



## METHODOLOGY

### INDEPENDENT POWER PRODUCER

*An independent rating opinion on relative ability of  
an Independent Power Producer to honor financial  
obligations*

# Content

Scope

Risk Analysis

Completion Risk

Performance

Financial Risk

Rating Scale

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**0. INTRODUCTION**

- *Scope*

*A sound financial ecosystem is critical for functioning of any economy. It is defined by interaction of providers of funds - savers, users of funds - borrowers, financial institutions, and regulators. This system ensures smooth flow of funds between savers and borrowers; wherein, financial institutions provide platform for their interaction. Regulatory oversight safeguards the sanctity of this system. Like all systems, financial system has its own set of challenges. The most prominent being “Risk”; the risk that some participant may not be able to meet its commitments. All participants do their best to manage this risk to maximize their return. This is not possible unless we have independent information on this risk. Here comes expertise of rating agencies, providing independent opinion on credit risk. Flow of funds is only possible when the provider of funds has confidence that user of funds will be able to return these in a timely manner and as committed. Ratings help build this confidence. A higher rating means higher likelihood of timely repayment compared to a low rating. Our ratings are forward-looking and reflect our expectations for future financial and operating performance. However, historical results are helpful in understanding patterns and trends of a company’s performance as well as for peer comparisons.*

**0.1 Scope:** This methodology explains PACRA’s rating criteria applicable to Independent Power Producers (IPPs). IPP is an entity that owns facilities to generate electricity. IPPs are special purpose companies. IPPs in Pakistan operate in a regulatory environment, insulating them from multiple business and financial risks. Moreover, IPPs enjoy tax-free status. IPPs maintain power purchase agreements (PPA), in local scenario, with Central Power Purchasing Agency (CPPA-G)<sup>1</sup> and KElectric (KE)<sup>2</sup>. This methodology covers all IPPs, mainly, i) Thermal, including fuel, gas, and coal based, and ii) Renewable including hydel, wind, and solar.

**0.1.1** IPPs face a single buyer market. CPPA-G is the key buyer of electricity from an IPP. IPPs negotiate a tariff (or accept upfront tariff) with the regulator, National Electric Power Regulatory Authority (NEPRA). NEPRA has put in place various rules and regulations to govern all segments of the power sector, including generation, transmission, and distribution. IPPs are generally insulated from underlying economic risks through long-term PPAs (spanning 25-30 years) with underlying take-or-pay contracts, supported by explicit government guarantees subject to conditions mentioned therein.

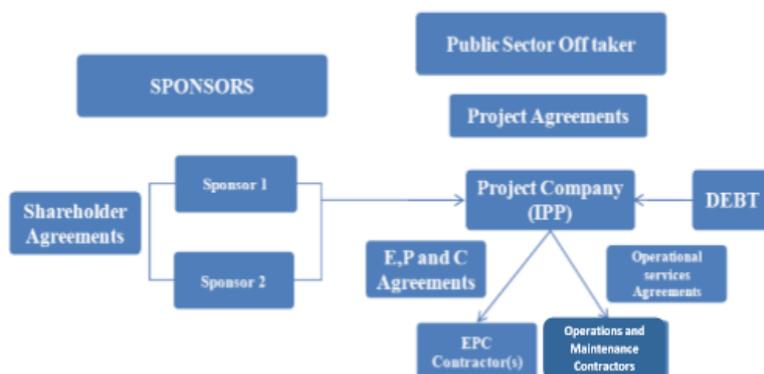
**0.1.2** The magnitude and relevance of risks vary for IPPs at different stages in their lifecycle. For example, for an operational IPP completion risk is not relevant. In contrast, other things remaining the same, for an IPP in its pre-COD stage the completion risk would be in focus.

**1. RISK ANALYSIS**

- *Contractual Framework*

**1.1** PACRA’s risk analysis for IPPs begins with a study of the contractual framework underlying the particular IPP. The objective is to determine the risks retained in the project and those that are a pass-through. This is followed by an assessment of risks, that are categorized under three broad heads, i) Completion Risk, ii) Performance Risk, and iii) Financial Risk.

