

Availability-Based Projects Rating Criteria

Sector-Specific Criteria

Scope

Application of Criteria: This criteria report outlines Fitch Ratings' approach to new and existing ratings assigned to finance availability-based infrastructure projects. The revenue streams for such projects are primarily underpinned by payments from a grantor, usually a public sector authority, and are based on the availability of project facilities to be used as specified in the project agreement.

Sectors Covered by Criteria: Typical infrastructure sectors covered by these criteria include social infrastructure and transportation. Social infrastructure comprises schools, hospitals, prisons, public housing, libraries, courts and government office buildings. Transportation comprises roads, mass transit, street lighting, rail and light rail projects.

These criteria may also be applied in certain circumstances to energy and utilities projects, such as storage facilities, transmission assets and water supply facilities, where there is an availability-based payment and a predictable stable operating cost base. This criteria may also be used in conjunction with Fitch Ratings' *Toll Roads, Bridges and Tunnels Rating Criteria*.

Key Rating Drivers

Fitch has identified five quantitative and qualitative key rating factors for availability-based infrastructure projects. The key rating drivers are listed in order of importance to the analysis. The importance of rating drivers varies among entities in a sector and over time. Significantly weaker factors attract more weight in the analysis.

Completion Risk: Analysis of the project complexity and scale; contractor expertise and implementation plan; ability to replace contractor; core contractual terms; contractor rating and credit enhancement. Completion Risk can constrain availability project ratings during the construction phase even if a project's post-completion operating profile is otherwise indicative of higher credit quality.

Cost Risk: Exposure to fluctuations in operation and maintenance (O&M) and lifecycle (LC) expenses, taking into account the required scope of work, cost predictability, and cost volatility and structural protections.

Revenue Risk: Variability in revenue through performance deductions or limited exposure to elements of demand or price risk. The rating of the grantor, from which the majority of revenue is received, may constrain the project's rating.

Debt Structure: This encompasses an assessment of payment waterfall ranking, refinancing risk, financial profile, covenant package, structural features, hedging financial risk, liquidity and reserves, and security.

Financial Summary: Cash flow resilience to support timely debt payments under a base case scenario, a rating case and sensitivity or break-even financial scenarios.

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This report updates and replaces [Availability-Based Projects Rating Criteria](#), dated March 24, 2020.

Related Criteria

[Completion Risk Rating Criteria \(March 2020\)](#)
[Infrastructure and Project Finance Rating Criteria \(March 2020\)](#)
[Toll Roads, Bridges and Tunnels Rating Criteria \(March 2020\)](#)
[Public-Sector Counterparty Obligations in PPP Transactions Rating Criteria \(May 2019\)\)](#)

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Framework for Availability-Based Projects Rating Range

Revenues in availability-based projects are often referred to as availability payments as they are paid when the project is available for use at the required standard and times. Availability payments are typically made by government counterparty which, although they are frequently of higher credit quality than the project, creates a ceiling for the overall project rating in most instances. This is described in the Revenue Risk section. Other credit constraints can be introduced by the credit quality of the operator, as described in the Cost Risk section. Availability payments insulate the project from volume and price risks.

In addition to the revenue counterparty, we focus on the contract terms setting out the revenue framework and risks related to completion, performance and O&M. When projects include provisions for demand-driven revenues, we evaluate these risks under the relevant sector criteria, such as the *Toll Roads, Bridges and Tunnels Rating Criteria*.

We refer to public-private partnership (PPP) availability-based contracts or projects awarded by local, regional and national government grantors under framework programs, such as the private finance initiative in the U.K., various contractual forms referred to as PPPs in continental Europe, and P3, similar to PPP, in Canada, the U.S., Mexico, Chile, Peru and India, among others.

Projects covered are usually procured as long-term concessions, under which the single-purpose project company (issuer) will be charged with the design, build, finance, and O&M of one or more project facilities over the concession period.

Global Rating Rationale: Key Rating Driver Assessments

The table of *Key Rating Driver Assessments for Availability-Based Projects* on page 3 outlines the attributes that we consider consistent with a 'Stronger', 'Midrange', or 'Weaker' assessment, although some attributes may not be relevant for every project.

For availability-based projects, Cost Risk tends to be the most significant key rating driver, as it measures the risk of cost increases and payment deductions and directly relates to the size of the financial cushion measured in terms of debt service coverage ratios (DSCRs) and break-evens needed to achieve a certain rating level.

While investment-grade projects display attributes that are at least 'Midrange', projects do display combinations of attributes. Our assessment considers the various attributes based on their materiality, potential effect on performance, and the project's general characteristics.

A few stronger attributes may outweigh a greater number of 'Midrange' attributes to result in an assessment of 'Stronger'. Financial metrics would be within, or above, the ranges indicated in the *Financial Analysis: Financial Profile* section.

