

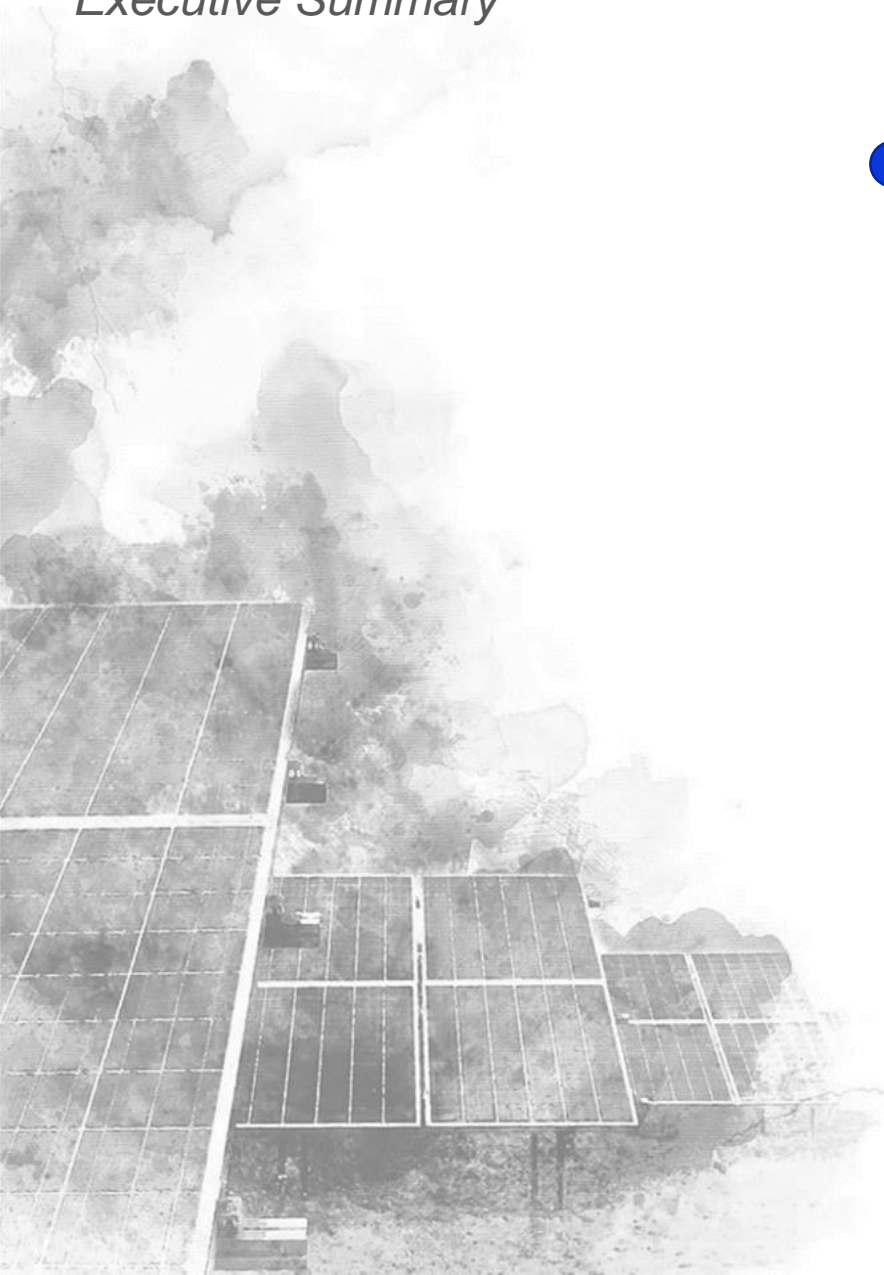


Considerations In Impacting Power Credit Markets

Matthew Montpetit, Senior Credit Manager
NRG Energy, Inc.