**Contractual Framework of a Typical IPP**



## 2. COMPLETION RISK

- *Project Sponsor*
- *Project Company's Governance*
- *Project Company's Management*
- *Principal Project Agreements*

**2.1 Project Sponsors:** The minimum equity requirement to finance IPPs in Pakistan is 20-25%. Hence, the sponsors present the first source of risk for these projects. PACRA solicits documents related to ownership structure (i.e. articles of incorporation, shareholder agreement(s) amongst equity partners etc.), financial data and other corporate information of sponsors. Individual wealth statements of majority shareholders may be solicited if their financial standing, as evidenced by corporate data, is unclear. Based on this information, PACRA primarily evaluates the following factors:

**2.1.1 The project sponsor's background, track record:** The project sponsor's previous involvement with power projects that have been built and operated successfully is evaluated. Successful experience in building and/or operating power plants is positive rating factor. PACRA carries out an assessment of the key management personnel including qualification, skills and experience. However, if the building and operations of the plant are outsourced to an expert, it would act as a mitigant for Sponsors' lack of experience, but depending upon the strength of the expert.

**2.1.2 Financial strength:** PACRA assesses the financial strength of the sponsors. The credit quality of the sponsors is important to ensure that they will be able to meet any future obligations, in particular, contingent equity requirements, both pre-COD and post-COD stages.

**2.1.3 Commitment:** PACRA looks for evidence of the sponsor's commitment to the project. If the sponsors have significant resources and time already invested in the project, they are less likely to abandon it. Higher levels of upfront equity investments are considered a positive factor. The strategic importance of the project to the sponsor is also considered. Commitment may be in the form of undertaking to cover cost overruns, and/or to provide liquidity support during the life of the project.

**2.2 Project Company's Governance:** Corporate governance structure of IPPs is important to qualitative analysis. While analyzing governance framework, among others, four main factors are looked into, i) board structure, ii) members' profile, iii) board effectiveness, and iv) financial transparency.

***Board Structure:** This comprises assessment of board on various criteria including overall size, presence of independent members, association of board members with the entity, overall skill mix and structure of committees of the board. Size of the board may vary as per the scope and complexity of the business operations of the entity. As too small board is not considered good, similarly reaching on a decision in an effective and efficient manner may not be possible in case of a larger board. A healthy composition of board includes the presence of independent / non-executive members having limited relationship with the sponsoring group of the entity. Meanwhile, same individual holding chairman and CEO positions is considered weak governance practice. Thus these should be separate persons. The chairman is expected to have a non-executive role. Assessment of board as a whole Compliance of code of corporate governance is also examined. Here PACRA also examines the independence of management from major shareholders. Lastly, PACRA evaluate number of board committees, their structure, and how these committees are providing support to the BoD. The board with higher total number of members should have higher number of committees in place to achieve efficiency in performing role of the board.*

***Members' Profile:** PACRA collects information regarding profile and experience of each board member. This helps in forming an opinion about the quality of overall board. Moreover, diversification in terms of knowledge background and experience is considered positive. However, a fair number of board members should have related experience. Here, director's trainings*

*conducted by the entity are considered good. This is expected to equip the board members in fulfilling their role in an effective manner.*

**Board Effectiveness:** *PACRA considers the role of the board is to work with management in steering the entity to its performance objectives and to provide critical and impartial oversight of management performance. Board members’ attendance and participation in meetings is considered a measure to assess the effectiveness. Moreover, PACRA analyses the type and extent of information shared with the board members, and quality of discussions taking place at board and committee level. Effective oversight requires frequent sharing and detailed information than required by statute. Meanwhile, PACRA also review the number of board meeting held during the year as number of board meetings should be justified with the number of issues/matters arising.*

**Financial Transparency:** *Quality of governance framework is also assessed by the procedures designed by the board to ensure transparent disclosures of financial information. The board may establish controls to ensure transparency through strengthening the role of audit committee, the quality of internal audit function, and effectiveness of external audit.*

**2.3 Project Company’s Management:** IPPs maintain a lean management structure as in most cases, the EPC function is contracted out. IPP mainly establishes an oversight function, while developing a comprehensive MIS reporting, in liaison with the contractors.

**2.4 Principal Project Agreements:** All IPPs in Pakistan are governed by project agreements, (Implementation Agreement, PPA and Fuel Supply Agreement/Gas Supply Agreement), that need to be carefully analyzed. The Project Agreements serve as a basis for an evaluation of i) Regulatory risk, and ii) Compensation to the IPPs if there is non-performance to any of these agreements. PACRA shall extract and examine the salient points within these agreements that would have bearing on the risk profile.

**2.4.1 Power Purchase Agreement (PPA):** PPA is entered into between the IPPs and the power purchaser. Term of the contract, clarity of risks assumed by the power purchaser and the IPP, insurance coverage under the PPA, pre-mature termination clauses and its impact on various stakeholders, are key areas to review. PACRA also assesses performance requirements and associated penalties (liquidated damages) in the event of non-performance, or due to Force Majure, and its impact on the project. PACRA looks at the provision for step-in rights for either the purchasing utility, or the bondholders/lenders, in the event of default by the project sponsor.