Key Rating Driver Assessments for Availability-Based Projects

	Cost Risk	Revenue Risk
Description	<ul style="list-style-type: none"> Exposure to longer-term increases in O&M and LC costs, factoring in scope, cost predictability, and volatility and structural protections. 	<ul style="list-style-type: none"> Risk inherent in the performance regime and exposure to deductions.
Stronger	<ul style="list-style-type: none"> Minimum assessment of 'Stronger' for Scope; 'Stronger' for Cost Predictability; and 'Midrange' for Structural Protections in Cost Risk Matrix. 	<ul style="list-style-type: none"> Contractual provisions clearly establish strong incentives for grantor performance, including full and timely compensation of debt and equity on any early termination due to grantor option or grantor default. Clearly defined, unambiguous penalty deduction mechanisms in the framework agreement. Robust cure period for nonperformance. Deductions passed through to a financially strong operator.
Midrange	<ul style="list-style-type: none"> Minimum assessment of 'Midrange' for Scope; Cost Predictability; and Structural Protections in Cost Risk Matrix. 	<ul style="list-style-type: none"> Contractual provisions include adequate provisions to encourage full performance by grantor, including terms expected to compensate debt fully following an early termination due to grantor option or default. Some, but limited, exposure to qualitative assessments in penalty deduction mechanism. Adequate but limited cure period for nonperformance. SPP retains some deduction exposure.
Weaker	<ul style="list-style-type: none"> An assessment of 'Weaker' for Scope, Cost Predictability and/or Structural Protections in Cost Risk Matrix. 	<ul style="list-style-type: none"> Contractual provisions, such as compensation following grantor option or default, are ambiguous or incomplete and do not support a conclusion the grantor has an incentive to fully perform costs, including debt service, and related revenue are not adequately indexed leading to material mismatch. Highly open-ended penalty deduction regime. Inadequate cure period for nonperformance. SPP retains material deduction exposure and/or poor relationships between parties resulting in significant deductions.
Relevant Indicators	<ul style="list-style-type: none"> Operator experience. Operation contract scope and complexity. Ease of replacement of operators. Level of cost analysis. Size of reasonable outside cost estimate (O&M, LC, SPV and insurance costs). Linkage of cost profile to revenue index. 	<ul style="list-style-type: none"> Grantor incentivization to support project. Penalty deduction mechanism. Cure periods. Exposure to deductions.

O&M – Operation and maintenance. LC – Lifecycle. P – Special purpose project. SPV – Special purpose vehicle.

Completion Risk: When present, this key risk factor is assessed using the analytical framework described in more detail in our *Completion Risk Rating Criteria* (March 2020).

Financial Profile: This key rating driver considers metrics for liquidity, debt service coverage and leverage in the context of the overall risk profile determined by review of the other key rating drivers. A fully contracted availability-based project with predominantly 'Stronger' characteristics could be rated in the 'BBB' category with debt service coverage ratios (DSCRs) of between 1.10x–1.25x in the rating case, while a project with 'Midrange' characteristics could be rated in the 'BBB' category with DSCRs of between 1.15x–1.30x in the rating case. A project's rating may be constrained by a 'Weaker' assessment on a key rating driver regardless of financial ratios. This is discussed fully under the *Financial Analysis: Financial Profile* section. Discussion of the debt characteristics and assessment can be found in the *Infrastructure and Project Finance Rating Criteria* (March 2020).

Source: Fitch Ratings.

Project Analysis: Structure and Information

Use of Expert Reports

In performing our analysis of availability-based projects, we will examine the opinions of the technical adviser (TA), retained for the benefit of lenders, which address completion and maintenance and LC risks. Specific details of how we go about evaluating the expert reports is contained in the global master criteria report, *Infrastructure and Project Finance Rating Criteria*.

Considerations specific to availability-based projects include the TA's assessment of:

- The reasonableness of performance tests and penalty mechanisms in the concession contract;
- The likelihood of payment deductions;
- Appropriate financial model sensitivities to support the realistic outside cost (ROC) estimate.

Our analysis looks to the TA to identify the ROC estimate, which identifies the magnitude by which all costs, O&M, LC, special purpose vehicle (SPV) and insurance, could reasonably exceed initial projections. The ROC is predicated as a realistic, but unlikely, cost overrun scenario based on actual TA experience with projects using similar approaches and technology. Fitch will look to the insurance consultant for input on the ROC estimates for insurance-related costs. We will use the ROC to measure a project's financial cushion to absorb unexpected cost increases.

Project Analysis: Completion Risk

Completion Risk is an important risk factor for project debt to be rated during the construction phase. For availability payment transactions under construction, a comprehensive engineering procurement contractor (EPC) contract is a common and often effective way of mitigating delay, performance and cost overrun risks. An unconditional completion guarantee from a creditworthy sponsor is also a significant mitigation of risk.

Our approach to Completion Risk is explained in our *Completion Risk Rating Criteria*.

Project Analysis: Cost Risk

The scope and complexity of the issuer's operating responsibilities in an availability-based infrastructure project will vary according to the specific sector but may include a combination of the following features:

Soft FM: Facilities management (FM) covers the provision of day-to-day services to the users of the project, such as catering, cleaning and security.

Hard FM: Comprises regular day-to-day maintenance of the project infrastructure.

LC Asset Management: Involves major repairs and refurbishment to the fabric or critical systems of the project infrastructure to extend its useful life.

During operations, the precise determination as to whether certain items constitute regular or major maintenance, and consequently, which party takes the risk related to them, can be open to interpretation, although any such ambiguity tends to relate to relatively minor items. A strong mitigation to key interface risks is allocation of the spectrum of related responsibilities to the same party.

Soft FM services are most relevant in social infrastructure projects and more limited in transportation projects. The larger scope of soft FM services, particularly those with greater performance risk, increase the potential for performance deduction risk, which is addressed analytically through stress testing.