Credit in Power Markets

Executive Summary



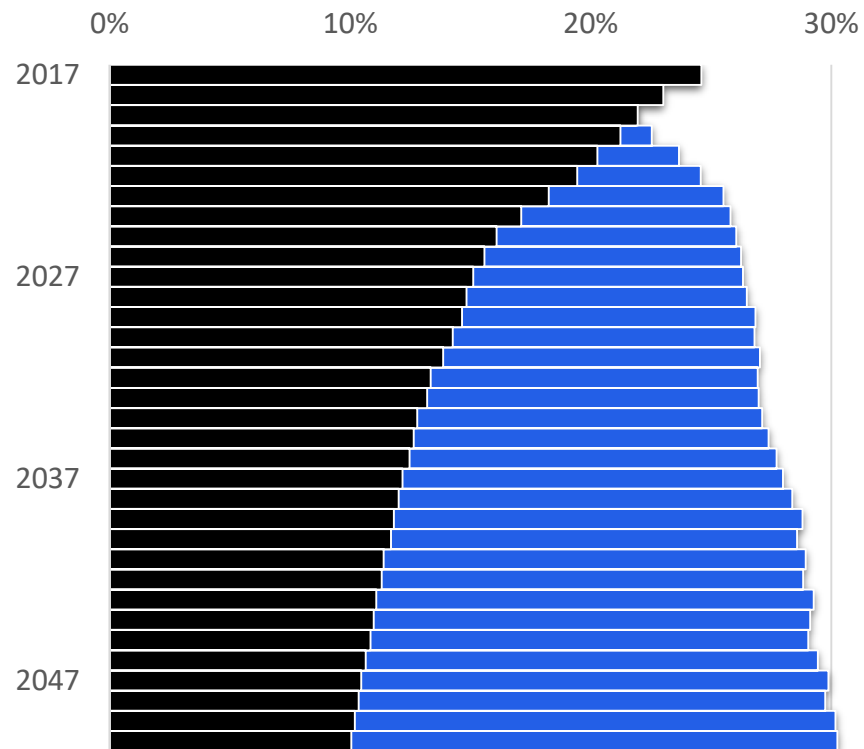
● Considerations that impact Credit adjudication in Power Markets

1. Notable shift in fuels used to generate wholesale electricity
 - a. Coal to Solar
2. Organization Structure & Resources
 - a. Wholesale + Retail
3. Demand for Enterprise Credit Platform
 - a. Poor data management

Wholesale Electricity - Shift in Fuels

Credit Risk associated with Utility Scale Solar (USS) – Pre Execution

Generation by Fuel Type IEA Forecast



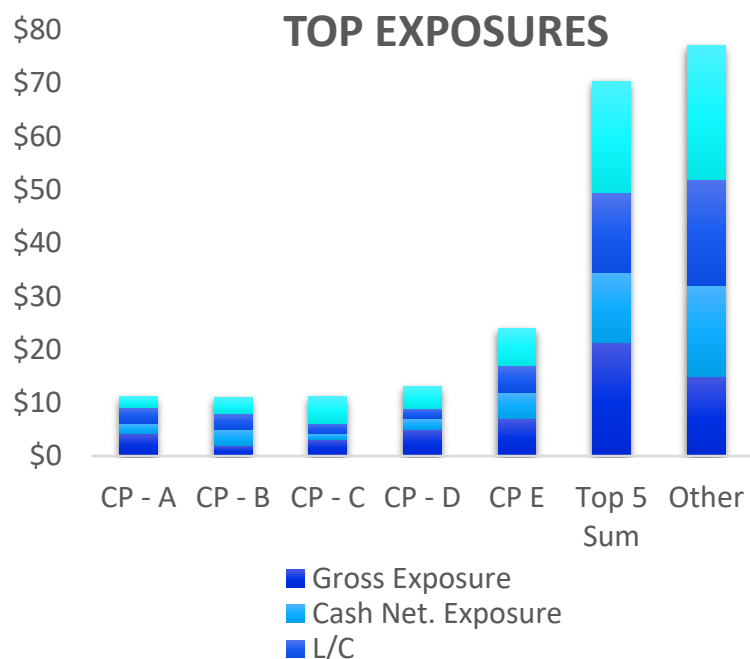
Credit Responsibility Pre Execution of PPA

- Credit Quality
 - Special Purpose Vehicles (SPV) are created by the developers of Utility Scale Solar
 - These SPV's do not have financial information, public debt ratings, or operating history
- Collateral (Amount)
 - Typically calculated by multiplying the M_{wac} by the milestone posting amount as negotiated in the PPA
 - The milestones are broken into 3 phases - Pre-FNTP, Pre-COD, & COD
- Collateral Cost
 - Internal calculation required in order to pass through, dependent on collateral type
 - Calculated on a \$/MW basis
- Potential Future Exposure
 - Is related to contract price, product (As-Produced vs Fixed Shape), Tenor, at a stressed market simulated though multiple iterations
 - Do you have enough collateral?