**2.4.2 Implementation Agreement (IA):** This agreement takes place between the IPP and the GoP. The IA determines how the PPA is governed. IA mentions various types of supports to be provided by GoP, including facilitating company contractors, security protection, GoP guarantee etc. It also mentions the obligations of the project company for project construction and subsequent operations. Meanwhile, restriction on transfer of shares, force majeure, mechanism to give notice to GoP of power purchaser’s default, dispute resolution etc. are also important clauses that are stated in IA.

**2.4.3 Engineering, Procurement and Construction (EPC):**

**Construction Risk:** Generally, construction risk is the risk that the IPP project is not completed on time, within the scheduled budget and up to the required performance standards. In reviewing these risks, PACRA considers factors such as the appointed contractors, projected costs, delay risk, and other terms of the construction contract.

**EPC Contract:** The EPC Contract governs the contractual relationship between the IPP and the turnkey contractor, and outlines the scope of work, rights and responsibilities, the construction period during which the contractor is responsible for design, construction, completion and commissioning of the power complex as well as the turnkey contract price. EPC constitutes major portion of the total project cost. Hence, a lump sum fixed price contract would be favorable to the IPP as the first layer of protection against cost overrun arising from any unexpected increase in variable contract costing

above the budgeted cost. Basically, the EPC contract should ensure that the IPP is protected against any cost overrun and delay risk, as these risks have been passed on to the turnkey contractor. PACRA would evaluate that there are enough cash reserves and credit lines available to cover instances of cost overruns/delays.

**In case the project company’s management decides to keep the EPC function inhouse to be executed by their own team:** While assessment of experience profile of the team would become important in addition to sponsor’s ability to absorb escalated costs in case the project delays, PACRA considers this arrangement as relatively risky compared to a contract entered into with an established EPC contractor.

**Track Record of the EPC Contract:** The track record of the EPC contractor in both the local and the foreign market is examined. An EPC contractor of international repute with a long-standing local EPC experience is rated higher as compared to one with similar international credentials but lack of operating experience in Pakistan, or in any other emerging economy.

**Parts of a Standard EPC Contract:**

- a) Off Shore Equipment Supply Contract
- b) Onshore – Construction contract

Generally, both Onshore and Offshore contracts, are contracted with the same party, as it is more conducive to facilitate coordination and synergies. This is the case in Pakistan. However, there is no contractual binding in this regard and these two contracts may be executed with different parties.

**Performance Bonds and Guarantees:** An important part of the EPC is the performance guarantee underlying the assurance to achieve timely COD by the EPC Contractor.

**Early Completion Incentives:** The existence of early completion incentives, reasonable liquidated damage provision and sufficient insurance coverages provide some protections in the event of unexpected delays, damages or overruns. Early completion incentives are justified by the debt-servicing cushion that may accrue to the company as per its contractual obligations.

**Independent (Lenders’) Engineer’s Report:** During the construction period, PACRA monitors the construction progress by examining the construction progress report prepared by an engineering consultant, which is responsible for overseeing and monitoring the construction progress. This report becomes critical as the IPP is nearing COD.

**Project Funds Agreement:** The PFA is an agreement between the IPP, equity financiers, debt financiers, the project-monitoring bank, and the security trustee. The finalization of the agreement coincides with the financial close. PACRA carefully studies the form of sponsor equity support along with loan agreements/committed bond funds, performance guarantees, included in PFA.

**2.5 Delay in COD:** In case of delay in commissioning of the plant, PACRA analyzes the coverage provided by the EPC contract and the amount of LDs that can be passed on to the contractor. In case the sponsor has to meet the LDs (or a portion of it), PACRA incorporates it accordingly in its rating analysis.

**3. PERFORMANCE RISK**

- *Operations and Maintenance (O&M) Contract*
- *Fuel Supply Risk*
- *Insurance Cover*

**3.0** Performance risk evaluates challenges relating to the operation and maintenance of the power plant. The quality and provisions of the O&M needs to be factored in adequately, even before COD. The operation and maintenance risk is the risk that the project will result in lower than expected productivity or net electrical output as a result of unplanned outages and/or failure to meet the performance standards. PACRA assesses the experience and responsibilities of the power plant operator.