Technical Risk

The technical risk present is a function of operating complexity and scale. Availability-based projects typically involve no, or make limited use of, specialized equipment that requires constant monitoring, regular maintenance and inspection. Accommodation projects, in particular, have largely predictable and modest logistical and maintenance challenges. Availability-based projects still encompass a broad range of technical complexity in operations.

The scope of services provided by an issuer to a library or court building, which may encompass security, reception and general cleaning, are likely to be significantly more limited than for a hospital. The latter may include catering, switchboards, portering and rigorous cleaning and takes into account strict health and safety protocols.

Transportation projects may involve the maintenance of infrastructure over a large area, including roads, bridges, tunnels, signaling and rail projects, and are usually more operationally complex than accommodation projects. This is especially true of high speed rail.

Projects that involve highly critical services, such as hospitals requiring intensive cleaning or prisons featuring enhanced security requirements, tend to contain stricter performance targets and penalty deduction mechanisms than projects delivering less critical services.

Where equipment such as MRI scanners, customized computing, toll collection technology, or light rail communications and signaling systems are included, we view as credit positive clear standards for replacement or specific replacement schedules.

We regard larger and multi-site projects to present more technical risk than smaller or single-site projects, due to the increased logistical challenges on larger projects, such as the coordination of maintenance services. Large-scale projects can have a wider scope, for example, a large hospital may run its own energy and incineration facilities. On the other hand, larger projects often offer more flexibility in phasing or segmenting costs.

We review opinions from the TA on any aspect of the design, materials or maintenance plan for the project's facilities that are not commonly applied in comparable projects and reflect them in the stress analysis.

Operator

Projects often providing the issuer's operating responsibilities are passed down in full to an operator that has a track record in successfully delivering similar services on comparable projects. We consider a full pass-through to the operator as a strong attribute if the operator is rated at, or above, the rating of the project. In such a situation we would give credit for the operator's ability during the operating contract to absorb cost increases and deductions without affecting the issuer. As a result, we may link the project's rating to the operator's rating.

Fitch considers the availability of replacement operators and the ability of the project to absorb potential increased costs and delays if the operator is replaced based on the TA's opinion. We may constrain the rating to that of the operator, if we judge the availability of substitute operators as unlikely, given the specialized nature, size, or location of the project.

We expect for complex and larger scale projects, such as rail projects, costs associated with replacements could be higher, necessitating higher contingencies, such as LOC or bonding, that cover the cost of potential replacement, or greater financial margins. We anticipate complex, large-scale projects would have lower leverage and higher DSCRs than simpler social infrastructure projects to achieve the same rating.

Fitch recognizes situations exist in which the operating contract does not extend for the full duration of the concession. This situation is less advantageous to the project than a full-term contract with an investment-grade counterparty and is more likely to be a material rating consideration, as it exposes the project to contract negotiation and replacement risk.

For projects where the issuer elected to perform the operations itself, or where the O&M contract does not extend through the life of the concession or the credit strength of the operator is weaker than the project rating, we take into account the following:

- Level of experience of the project sponsors with similar projects;
- Ability to subcontract all or some of the operations;
- The robustness of the issuer's cash flows to absorb replacement costs and reasonable stresses to costs and payment deduction;
- Adequacy of contractual or structural protections, such as liquidity support from the sponsors or the existing operator;
- Availability of reliable long-term operating cost benchmarks for the relevant sector;
- Inclusion of market testing or benchmarking provisions for operating costs in the concession.

Unless supported by a LOC or performance bond, we will not attribute the value of the contractual liability of the operator to the issuer, which may theoretically be available upon operator default in the situation where the operator is rated lower than the project debt. This is due to the difficulty in estimating the time in which recoveries could be made and recoverable amounts. Provision for such payments is important to provide proper alignment of interests between the parties.

Costs

The long duration of concession contracts in availability-based projects, combined with high gearing and thin cover ratios, means a significant operating risk is the accuracy of long-term O&M and LC cost assumptions. To assess a project's overall exposure to Cost Risk, we identified three components:

Scope Risk: Identifies functional elements of work needed to meet the O&M and LC responsibilities under the framework agreement.

Cost Predictability: Assesses the visibility of unit costs for components of project scope including the depth of the market, and the relative experience and availability of providers.

Cost Volatility and Structural Protections: Measures the adequacy of structural features that are inherent within the transaction to mitigate the potential effects of unexpected cost increases.

The key considerations in assessing Cost Risk are listed in the table *Cost Risk Matrix* on page 7.

