



July 26, 2017

RE: Request for Proposals for Long-Term Contracts for Clean Energy Projects  
Ash Solar Project

In response to the Massachusetts Distribution Companies' Request for Proposals for Long-Term Contracts for Clean Energy Projects, Allco Finance Limited is pleased to offer Clean Energy Generation from the 20.0 MW AC Ash Solar Project (Project), a new Class I RPS Eligible Resource. The Clean Energy Generation from Ash Solar will be sold through a Power Purchase Agreement with a 20 year term.

Please direct any questions regarding this proposal or the pricing to me by either e-mail or phone.  
Thank you in advance for the opportunity and for your consideration.

Sincerely,

A handwritten signature in black ink, appearing to read 'Christopher Little'.

Christopher Little  
(651) 268-2053

[chris.little@ecosrenewable.com](mailto:chris.little@ecosrenewable.com)

**ASH SOLAR PROJECT  
ALLCO FINANCE LIMITED**

**In Response to the Massachusetts  
Clean Energy RFP**



**Submitted July 26, 2017**

## **1. Certification, Project and Pricing-Credit Data Form**

Please reference the enclosed Certification, Project and Pricing-Credit Data Excel workbook for Pricing and other Project information.

## **2. Executive Summary**

*The bidder is required to provide an executive summary of the project proposal that includes a complete description of the proposed generation and/or transmission bid, the proposed contract term and pricing schedule, and other factors the bidder deems to be important.*

In response to the Massachusetts Request for Proposals for Long-Term Contracts for Clean Energy Projects (“RFP”) Allco Finance Limited (“AFL”) is pleased to propose the 20MW Ash Solar Project (the “Project”). The proposed Project presents a unique opportunity to help the Commonwealth of Massachusetts (“Commonwealth”) meet its Global Warming Solutions Act (“GWSA”) goals, while also maximizing the contribution to ISO-NE’s forward capacity market (“FCM”), which is inherently difficult to accomplish with solar generation on its own. The Project achieves these goals by [REDACTED]

[REDACTED] photovoltaic solar generating facility. The resulting Project is a clean renewable energy facility capable of delivering 18 MWs of qualified capacity during ISO-NE Summer Intermittent Reliability Hours<sup>1</sup> and [REDACTED] MWs of qualified capacity during the ISO-NE Winter Intermittent Reliability Hours<sup>2</sup>. In addition to maximizing the contribution toward ISO-NE’s FCM, the Project’s [REDACTED]

The Project is located on an industrially zoned parcel of land in the Town of [REDACTED] owned by [REDACTED] National Grid. The Project will deliver its output through a dedicated [REDACTED] transformer. Based upon the interconnection study prepared by [REDACTED] attached as Exhibit “C”, the Project will not create any voltage, thermal or capacity problems. The [REDACTED] MW output from the Ash Solar Project without the need for upgrading, replacing or adding an additional transformer. The ISO-NE 2020 summer peak load flow model and associated contingency files were used in preparing this study.

Construction of the Ash Solar Project is dependent upon (i) DPU approval of a Long-Term Contract, (ii) execution of an Interconnection Agreement with ISO-NE, and (iii) successfully obtaining land use entitlements from the Town of [REDACTED]. AFL is anticipating that the project will achieve commercial operation on or before December 1<sup>st</sup>, 2020, however, it’s AFL’s goal to bring the Project to commercial operation prior to December 1, 2019.

AFL will leverage its experience and technical expertise in the solar energy industry, along with its sources of capital, equipment and services to develop, construct and operate the Project in a competitive, cost effective manner. AFL has access to solar equipment from top-tier manufacturers at preferred prices and a line of credit for construction and permanent financing from its lender to finance the Project at competitive rates. AFL develops, constructs and finances solar energy projects at the most competitive prices in the industry (when factoring in the cost of

---

<sup>1</sup> Hours ending 1400 through 1800, June through September

<sup>22</sup> Hours ending 1800 and 1900, October through May

██████████), which translates to superior energy prices for Massachusetts customers. As the Project is located in Massachusetts, it will promote local investment and increase the tax base to a much greater degree than out-of-state proposals.