**3.1 Operations and Maintenance (O&M) Contract:** This contract mentions understanding of the operator's relationship to project owners, the scope of work, and its rights and responsibilities. PACRA looks for measures to cover instances where the operator's performance is below the required performance standards, perhaps in the form of performance guarantees and associated liquidated damages and ability to be replaced, if necessary.

**3.1.1 In house O&M Function:** In case the company decides to assemble an inhouse O&M team, the experience profile of the team is important to analyze. Nevertheless, the risk is considered higher compared to outsourcing it to an established contractor as financial losses that may arise due to any operational hitch are to be absorbed by the project company.

**3.1.2 Ability to Contract-Out:** If the O&M activities are to be contracted-out, PACRA takes note of the arrangement to manage these sub-contractors. If the contractors are in default of their obligations set out in the O&M agreement, PACRA expects some form of compensation to be set out in the agreement.

**3.1.3 Project experience and credibility of operator with power plant operations along with spare parts supply:** PACRA assesses the experience and track record of the operator in operating similar power plants as well as the latest financial position of the operator. PACRA takes note of the existence of technical support and spare parts from the major equipment suppliers at the power plant.

**3.1.4 Plant's performance:** The assessment on the plant's performance in adherence to the key performance measures such as plant availability, dependable capacity, efficiency (amount of energy produced per component of fuel), and emissions need to be carried out. The effects on cash flows as a result of higher operating costs, penalty payments under the PPA which should be covered by liquidated damages claimable from the operator, and loss of revenue due to breakdown of machinery or force majeure events shall also be analyzed. The motivation/incentives for operator such as performance-based compensation and the importance of the project to the operator are also looked at. The type of power plant and the technology used in these plants to some extent influence the operating risks.

**3.2 Fuel Supply Risk:** Ensuring the reliability of fuel supply risk and dynamics of change in the fuel costs is also examined. PACRA evaluates the fuel supply agreement with fuel suppliers. A long-term supply agreement is desirable as well as the existence of take-or-pay clause. Alternative fuel sources and a list of alternative fuel supplies are evaluated by PACRA to determine the risk of over dependence on any one supplier. The ability to pass through fuel cost escalations to the off-taker such as GoP is also desirable from the rating's point of view.

**3.2.1** In latest PPAs, the GoP does not guarantee the fuel supplier's obligations. However, the risk is a pass-through to the fuel supplier and, hence, the fuel supplier pays the requisite liquidated damages (LDs) to the IPP, in the event of non-performance on FSA. However, this practice has not been tested and IPPs remain majorly responsible for payment of LDs in case of closure of plant.

**3.2.2 Availability of Required Natural Resources in case of Renewable Energy (RE) Projects:** Resource variability risk is unique to the RE IPPs. This is the risk of variability in availability of the required natural resources, and therefore, the effective energy output may show an inconsistent pattern. PACRA reviews the PPAs to ascertain if the resource variability risk is assumed by the IPP or the power purchaser. In recent PPAs resource variability risk is assumed by RE IPPs. PACRA analyzes historical trend of resource availability and compare the performance of the IPP with other similar power producers situated within same location.

**3.3 Insurance Cover:** PACRA analyzes the comprehensiveness of insurance coverage for the IPP against various risk factors including plant and machinery damage, business interruption losses, and/or losses due to any force majeure events. Risk ratings may take comfort in cases where insurance package adequately covers the identified risks; although this may not result in higher rating.

#### 4. FINANCIAL RISK

- *Off-Taker Risk*
- *Financing Structure Analysis*
- *Liquidity Risk*
- *Working Capital Financing*
- *Cash Flow Analysis*
- *Capitalization/Financial Flexibility*

**4.1 Off-Taker Risk:** The off-taker for IPPs is CPPA-G / K-Electric. The credit strength in terms of the ability and willingness of the off-taker to pay its obligations are assessed. In Pakistan, the GoP, under its sovereign guarantee, covers all obligations of the power purchaser given IPPs meet its performance parameters. As is the case of any other sovereign, GOP is not likely to default on its local currency obligations. This acts as a mitigant of financial risk related to the off taker.

**4.2 Financing Structure Analysis:** PACRA analyses financing structure in detail. The structure should spell out the principal terms, conditions and covenants of the debt facility, such as repayment pattern, security, and designated accounts. Terms, conditions and covenants under the issue structure are directed towards ensuring the solvency of the project and the requirement of the IPP to manage its cash flows and service its debt obligations. Certain structural features and covenants that may provide comfort to assess credit protection include:

**4.2.1 Minimum Debt Service Coverage Ratio (DSCR):** This is the minimum coverage of debt service by revenues generated by the IPP.