Cost Risk Matrix

Assessment	Characteristics
Scope Risk	
Stronger Attribute	<ul style="list-style-type: none"> Project scope reduced, exclusion of significant O&M and LC responsibilities and/or facilities. Low complexity accommodation maintenance or linear road surface management. Limited LCC expected at less than 5% of revenue in peak periods. Evenly spread LCC. Continued involvement of construction contractor throughout operating phase.
Midrange Attribute	<ul style="list-style-type: none"> Full-scope O&M and LC responsibilities with the project company. Moderate complexity maintenance of specialist accommodation (hospitals or prisons) or engineering structures (bridges or tunnels). Moderate LCC expected at 10%–20% of revenue in peak periods. Some concentration of LCC. Involvement of construction contractor for a limited time period during the operating phase.
Weaker Attribute	<ul style="list-style-type: none"> Complex works involving high concentration of critical structures or involving maintenance of material legacy assets. Significant and complex logistical challenges. Significant LCC expected at greater than 25% of revenue in peak periods. Highly concentrated LCC. No involvement of construction contractor during operating phase.
Cost Predictability	
Stronger Attribute	<ul style="list-style-type: none"> Operators/sponsors with significant experience with the same asset type and jurisdiction. Established technology with documented performance history/stability. Large pool of experienced contractors available to step into contract. Significant benchmarks. Detailed cost analysis from LTA.
Midrange Attribute	<ul style="list-style-type: none"> Operators/sponsors with some experience with related assets. Established technology with some risk. Some experienced contractors able to step into contract for a premium. Limited benchmarks. High-level cost analysis from LTA.
Weaker Attribute	<ul style="list-style-type: none"> Operators/sponsors with limited experience. Untested technology and/or lack of operating history. Limited pool of experienced replacement contractors. No benchmarks. Limited or no cost analysis from LTA.
Cost Volatility and Structural Protections	
Stronger Attribute	<ul style="list-style-type: none"> Project specific cost indexation or effective benchmarking. Multiyear forward looking LC reserve features and/or flexibility in LC spending. Cost Risk passed to stronger counterparty. Five-year future handback reserve and MMRA with considerable financial cushion prior to investment obligation and/or termination of concession. Allocation of O&M and LC responsibilities to the same party for the entire debt term.
Midrange Attribute	<ul style="list-style-type: none"> Broadly matching cost indexation with limited residual exposure. Some LC reserve features. Cost Risk passed to 'Midrange' counterparty. Three-year future handback reserve and MMRA with considerable financial cushion prior to investment obligation and/or termination of concession. Allocation of O&M and LC responsibility to the same party.
Weaker Attribute	<ul style="list-style-type: none"> Inadequate or no cost indexation. Limited or no reserve features. No Cost Risk pass-through or pass-through to weak counterparty. No forward looking handback reserve or MMRA with limited financial cushion prior to concession termination. Allocation of O&M and LC responsibilities to different parties.

O&M – Operation and maintenance. LC – Lifecycle. LCC – Lifecycle cost. LTA – Lenders' technical advisor. MMRA – Major maintenance reserve account.
Source: Fitch Ratings.

We factor the individual component scores together to reach an overall assessment of the project's susceptibility to Cost Risk as shown in the Cost Risk column of the *Key Rating Driver Assessments for Availability-Based Projects* table on page 3.

We then use this assessment to determine the indicative minimum debt service coverage threshold in the rating case to achieve an investment-grade rating, as indicated in the *Indicative DSCR Coverage Ranges and ROC by Cost Risk Profile* on page 13. The coverage threshold provides an indicative level of the cushion needed to absorb cost increases with those deemed most at risk requiring a greater level of protection and conversely those projects deemed to be less susceptible to cost increases needing less cushion to achieve an investment-grade rating.

When assessing cost predictability, we take into account the TA's cost estimates are often more accurate when assessing a completely new project before construction (greenfield) than when some or all of the project's assets are inherited and already operational (brownfield). This is the case as it can be difficult to assess the exact condition of previously built facilities compared with new facilities for which construction parameters and material are well identified and the project has been designed for a specific use over the lifetime.

We analyze the potential for material increases in the issuer's administration overheads and insurance costs using the TA's assessment of the appropriateness of the issuer structure, such as size and cost, relative to the requirements passed on through the project agreement.

The assessment of insurance costs will look at the amount of pricing risk borne by the issuer and its ability to recover costs through price adjustment mechanisms under its agreement with the public sector grantor. To the extent the issuer bears some of the insurance cost risk, Fitch will look to the views of the project's insurance consultant as part of its analysis on the effects of potential volatility in the marketplace both for premium costs and deductibles. If there is insufficient benchmarking data available, additional financial margin and higher break-evens might mitigate the risk.

Handback Risk

Availability-based projects typically require that the project's assets are handed over to the grantor at the end of the concession in a condition suitable for continued operation. The debt secured on such projects is often scheduled to fully amortize between six and 18 months before the concession maturity, thus allowing for a short debt-free tail in which to refurbish the assets if necessary. The project does not have the option of continuing to operate the assets following the expiration of the concession contract.

If assets are not maintained to a standard established in the concession contract, the project may incur penalties. To assess the likelihood of such penalties being incurred, we will consider to what extent the maintenance budget and timetable are sufficient to allow handover conditions to be met, and will evaluate the TA's assessment. In particular, we will examine the profile of major maintenance. For projects where high major maintenance is forecast for the final years of the concession and close to debt maturity, Fitch will place greater emphasis on the robustness of the major maintenance reserve account.

We consider reinvestment plans for major maintenance and LC provisions and what they mean for the project's ability to meet handback requirements under the framework agreement. Projects that have detailed plans for infrastructure renewal and have accounted for these costs in the financial forecast with required prefunding of a major maintenance reserve over five years and a handback reserve at least five years in advance of the end of the concession will, all else being equal, be viewed as having a 'Stronger' attribute.

Those projects with less detailed planning or shorter-term reserve requirements, including a three-year future reserve for LC costs and a handback reserve beginning three to five years in advance of concession termination will be viewed as having a 'Midrange' attribute. Those projects that lack detailed planning or have little to no requirements to prefund major maintenance and handback reserves would be deemed 'Weaker' for this attribute and may have ratings constrained.