If selected under this RFP, AFL will obtain all appropriate land use entitlements, permits and approvals from the required local and State regulatory offices necessary to construct the Project. The Project has a low level of regulatory and permitting risk since the project site is zoned light-industrial and is completely surrounded by industrially zoned land and uses. The project site plan and location is also consistent with the Town of ██████████ bylaws for solar. The Project site is ideal for solar development, and lower public opposition to the minimally intrusive design of solar facilities enhances the likelihood of achieving commercial operations.

The Ash Solar Project will deliver clean, on-peak renewable power to Massachusetts customers at a cost-effective and stable price. We appreciate the opportunity to present this proposal and look forward to discussing the proposal in further detail.

### **3. Operational Parameters**

#### **3.1 Maintenance Outage Requirements**

*Specify partial and complete planned outage requirements in weeks or days for all generation facilities and transmission facilities. Also, list the number of months required for the cycle to repeat (e.g., list time interval of minor and major overhauls, and the duration of overhauls).*

The Ash Solar Project will require minimal maintenance. In contrast to other renewable technologies such as hydroelectricity and wind, utility-scale fixed tilt solar photovoltaic projects have few moving parts. The proposed Project does not require any planned maintenance events that would significantly limit operation of the plant as any planned maintenance activities would either take place during non-daylight hours or would be performed on small portions of the facility that would be non-operational while the rest of the system was producing energy. In the event of unplanned maintenance, the modular nature of solar facilities will result in a lesser reduction of power supplied to the grid than other technologies.

Transmission and system-wide maintenance events would affect availability for the entire Ash Solar Project, but are projected to be minimal. When possible, efforts will be taken to ensure such transmission maintenance events are scheduled during a time that minimizes impact to Project availability.

#### **3.2 Operating Constraints**

*Specify all the expected operating constraints and operational restrictions for the project (i.e., limits on the number of hours a unit may be operated per year or unit of time). If the bid includes firm deliveries, list the anticipated situations and frequency of interruptions of transmission sources which would affect power deliveries.*

Aside from the intermittent generating nature of photovoltaic solar projects, there are no operational constraints for the project since the facility will generate energy whenever it receives sunlight. The full resource assessment and 12x24 production can be found in the attached PVSyst report. AFL does not anticipate any operating restrictions arising from environmental or other regulatory requirements.

### 3.3 Reliability

*Describe how the proposal would provide enhanced electricity reliability to Massachusetts, including its impact on transmission constraints.*

The Ash Solar Project has been designed specifically to assist the Commonwealth with meeting its GWSA goals, while also enhancing the Commonwealth's electric reliability. Solar PV generation typically cannot accomplish these two goals on its own since a solar facility's generation profile doesn't typically align with ISO-NE peak demand periods in the summer and winter.

[REDACTED]

The Project's qualifying capacity will help ensure that the New England Power System will have sufficient resources to meet the future demand for electricity, specifically during peak demand periods, thus significantly enhancing the electric reliability to the Commonwealth and its residents.

### 3.4 Moderation of System Peak Load

*Moderation of System Peak Load – Describe how the proposal would contribute to moderating system peak load requirements and provide the following information: i) Estimated average output for each summer period (June- September) from 1:00 - 6:00 pm ii) Estimated average output for each winter period (October-May) from 5:00 – 7:00 pm*

The Ash Solar Project will contribute to moderating peak system load by [REDACTED]

[REDACTED]

[REDACTED]

During the summer peak hours of 1:00 – 6:00pm (June – September), as provided in the RFP, the Project is estimated to output an average of [REDACTED] MWs during each hour. During the ISO-NE Summer Peak Period (HE 1400 – 1800), the Project's output would [REDACTED] MW during each hour. During the winter peak hours of 5:00 – 7:00pm (October – May), as provided for in the RFP, the Project is estimated to output an average [REDACTED] during each hour. During the ISO-NE Winter Peak Period (HE 1800 and 1900), the Project's output would [REDACTED] during each hour.