**4.2.2 Debt repayment schedule:** PACRA shall monitor the debt repayment schedule over the duration of the facility and whether the payments have been made according to the schedule. Timeliness in meeting both principal and interest payments is considered important.

**4.2.3 Designated Accounts:** The designated accounts to be opened and maintained include the finance service account, finance service reserve account, operating account, escrow account, disbursement account, etc. PACRA shall understand the functions and workings of such accounts, the minimum balance requirement in the designated accounts (if any), etc. as these serve to address the liquidity risk associated with the project.

**4.2.4 Maximum debt to equity ratio:** PACRA monitors the trend in debt to equity ratio historically and that forecasted for the entire period of the facility.

**4.2.5 Legal structure, credit enhancements and other financial covenants:** PACRA examines other features including legal structure, any measures to minimize cash leakage and tighter ring-fenced mechanism to provide additional protection to lenders.

**4.3 Liquidity Risk:** This risk, in local environment, is considered critical to analyze. IPPs suffer due to relatively weak financial discipline of the power purchaser. Electricity distribution companies (DISCOs) are subject to higher losses (both technical and theft) and risk of non-payment by the consumers, so payments to power purchaser always made with a delay. This gives rise to circular debt as the power purchaser accordingly adjust its cash payments to IPPs. Therefore, in case of extended delays, IPPs have to manage their liquidity requirements either from sponsor loans, or from short-term borrowings. Thus PACRA closely monitors and obtains updated information regarding upcoming financial repayments and available resources to meet the same.

**4.4 Working Capital Financing:** Analysis of working capital financing is important part of financial risk assessment. PACRA analyses the number of days cover provided by available financing to cover its WC requirements. Any portion of working capital requirement financed through equity is considered positive. While repayment of commercial obligations as per contractual terms is considered important, availability of un-utilized lines is taken into account.

**4.5 Cash Flow Analysis:** PACRA assesses cashflow projections of the IPP over the tenure of the financing facility, based on the financial forecast of the project, including the assumptions underlying the forecast (e.g.; inflation, interest rates, tax rates and planned capital expenditure). Based on the

financial forecasts, PACRA sensitizes the cash flow projections under several scenarios including best-case scenario on break-even basis. The sensitized cashflow projections are then matched against the debt repayment schedule of the project to ascertain the DSCR, a key indicator of the debt servicing ability of the company. The objective is to determine the DSCR or how much revenue is needed to cover debt service and operating expenses. The DSCR under each scenario and the year in which the minimum DSCR would occur are noted and explanation obtained for the trend observed. PACRA shall also compare the DSCR with the minimum DSCR as required by the financial covenant. The higher the DSCR under the various stressed scenarios, the lower the risk of financial default, hence the higher the assigned rating. Throughout the tenure of the finance facility, PACRA determines the adequateness of DSCR.

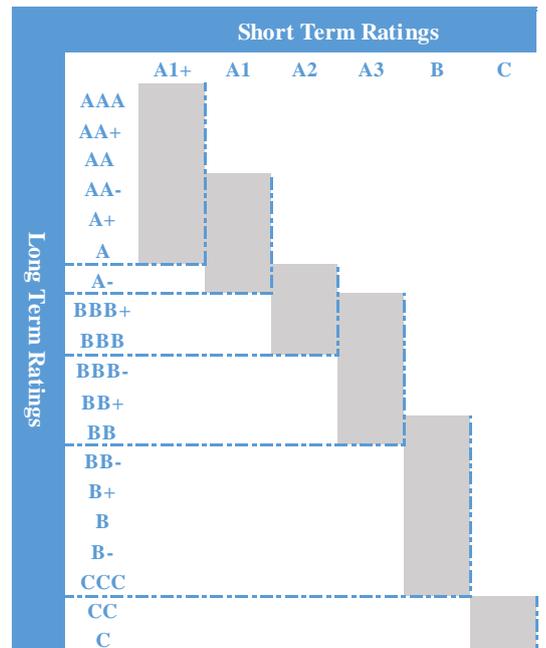
**4.6 Capitalization/Financial Flexibility:** IPPs are usually structured on an 80:20 or 75:25 debt to equity basis. The equity requirement is to ensure commitment on the part of the project’s sponsors. As debt to equity ratio is an important indicator of the capitalization structure, projects with high equity participation are likely to have greater financial flexibility.