Project Analysis: Revenue Risk

Unlike other infrastructure sectors, availability-based project revenue is not directly exposed to volume or price risk. Baseline gross revenue, generally subject to indexation throughout the concession life, is fixed prior to the start of the project. We will consider to what extent this indexation offsets corresponding indexation of operating costs and whether there is any residual exposure to inflation. Although far less common, Fitch will assess the project's exposure to risk introduced through the use of different indices, used to escalate revenue and cost streams respectively (basis risk).

The project's revenue stream can be affected by benchmarking or market testing provisions in the concession contract. However, any changes would be matched by back-to-back changes to operating costs and hence leave the project neutral from a cash flow perspective.

The quality of the revenue stream is an important credit consideration as it creates a ceiling for the overall project rating in most instances. Our public finance group assesses the credit quality of the public-sector payment obligation and provides a notch-specific rating or credit opinion, which is used as an input to the overall project rating. This counterparty rating is monitored throughout the life of the transaction. Fitch's approach to analyzing the payment revenue stream is outlined in our *Public-Sector Counterparty Obligations in PPP Transactions Rating Criteria*.

We may not apply the *Public-Sector Counterparty Obligations in PPP Transactions Rating Criteria* where the credit exposure reflects systemic risk rather than the failure of a single counterparty. In such cases, Fitch will explain the assessment in our rating rationale. Examples of this are listed below:

Pass-Through to the Broader Sector: Where the revenue counterparty acts as a conduit of a broader payment obligation the Revenue Risk is linked to the sector's overall risk profile. The revenue counterparty passes the payments through to the system users. Ultimately the cost is funded by the end consumers.

Regulated Payment Obligation: The payment obligation may be supported pursuant to regulatory provisions. In a case of failure to perform the payment obligation the incumbent would be replaced and the payment counterparty's obligations would need to be fulfilled on the same terms by a replacement entity.

Diversified Pool of Revenue Counterparties: Where a project receives revenue from a diversified group of counterparties, if the default of a single or group of lower-rated payment counterparties decreases the overall revenue base, but does not necessarily lead to the transaction's default, ratings may not be constrained by the credit quality of these individual counterparties.

Performance Risk

Availability-based project Revenue Risk is closely linked to operating risk, since contracts specify, often in significant detail, the standard to which these responsibilities are to be performed throughout the concession grace periods and the penalties, or deductions, the issuer would incur if it fails to meet them.

Penalties are generally split between those incurred for specific performance failures that do not affect overall project operation, and those incurred when all or part of the project facilities are not available for use at the required times and to the required standards. In general, transportation projects only tend to include penalties resulting from non-availability, as such, railway track or road availability is the key revenue driver. Both types of penalty reduce issuer revenue, with penalties relating to project unavailability generally being the more severe.

In most cases, the issuer should be able to pass the effect of deductions on to the third-party operator, to the extent there is one, as the operating contract will typically include near-identical deduction mechanisms, although often subject to an annual cap. This would be reflective of a 'Stronger' attribute assessment, on the basis of the strong alignment of interest between the issuer and the operator. However, failure of the issuer to meet these performance standards may entitle the grantor to terminate the concession.

Risk Factor Assessment Revenue

Availability-based projects typically have 'Stronger' attributes in this category, unless the project experiences material deductions.

We will evaluate the performance standards, and the manner in which penalties incurred for repeat failures increase in magnitude over time, as set out in the concession contract. This will take into account the TA's view of such mechanisms, whether they are reasonable, achievable and consistent with comparable projects. Fitch will also look to the TA to provide an assessment of a reasonable level of performance deductions that a project is likely to experience given the approach by the issuer and the performance regime enacted by the grantor. The size of the potential deductions relative to the size of any structural protections, such as deduction contingency, built into the transaction is helpful to understand as part of our financial analysis.

Taking into account the TA's analysis of the deduction framework for the effort in compliance, the penalty associated with underperformance, and the cost of compliance, we will form a base view on the expected level of deductions and financial effects. In an operating project, we would consider actual performance in its assessment of deduction risk.

Fitch has seen limited instances of projects incurring material performance penalties. These have typically been tied to a deterioration of the working relationship between the concessionaire and grantor for a variety of reasons, which have led the grantors to implement the terms of the performance regimes more strictly.

These instances underscore our acknowledgement that there is always a risk the public sector may choose to implement performance tests more rigorously. This may be driven by actual or perceived performance failures, public opposition to the PPP arrangement or government budget constraints. Detailed objective performance standards in the contracts and the ability of disputes to be referred to independent arbitration can mitigate any sustained adverse effects.

For availability-based transportation projects, the public authority retains all control over capacity allocation. Although these transactions appear less risky than those involving traffic risk, availability-based projects are exposed to events such as strikes, flooding, contamination, disruption of power supply, soil settlement or soil movement beyond specified tolerances, which may trigger underperformance and, in turn, application of penalties.

The definitions of performance in speed, safety, comfort, response time in failure and non-attributable events for which the project is not accountable and; therefore, penalized, such as extraordinary weather conditions, are critical and generally more difficult to determine than in social infrastructure. Therefore we need to understand the mitigating factors to these types of risk, such as the level of insurance protection and business interruption insurance, and develop appropriate stress scenarios.

In such projects, unlike demand-based projects, higher than expected traffic, especially heavy goods vehicles, resulting in higher maintenance costs can be a negative credit factor. We expect TAs to indicate sensitivity to traffic in their cost projections. We consider the inclusion of a detailed and non-subjective set of acceptance tests, with quantifiable standards, such as incident response time requirements and lane closures in the concession contract, as a credit positive.

