumed time to default;.
- Instances where completion risk is not viewed as a rating constraint and the respective rationale

Moreover, any variations to criteria will be detailed in Fitch's transaction reports (as mentioned above).

Limitations

Ratings, including Rating Watches and Outlooks, assigned by Fitch are subject to the limitations specified in Fitch's *Ratings Definitions* and available at https://www.fitchratings.com/site/definitions.

Rating Assumption Sensitivity

Fitch's opinions are forward looking and include Fitch's views of future performance. The key rating drivers will be affected by changes in project, business and or macroeconomic assumptions. Fitch's infrastructure and project finance ratings are subject to positive or negative adjustments based on actual or projected financial and operational performance. A non-exhaustive list of the primary sensitivities that can influence the ratings and/or Outlook is below.

Completion Risk

Ratings will be sensitive to changes in attributes — reflecting performance difficulties — and to the creditworthiness of the contractor, shifts in complexity, ease of contractor replacement, contract terms, RCP, or performance and liquid security, among other completion risk factors.

Appendix A

Complexity, Scale and Duration

	High Stronger	Stronger	High Midrange	Midrange	Weaker
Complexity					
Technology	Traditional methods, minimal high tech	Traditional methods, limited proven high tech	Established methods with some integration and scale up, proven high tech	Established methods with integration, scale up and some untested components	Untested
Environmental/Geo-Tech Risk	Mitigated	Known and manageable	Predictable based on sample testing	Some uncertainty based on sample testing, manageable remediation	Uncertain/significant earthworks
Major Equipment/Assets	All contracted; approximately 90% of critical components in advanced stage; within primary contractor's control	Approximately 75% of critical components in advanced stage; within primary contractor's control	Mostly contracted; approximately 50% of critical components In advanced stage; within primary contractor's control	Mostly contracted; approximately 25% of critical components in advanced stage	Procurement not within primary contractor's control
Permitting/Third-Party Approval Exposure	None	Limited exposure (administrative and predictable process)	Some, but manageable	Some, but less predictable	Significant
External Interface, Connection or Supply Risks	None	None that are material	Some, but manageable	Some, but less predictable	Significant
Logistical Complexity	None	None that are material	Regionally available labor and materials, manageable traffic maintenance and manageable concurrent operations	Manageable access to labor and materials, complex concurrent ops (involving public)	Significant
Complexity Sub Assessment	**High Stronger**	**Stronger**	**High Midrange**	**Midrange**	**Weaker**
Scale					
Scale (Remaining Cost to Complete)	< USD250 million remaining	USD250 million – USD500 million	USD500 million–USD1,000 million	USD 1,000 million–USD2,000 million	> USD2,000 million
Footprint	Single site/< 10 acres	Single site/< 25 acres	Single site/< 50 acres	Multisite/long distance > 50 acres	N.A.
Modular Nature	—	Highly flexible scope and schedule	Moderately flexible scope and schedule	Limited flexibility to adjust scope or schedule	Inflexible scope and schedule
Predictability of Costs	—	Highly predictable (numerous benchmarks)	Mostly predictable	Somewhat predictable costs	Highly unpredictable
Duration					
Duration (Remaining Time to Complete)	< Two years	< Three years	< Four years	< Five years	> Five years
Stage of Construction	> 75% completed	> 50% completed	> 25% complete	Pre-construction	N.A.
Stage of Design	100%	> 75%	> 50%	> 25%	< 25%
Overall Complexity, Scale and Duration Assessment					
Credit View Implications	**Up to eight-notch uplift**	**Up to six-notch uplift**	**Up to five-notch uplift**	**Up to three-notch uplift**	**May be constrained to the contractor's rating or sub-investment grade**

N.A. – Not applicable. Note: Shading denotes conclusion.
Source: Fitch Ratings

Appendix B

Contractor Expertise and Implementation Plan

Neutral to the Credit View	Negative to the Credit View
Contractor, subcontractors and suppliers of key equipment with successful track record in same or similar project type, scale and region	Smaller or less-experienced contractors or suppliers
Demonstrated history of contractors working together	Limited history of contractors working together
Required technical and local skill sets included in project team	Inadequate technical and local knowledge skill sets in project team
Clear strategy to address project-specific challenges	Strategy to address project-specific challenges does not fully address risks
Cost and schedule include prudent contingency levels that withstand plausible downside scenarios	Aggressive cost and/or schedule budget with minimal flexibility to withstand plausible downside scenarios. Contractor history of delays or cost overruns
Neutral to the rating	**Constrained to sub-investment grade or unratable**