Fuel	Coal	Solar
Procurment	Yes	No
Generation Exists	Yes	No
Capacity (MW's)	~600	~50

Wholesale Electricity - Shift in Fuels

Credit Risk associated with Utility Scale Solar – Post Execution

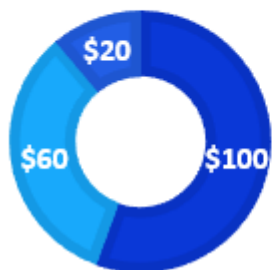


● Credit Responsibility Post Execution of PPA

- Value the Security
 - Ensure ability to determine distress, through transparent reporting
 - Financial responsibility
 - Look at IFRS-9, do you have to report anything?
- Communication with Counterparty & Internal Stakeholders
 - Upcoming collateral obligations – could lead to an Event of Default if not provided
 - Always operate according to the PPA
- Protect the value of the Security
 - Continual reporting on credit exposure by project entity, with and without collateral
- Assist in determination of future contract changes
- Maintain Credibility
 - Manage the perspective of credit risk by offering solutions and not problems, the biggest risk is taking none at all
 - Operate with complete transparency internally

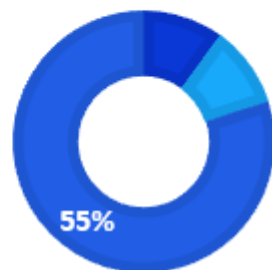
GROSS EXPOSURE

■ Ex - A ■ Ex - B ■ Ex - C



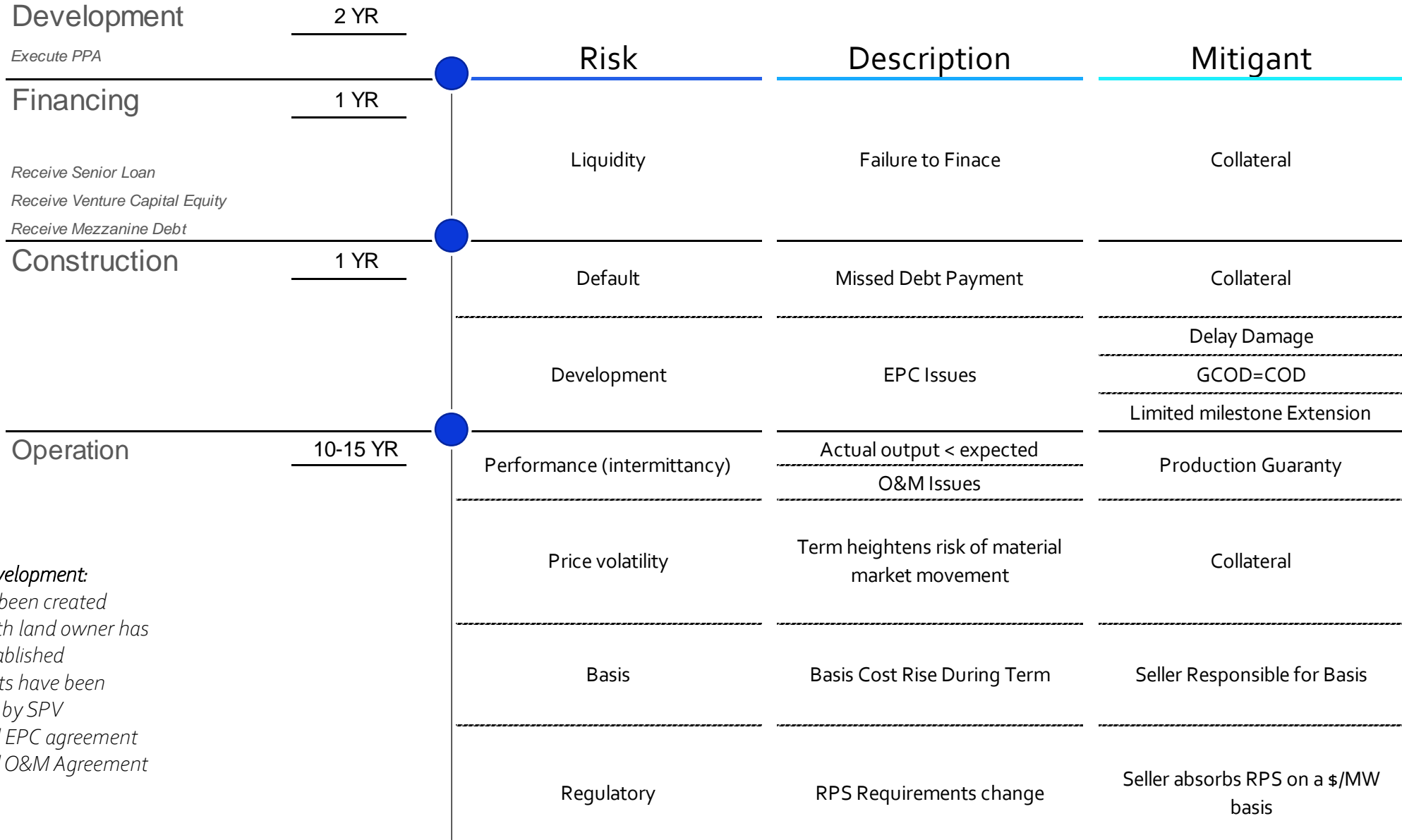
PERCENTAGE

■ Ex - A ■ Ex - B ■ Ex - C



Wholesale Electricity - Shift in Fuels

Risk transition through life of PPA

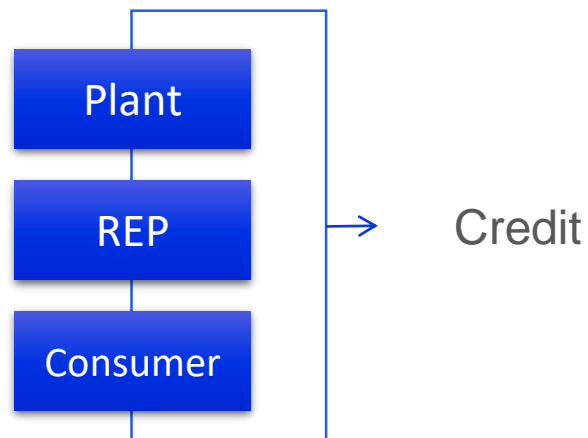
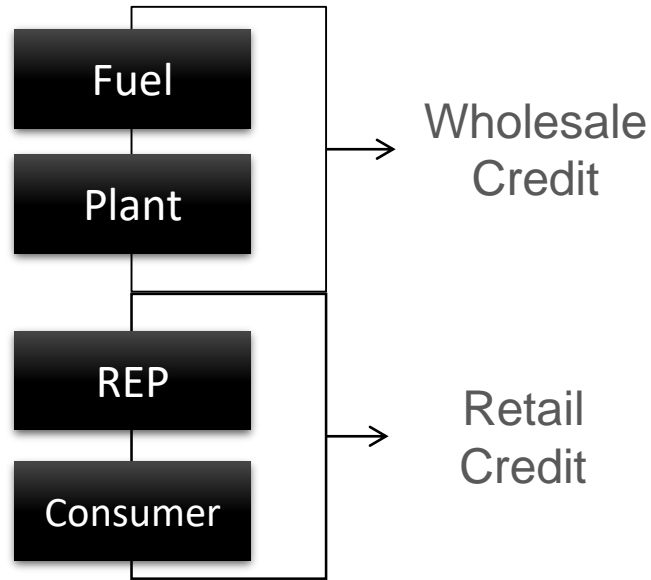


Assumes in Development:

1. SPV has been created
2. Lease with land owner has been established
3. All permits have been obtained by SPV
4. Executed EPC agreement
5. Executed O&M Agreement

Organizational Structure and Resources