We evaluate the adequacy of the cure periods for operating performance deficiencies in the context of the TA's views on what is a sufficient amount of time to remedy noncompliance, given a reasonable operator and their operating plan. Situations in which the TA finds the time period to be generous and unlikely to lead to payment deductions will be viewed as 'Stronger', while those in which the TA finds the time period reasonable with the potential deductions would be considered 'Midrange'. Cases where the TA feels the time needed to remedy will be tight, leading to a high likelihood of payment deductions are considered 'Weaker'.

Revenue Risk: Hybrid Transactions

Some projects derive a portion of their revenue from sources other than the main concession contract. This non-contracted revenue tends to be most significant for rail projects, where it can relate to the sale of non-contracted network capacity to third-party train operating companies, whose payments are not guaranteed by the grantor, or to some proportion of ticket sales.

To the extent a project is forecast to derive a material portion of its revenue from non-contractual sources, we will analyze the volume and price risk of these alternative revenue streams by applying the relevant sector criteria or master criteria. We will use a blended approach using the two relevant criteria to score the Revenue Risk inherent in hybrid transactions. Fitch measures the rating case financial metrics based on a weighted-average of the indicative financial metrics from the two relevant criteria.

Termination Event Risk (Pre-Maturity)

Termination, for reasons other than issuer default, whether due to grantor default, force majeure or a grantor exercising an option to terminate for convenience, should typically trigger compensation from the grantor for at least the full amount of the rated debt. The timing and mechanisms for receipt by the issuer of these payments should allow for timely repayment of the debt, consistent with its rating.

We are focused on the risk of concession termination due to a performance default by the issuer. This is particularly important for availability-based projects, given the concession contract is usually the project's only source of revenue and, following termination, the project's assets are generally transferred back to the grantor.

A typical 'Midrange' attribute for availability-based projects would feature performance thresholds for penalties and termination that are more stringent in the operating contract than in the framework agreement, thereby allowing the project to replace the operator before concession termination is an option for the grantor. In particular, we would expect to conclude that the likelihood of termination due to issuer performance failure, other than the issuer defaulting on its debt payments, is remote.

A 'Stronger' attribute for availability-based projects would reflect a concession contract containing clear and objective, performance-based termination provisions with reasonable cure periods, ensuring any such project is notably less exposed to the risk of contract termination than others.

A 'Stronger' attribute may be appropriate for projects, which included compensation clauses requiring the full payment of senior debt and breakage costs by the grantor in the case of issuer default. Our infrastructure ratings are opinions on the probability of default of the rated debt instrument, and address the timely payment of interest and principal according to the loan or bond documentation. For this reason, more importance is attributed to conditions leading to termination for project company default, beyond default on the debt payments, than to actual determination of compensation payment in such cases, which is a recovery consideration.

Compensation mechanisms only influence the rating to the extent the project is supported by sufficient liquidity features, such as cash, reserve accounts, bank liquidity facilities or the structural deferability of interest and principal, to allow it to avoid a payment default prior to the scheduled receipt of a compensation payment. Compensation would need to be sufficient to allow for the repayment of 100% of principal, accrued interest and costs. Clarity on timing of compensation payments in the framework agreement, or the existence of precedents, is important.

Financial Analysis: Debt Structure

This report outlines the criteria that apply to the rating of both new and existing debt issued, where repayment depends on cash flow from the construction and/or operation of a project. This report covers greenfield and existing projects, and individual or portfolio assets, typically financed with no formal guarantee of debt service from the sponsors (non-recourse). These rating criteria are intended for global application. This report should be read in conjunction with the *Infrastructure and Project Finance Rating Criteria*.

Financial Analysis: Financial Profile

Consistent with the master criteria report, Fitch develops base case, rating case and individual financial stress scenarios to assess cash flow resiliency and capacity for debt repayment.

In evaluating projected financial performance, we consider the overall profile of the DSCR. This profile consists of the average of DSCRs over the life of the project; the degree that the minimum DSCR deviates from the average; and the magnitude and frequency with which DSCRs persist below the average.

In addition to the DSCR we consider break-evens as a means of measuring the financial headroom a project has to handle the unexpected. Specifically, we focus on the percentage increase for the following calculations to achieve a 1.0x DSCR, after using any balance in the debt service reserve account (DSRA): O&M costs; LC costs; all expenses (O&M, LC and SPV costs); and inflation break-evens, assuming revenues are held constant.

Given forecast risk and the likelihood a project's cost budget will change regularly over time, both in terms of amounts and profile, we generally consider average, rather than minimum, financial metrics. The minimum is also tested but is less likely to drive the rating analysis unless there are extended periods of low coverage. We assume the issuer will have some flexibility to adjust near-term maintenance costs if cash flow becomes tight or there is no maintenance reserve account.

The presence of liquidity reserves (DSRA) addresses point in time stresses. In situations where there are sustained periods of lower coverage, we may consider the average DSCRs over these periods. This is particularly true when debt-life coverages are rising rapidly at the end of the transaction, improving average metrics, while the transaction is exposed for most of its life to less financial flexibility as can be seen looking at the profile of DSCRs.

Fitch's Base Case

Should we find the sponsor case to be consistent with our own view of the most likely outcome for future performance we will generally use the sponsor case as our base case. However, if we find the sponsor case is too optimistic with respect to key project assumptions such as the ROC compared to the TA's estimate, we will develop a more reasonable base case scenario, with input from the TA as applicable.