Note: Shading denotes credit implications.
Source: Fitch Ratings

Appendix C

Availability of Replacement Contractors

Stronger	Midrange	Weaker
Joint venture with partners with equivalent financial and market strength, and technical and resource capabilities	Joint venture with partners with varied financial and market strength, and technical and resource capabilities/single contractor	N.A.
Many replacement contractors available (more than five)	Some replacement contractors available (3–5)	No or very few replacement contractors available (1–3)
Long stop date in concession/off-take contract provides considerable flexibility to replace contractor	Long stop date in concession/off-take contract adequate to replace contractor	Long stop date provides no or very limited time to replace contractor
Many options to source technical, labor and material resources in local market	Adequate options to source technical, labor resources in local market	Uncertain availability of technical, labor and materials resources in local market
Up to eight-notch uplift	**Up to five-notch uplift**	**Constrained to contractor credit quality**

N.A. – Not applicable. Note: Shading denotes credit implications.
Source: Fitch Ratings

Appendix D

Contract Terms

Neutral to the Credit View	Negative to the Credit View
Single primary contractor or joint venture of multiple primary contractors with joint and several liability	Multiple primary contractors; several liability
Well-structured interface agreement	Complex or poorly mitigated interface agreements, or lack of such agreements
Fixed price and date-certain contract	Target price/date or similar contract, leaving project company materially exposed to cost and delay risk
Clear design and scope of work matching concession requirements	Design and scope do not fully meet concession requirements
Appropriate risk allocation with force majeure provisions matching concession agreement	Ambiguous risk allocation or significant mismatch with concession agreement
Detailed milestones, performance thresholds and completion tests	No provision for onsite inspection and reporting with poorly defined completion tests
Adequate liquidated damages to cover lost revenues and added costs from delays	Inadequate levels of liquidated damages
Clear dispute resolution and arbitration arrangements	Weak dispute-resolution process
Neutral to the credit view	**Constrained to sub-investment grade absent mitigations**

Note: Shading denotes credit implications.
Source: Fitch Ratings

Appendix E

Assumed Time to Default

	Achievable Completion Risk Credit View		
Contractor Credit Quality	**BB**	**BBB**	**A**
BBB or Above	N.A.	N.A.	Reasonable downside case
BB	N.A.	Reasonable downside case	Worst case
B	Reasonable downside case	Worst case	N.A.

N.A. – Not applicable
Source: Fitch Ratings

Appendix F

Indicative Levels of Performance Security to Cover Replacement Cost Premium

(1) Substantiated Independent Engineer (IE) View			
	Contractor Credit Quality		
(As a % of Initial Contracted Construction Costs)	**BBB or Above**	**BB**	**B or Below**
All Projects	IE View	120% of IE View	150% of IE View
(2) Unavailable/Unsubstantiated IE View (Based on Complexity, Scale and Duration Assessment)			
(As a % of Initial Contracted Construction Costs)	**BBB or Above**	**BB**	**B or Below**
High Stronger	13	16	20
Stronger	20	24	30
High Midrange	27	32	40
Midrange	33	40	50
Weaker	40	48	60

Source: Fitch Ratings

Appendix G

Indicative Levels of Liquidity for Delays Based on Complexity, Scale and Duration Assessment (As a Function of Time)

Liquidated Damages and Other Related Delay Cost Coverage with Cash/LOC

	Days
High Stronger	120
Stronger	180
High Midrange	270
Midrange	365
Weaker	540+

Source: Fitch Ratings

Appendix H

Performance and Liquid Security

Can Be Considered (Yes/No)	Performance Security	Liquid Security
Funded Contingency (Held by Trustee)	Yes	Yes
Cash	Yes	Yes
LOC	Yes	Yes
Retainage	Yes	Yes
Surety Performance Bonds	Yes	No
Surety Liquid Bonds Having On-Demand Features[a]	Yes	Yes

[a]Subject to Fitch's review of the draft of the bond and associated contracts.
Source: Fitch Ratings