The peak periods in this RFP begin and end one hour earlier than the summer peak periods for Intermittent Power Resources as provided in ISO-NE Market Rule 1, III.1.2.2.2.1 and they begin one hour earlier and end hour later than the winter peak periods for Intermittent Power Resources as provided in III.1.2.2.2.2. [REDACTED]

### 3.5 Development Stage of Facility

*(a) If in operation, when did the project achieve commercial operation (b) If in construction, when did construction commence and what are the projected dates for initial testing and commercial operation. (c) If the project is partly in one development stage and partly in another, please explain in detail the status of the project.*

The Project is in the development phase but no construction activities have been initiated. The Project would be new construction, not an expansion, repowering, or modification of an existing facility. [REDACTED]

## **4. Energy Resource and Delivery Plan**

### 4.1 Energy Resource Plan

*Provide an assessment of the available solar incidence or resource. Describe any trends in generation capability over time (i.e., annual decline rate of expected output). Describe the methodology used to generate the projected generation and describe the in-house or consulting expertise used to arrive at the generation estimates*

AFL used standard industry modeling software PVSyst and TMY3 meteorological datasets from [REDACTED], which were obtained from the National Renewable Energy Laboratory's National Solar Radiation Data Base to estimate facility production. A number

of variables were taken into consideration in the model including the specific equipment manufacturers as well as various loss factors such as soiling, snow cover, transformer losses, temperature (heat) losses, ohmic wiring losses, inverter losses and module mismatch losses. The Production modeling was prepared internally by AFL, however, when preparing the model AFL incorporated inputs and loss variables that are consistent with what an independent engineer would use when preparing a production model on behalf of a bank for financing purposes. Since AFL has financed 17 solar facilities, it is very familiar with the methods used to prepare a production forecast that would be financeable. We have found that our internal energy production forecasts are typically within 1% of a bank's 3<sup>rd</sup> party independent engineer's reports.

Please reference enclosed PVSyst report for an assessment of the available solar resource. The report forecasts a 0.5% annual degradation rate in generation capability over the life of the project. [REDACTED]

#### 4.2 Clean Energy Generation Delivery Plan

*Please provide an energy delivery plan and profile for the proposed project, including supporting documentation. The energy delivery profile must provide the expected Clean Energy Generation to be Delivered into the ISO-NE market settlement system and permit the Evaluation Team to determine the reasonableness of the projections for purposes of Sections 2.2.1.3 Eligible Bid Categories and 2.2.1.7 Minimum Contract Size of the RFP. Such information should be consistent with the energy resource plan provided above and also considering any and all constraints to physical delivery into ISO-NE.*

Please reference the enclosed PVSyst Report as well as the generation profile provided in the Certification, Project and Pricing Data (CPPD) spreadsheet. [REDACTED]

#### 4.3 REC/Environmental Attribute Delivery Plan

*Please provide documentation demonstrating that the project will Deliver GIS Certificates representing those RECs or Environmental Attributes. For projects located outside of the ISO-NE control area, describe how the Delivered energy and associated RECs or Environmental Attributes will satisfy NEPOOL-GIS rules for the Delivery of GIS Certificates.*

As the Project is in the development phase the facility asset has not been registered in the NEPOOL system. Should the Project be selected, AFL will obtain all necessary regulatory approvals required to provide Massachusetts RPS compliant NEPOOL-GIS certificates to the Distribution Company's NEPOOL GIS account. AFL currently has a [REDACTED] so it is familiar with the process or



registering a project and automatically delivering RECs into the NEPOOL GIS system. The Project will incorporate qualifying meters, CTs and monitoring systems to comply with NEPOOL requirements so that all RECs delivered into the GIS system will qualify.