Credit Impact



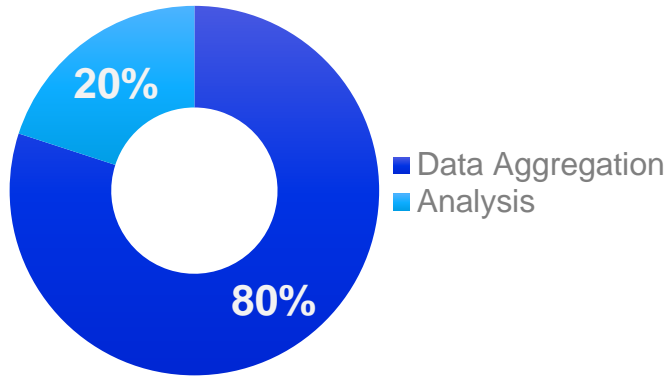
● Single Credit team where analyst will be:

- Subject Matter Experts
 - Related to wholesale procurement contract, Renewable offtake contracts, Consumer electricity supply contracts, and their adjudication, as well as collaterals contingent and non-contingent
- Analytics
 - Capable of deal analytics, valuations & accounting practices required during the pre-execution of PPA's, ESA's, ETC.
 - Bloomberg Data
 - Marketview Data
- Data Visualization required for Reporting
 - Used to adhere to their responsibilities post-execution
 - Power BI, Spotfire, Tableau
 - SQL, Oracle
- System/Technical knowledge
 - Well versed in computer science and related terminology
 - Process mapping and data flows

Data and Technology

Credit Impact

Analysts Time



Enterprise Credit Platform

- Standardized Onboarding
 - Minimum data requirements used to gather data
- Automated Data Gathering
 - Through Application Program Interfaces (API)
 - An interface that a machine uses to expose programs to an application's data
 - Through SFTP/FTP
- Systematic Data Validation
 - Matching criteria, that only returns a result if a given confidence is met
- Programed Data Categorization
- Standardized Application Layers
- Adequate data storage in SQL/Oracle – on/off prim

What to Look for?

Credit Perspective



- Transfer of Generation
- Potential Credit Organizational Restructure
- Changing the Perspective of Credit Risk
- Additional Skills Required by Credit Analyst
- Enterprise Credit Platform Implementation