***Credit Enhancement:** The entity that carry third party commitment to make good an amount obligated to the lenders may provide additional support to its financial risk profile. In this case, in determining the impact on rating, key factors to assess are the financial profile of the third party and the extent of coverage – quantum and duration – it provides.*

## Credit Rating Scale & Definitions

Credit rating reflects forward-looking opinion on credit worthiness of underlying entity or instrument; more specifically it covers relative ability to honor financial obligations. The primary factor being captured on the rating scale is relative likelihood of default.

Long Term Ratings		Short Term Ratings	
<b>AAA</b>	<b>Highest credit quality.</b> Lowest expectation of credit risk. Indicate exceptionally strong capacity for timely payment of financial commitments	<b>A1+</b>	The highest capacity for timely repayment.
<b>AA+</b> <b>AA</b> <b>AA-</b>	<b>Very high credit quality.</b> Very low expectation of credit risk. Indicate very strong capacity for timely payment of financial commitments. This capacity is not significantly vulnerable to foreseeable events.	<b>A1</b>	A strong capacity for timely repayment.
<b>A+</b> <b>A</b> <b>A-</b>	<b>High credit quality.</b> Low expectation of credit risk. The capacity for timely payment of financial commitments is considered strong. This capacity may, nevertheless, be vulnerable to changes in circumstances or in economic conditions.	<b>A2</b>	A satisfactory capacity for timely repayment. This may be susceptible to adverse changes in business, economic, or financial conditions.
<b>BBB+</b> <b>BBB</b> <b>BBB-</b>	<b>Good credit quality.</b> Currently a low expectation of credit risk. The capacity for timely payment of financial commitments is considered adequate, but adverse changes in circumstances and in economic conditions are more likely to impair this capacity.	<b>A3</b>	An adequate capacity for timely repayment. Such capacity is susceptible to adverse changes in business, economic, or financial conditions.
<b>BB+</b> <b>BB</b> <b>BB-</b>	<b>Moderate risk.</b> Possibility of credit risk developing. There is a possibility of credit risk developing, particularly as a result of adverse economic or business changes over time; however, business or financial alternatives may be available to allow financial commitments to be met.	<b>B</b>	The capacity for timely repayment is more susceptible to adverse changes in business, economic, or financial conditions.
<b>B+</b> <b>B</b> <b>B-</b>	<b>High credit risk.</b> A limited margin of safety remains against credit risk. Financial commitments are currently being met; however, capacity for continued payment is contingent upon a sustained, favorable business and economic environment.	<b>C</b>	An inadequate capacity to ensure timely repayment.
<b>CCC</b> <b>CC</b> <b>C</b>	<b>Very high credit risk.</b> Substantial credit risk “CCC” Default is a real possibility. Capacity for meeting financial commitments is solely reliant upon sustained, favorable business or economic developments. “CC” Rating indicates that default of some kind appears probable. “C” Ratings signal imminent default.		
<b>D</b>	Obligations are currently in default.		



**Outlook (Stable, Positive, Negative, Developing)** Indicates the potential and direction of a rating over the intermediate term in response to trends in economic and/or fundamental business/financial conditions. It is not necessarily a precursor to a rating change. ‘Stable’ outlook means a rating is not likely to change. ‘Positive’ means it may be raised. ‘Negative’ means it may be lowered. Where the trends have conflicting elements, the outlook may be described as ‘Developing’.

**Rating Watch** Alerts to the possibility of a rating change subsequent to, or in anticipation of, a) some material identifiable event and/or b) deviation from expected trend. But it does not mean that a rating change is inevitable. A watch should be resolved within foreseeable future, but may continue if underlying circumstances are not settled. Rating Watch may accompany Outlook of the respective opinion.

**Suspension** It is not possible to update an opinion due to lack of requisite information. Opinion should be resumed in foreseeable future. However, if this does not happen within six (6) months, the rating should be considered withdrawn.

**Withdrawn** A rating is withdrawn on a) termination of rating mandate, b) cessation of underlying entity, c) the debt instrument is redeemed, d) the rating remains suspended for six months, e) the entity/issuer defaults, or/and f) PACRA finds it impractical to surveil the opinion due to lack of requisite information.

**Harmonization** A change in rating due to revision in applicable methodology or underlying scale.

**Disclaimer:** PACRA's ratings are an assessment of the credit standing of entities/issue in Pakistan. They do not take into account the potential transfer / convertibility risk that may exist for foreign currency creditors. PACRA's opinion is not a recommendation to purchase, sell or hold a security, in as much as it does not comment on the security's market price or suitability for a particular investor.