Fitch's Rating Case

Given the inherent revenue stability and limited number of moving parts in availability-based transactions, our rating case is likely to be much closer to the sponsor's base case assumptions than is typical for other infrastructure sectors. In developing our rating case, we will apply our assessment of the ROC (O&M, LC, SPV and insurance). O&M and LC will be based largely on the TA's view. We will also consult other available information. In the absence of a sound TA analysis we may take a more conservative view or not be in a position to assign a rating.

The SPV and insurance components of the ROC will include reasonable stresses to cover future cost increases. The overall ROC will be applied to the sponsor case cost projections to determine the rating case project coverage. The rating case will also include reasonable estimates of deductions based on the specific circumstances of the transaction. These estimates will be tailored to the specifics of the transaction, such as insurance, cost benchmarking mechanics and the specific deductions program. Available contingency within contracts and budgets will be assessed and given the requisite credit to avoid double counting.

Our indicative DSCR coverage thresholds provide a cushion to mitigate the risk that expenses and deductions come in above our Fitch Rating Case forecast. The relative differences in minimum coverage requirements between projects assessed 'Stronger', 'Midrange', and 'Weaker' are a function of the varying potential for increased costs and; therefore, require greater financial margin for protection.

For example, a simple social infrastructure project or a standard road both using tested technology are likely to be scored 'Stronger' thereby requiring the 1.10x rating case coverage to achieve investment grade, given the limited magnitude of cost differentiation.

An elevated bridge or tunnel system over a significant water crossing would likely be scored 'Midrange' and require rating case coverage of 1.15x to achieve an investment-grade rating. This assumes, all else being equal, that Revenue Risk, Debt Structure and Completion Risk do not

inhibit the transaction from achieving these rating levels. The size of the break-evens, as a measure of financial headroom, is also a relevant factor in determining the final rating level.

The table below summarizes the minimum average/profile DSCR level that is indicative of an investment-grade rating and financial coverage levels for upward rating migration.

Indicative DSCR Coverage Ranges and ROC by Cost Risk Profile

(x)	RC Investment-Grade	Minimum ROC ^a (%)	BBB Category RC	A Category RC
Stronger Projects	1.10	5.0	1.10–1.25	1.20 and above
Midrange Projects	1.15	7.5	1.15–1.30	1.25 and above
Weaker Projects	1.20	10.0	1.20–1.40	1.35 and above

^aIn the absence of strong analysis and support from a technical advisor, a minimum ROC will be applied based on the project's exposure to cost risk. Fitch may choose to apply a higher percentage if warranted. DSCR – Debt service coverage ratio.

ROC – Realistic outside cost. RC – Rating case.

Source: Fitch Ratings.

The above DSCRs are based on a fully-amortizing debt structure. We also consider the overall profile of the DSCR when evaluating projected financial performance in the rating case. This profile consists of the average of annual DSCRs over the life of the project; the degree the minimum DSCR deviates from the average; and the magnitude and frequency with which DSCRs persist below the average.

In instances such as when DSCRs may vary considerably, yet flexibility is maintained, and where the average or minimum DSCRs are not fully reflective of the overall risk profile, we will consider the loan life cover ratio calculation in our assessment. Similarly, where there is a cash flow tail this may provide added flexibility to re-sculpt debt, or the mandatory capex profile. We will consider the project life cover ratios calculation to take into the account the longer-term protection potentially being provided to the issuer.

In cases where there is no detailed ROC assessment supported by a TA, but we deem cost volatility to be moderate, base-case rating thresholds may be used that could be 0.05x–0.10x higher than the levels indicated in the table.

The DSCR indicative ranges, and the all-cost, break-even ranges covered in the next section, are a guide, not a prescription for achieving a specific rating. We quantify major credit risks as reflected in our projection of DSCRs under stress scenarios. However, the rating is also informed by qualitative factors previously discussed, such as technology risk, operation risk and debt structure.

On occasion, we may have tolerance for lower DSCRs and break-evens based on structural and qualitative strengths of the project, which may not be fully reflected in the financial analysis. Conversely, we may see a need for DSCRs and break-evens that are higher than the indicative profile to provide greater financial protection due to structural and qualitative weaknesses not fully reflected in the financial analysis.

The threshold coverage ratios illustrated in the table above are predicated on the other key rating drivers, Completion Risk, Revenue Risk, and Debt Structure, not constraining the rating. In other cases the coverage thresholds will be higher to achieve the rating levels indicated above, or the rating may be constrained regardless of financial metrics, as would be the case with the grantor's rating. For example, a project with significant non-amortizing bullet maturity debt assessed as 'Midrange' for Debt Structure would require greater financial margin to mitigate refinancing risk to achieve the same rating as a similar project with fully-amortizing debt.

Sensitivities and Break-Events

We recognize that certain asset classes are exposed to unique technical or event risks that may not be fully captured in the ROC analysis. This can be especially challenging to accurately estimate the probability of such risks occurring or the extent to which operations could be disrupted. For example, the availability of an offshore transmission project may be impaired for an indeterminate time if an anchor strike damages the undersea cable. The realization of event risk

may affect cash flow if the key revenue generating agreement explicitly links payments to operating performance, regardless of whether the direct repair costs are fully compensated.

Our financial analysis will consider sensitivities in which asset-specific event risks could impair operations, reduce revenue, or result in extraordinary expenditures. The project's rating may be constrained if these risks are not mitigated by insurance, supplemental liquidity, or other structural and regulatory protections.

Break-even calculations are designed to target a default on cash payment, not on covenanted default triggers, and usually include drawings on debt service reserves. Break-even scenarios are calculated off the base case. Recognizing that all projects are different and; therefore, the level of financial margin needed varies depending on the risk profile of the project, we look at the all-costs, break-even as a multiple of the ROC. Those transactions perceived to have minimal cost risk would require a break-even ratio with a smaller multiple of the ROC, relative to those projects with higher cost risk. Specific break-even bands are illustrated in the table below.

Indicative Break-Even Ratios by Cost Risk Profile

(x)	BBB Category (3.0–6.0)		A Category (5.0–10.0)	
Break-Even Multiple of the ROC	Multiple of ROC	Minimum Break-Even (%)	Multiple of ROC	Minimum Break-Even (%)
Stronger Projects	3.0	15	5.0	25
Midrange Projects	4.5	30	7.5	50
Weaker Projects	6.0	60	10.0	100

^aRelative strength of the break-evens may be used for notching differential within rating categories. ROC – Realistic outside cost.

Source: Fitch Ratings.

For example, a relatively simple project, assessed as 'Stronger' for Cost Risk, with a ROC of 5% could achieve an investment-grade rating with an all-in cost, break-even of at least 15%, or 3.0x ROC, while the same project could potentially achieve an 'A' category rating with a break-even of at least 25%, or 5.0x ROC. A more complex project, assessed as 'Midrange' for Cost Risk, with a ROC of 7.5%, thereby a greater exposure to Cost Risk, would require an all-in cost, break-even of 30%, or 4.5x ROC, to achieve a low investment-grade rating and a 50% all-in cost, break-even for an 'A' category rating. In addition to all-cost, break-evens, we consider the sensitivity of the project's cash flows to changes in key assumptions.

Cost Inflation

Fitch tests the net exposure of the project's cash flow to any mismatches in inflation indexation between the project's revenue and cost streams. In examining this risk, we take into account inflation hedging that may form part of the financial structure. Where the payment is not indexed to inflation on O&M and LC costs, we will test how much of an increase in inflation the project can tolerate before the minimum DSCR falls to 1.0x, the break-even inflation increase. Where indexation is in place, we evaluate the project's ability to cover real costs above the index, a mismatch between the index and actual costs.

Interest Rates

To the extent the debt structure contains unhedged variable-rate debt, we run interest-rate sensitivities to assess the project's overall susceptibility, measured in DSCR and break-evens, to changes in interest rates.

Maintenance Costs

We assess how much of an upfront increase in regular and major maintenance costs the project can tolerate before the minimum DSCR falls to 1.0x, the break-even cost increase, and the project's susceptibility to changes in the timing of these costs.

Models

Fitch may use the following models in the analysis of availability-based sector credits: GIG AST Model; Corporate Monitoring and Forecasting Model (Comfort Model); and third-party models. The models section in our *Infrastructure and Project Finance Rating Criteria* provides a description of these models.

Rating Assumption Sensitivity

Availability-based project ratings are subject to positive or negative adjustment based on actual project experience. Below is a non-exhaustive list of the primary sensitivities that can influence availability-based project ratings.

Completion: Material delays and/or cost increases in the construction phase that could affect the revenue commencement of the project or cause the concessionaire to potentially lose the concession for failure to deliver the project by the contractually required time.

O&M and LC Costs: Operating and LC costs deviating from projections may indicate greater than expected cost volatility, or a failure to properly estimate or fully capture relevant cost items.

Payment Deductions: Materially higher than expected performance deductions may indicate the operator is unable to meet the contract requirements or friction in the relationship between the grantor and concessionaire.

Counterparty Credit Quality: Movements in the ratings of the key counterparties, such as an EPC or revenue counterparty, can influence or constrain availability-based project ratings.

Variations from Criteria

Our 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 or issuer basis, and full disclosure via rating commentary strengthens our 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 effects on the rating where appropriate.

A variation can be approved by a ratings committee where 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.

Limitations

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

In addition, ratings within the scope of these criteria are subject to the following specific limitations:

The criteria do not apply to shadow toll-road concessions, which, while displaying a similar degree of credit exposure to project grantors as availability-based projects, have revenue streams largely derived as a function of the volume of traffic using the roads.

The criteria do not cover circumstances such as a significant change in government policies or changes to the funding or legal structure surrounding grantors who are obliged to make payments to availability-based infrastructure projects. If one of these or similar events were to occur, we would review the criteria and make appropriate changes to the methodology and to the ratings covered.

See *Infrastructure and Project Finance Rating Criteria* for a complete discussion of limitations on methodology and ratings applicable generally in the context of infrastructure and project finance.

Data Sources

The key rating assumptions for the criteria and our rating analysis are informed by our analysis of transaction documents and data and information received from issuers and/or obligors for financed projects, arrangers, third-party engineers, consultants and other third parties, public information, and our analytical judgement.

Disclosure

We expect to disclose, as part of our rating action commentaries or new issue reports, base case and rating case assumptions, and the rationale for adjustments to either the base case or rating case assumptions. In addition, we will disclose any variation to criteria, as mentioned in the *Variations from Criteria* section. In many cases, we use the assumptions that we derived in our initial analysis in our surveillance review. In order to focus our rating action commentaries on the most important changes to the rating, we will not disclose these assumptions in subsequent rating action commentaries unless there is any change to the assumption.

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