## **5. Financial/Legal**

### **5.1 Long Term Contract**

*Each bidder is required to submit information and documentation that demonstrates that a long term contract resulting from this RFP Process would either permit the bidder to finance its proposal that would otherwise not be financeable, or assist the bidder in obtaining financing of its proposal.*

AFL' will provide 20% of the funding required to procure all necessary equipment and labor to construct the proposed Project and the remaining 80% would be provided through AFL's construction line of credit with [REDACTED] The financing is contingent on obtaining a long-term agreement such as the one that would be obtained through this RFP. Upon achieving commercial operation, AFL will leverage its existing sale-leaseback facility with [REDACTED] for permanent financing. AFL would continue to operate the Project through the life of the PPA.

### **5.2 Business Entity Structure/Financing Plan**

*Please provide a description of the business entity structure of the bidder's organization from a financial and legal perspective, including all general and limited partners, officers, directors, managers, members and shareholders, involvement of any subsidiaries supporting the project, and the providers of equity and debt during project development. Provide an organization chart showing the relationship between the equity and debt participants and an explanation of the relationships. For jointly owned facilities, identify all owners and their respective interests, and document the Bidder's right to submit a binding proposal.*

The Ash Solar Project is owned in its entirety by Allco Finance Limited, a Delaware corporation.

[REDACTED]

[REDACTED] Please see the attached organizational chart for a visual representation of the companies' structure.

### **Ecos Energy LLC**

Ecos Energy LLC ("Ecos") employees specialize in the development, construction and operation of photovoltaic ("PV") solar projects, solar resource assessment, finance, land acquisition, title services, environmental permitting, energy policy, and utility planning. Ecos Energy is headquartered in Minneapolis, and all correspondence related to this Request for Proposals

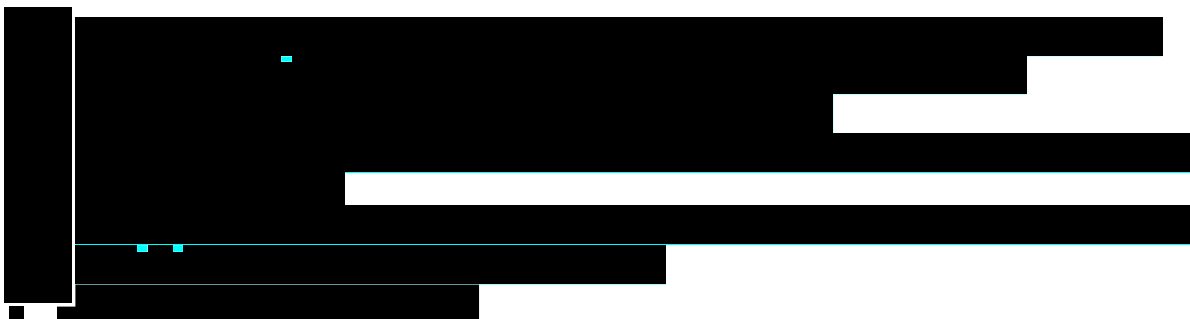
should be directed to the following:

Ecos Energy LLC  
Attn: Chris Little, Director of Development  
222 South Ninth Street, Suite 1600  
Minneapolis, MN 55402  
Chris.little@AFLrenewable.com

### **Allco Finance Limited**

Allco is a New York-based renewable energy company with investment banking and project development capabilities, providing investment to and arranging financing for renewable energy companies and projects across the United States. Allco group companies have provided or arranged investment and financing for assets, projects and companies in the aviation, rail, high technology, water/wastewater, and energy sectors. Allco's primary focus is now in the renewable energy sector.

ALLCO's professionals have extensive past experience with the financing of assets in the energy sector, including:



*For projects that include new facilities or capital investment, provide a description of the financing plan for the project, including construction and term financing. The financing plan should address the following: i. Who will finance the project and the related financing mechanism or mechanisms that will be used (i.e. convertible debenture, equity or other) including repayment schedules and conversion features B-9 ii. The project's existing initial financial structure and projected financial structure iii. Expected sources of debt and equity financing iv. Estimated construction costs v. The projected capital structure vi. Describe any agreements, both pre and post commercial operation date, entered into with respect to equity ownership in the proposed project and any other financing arrangement.*

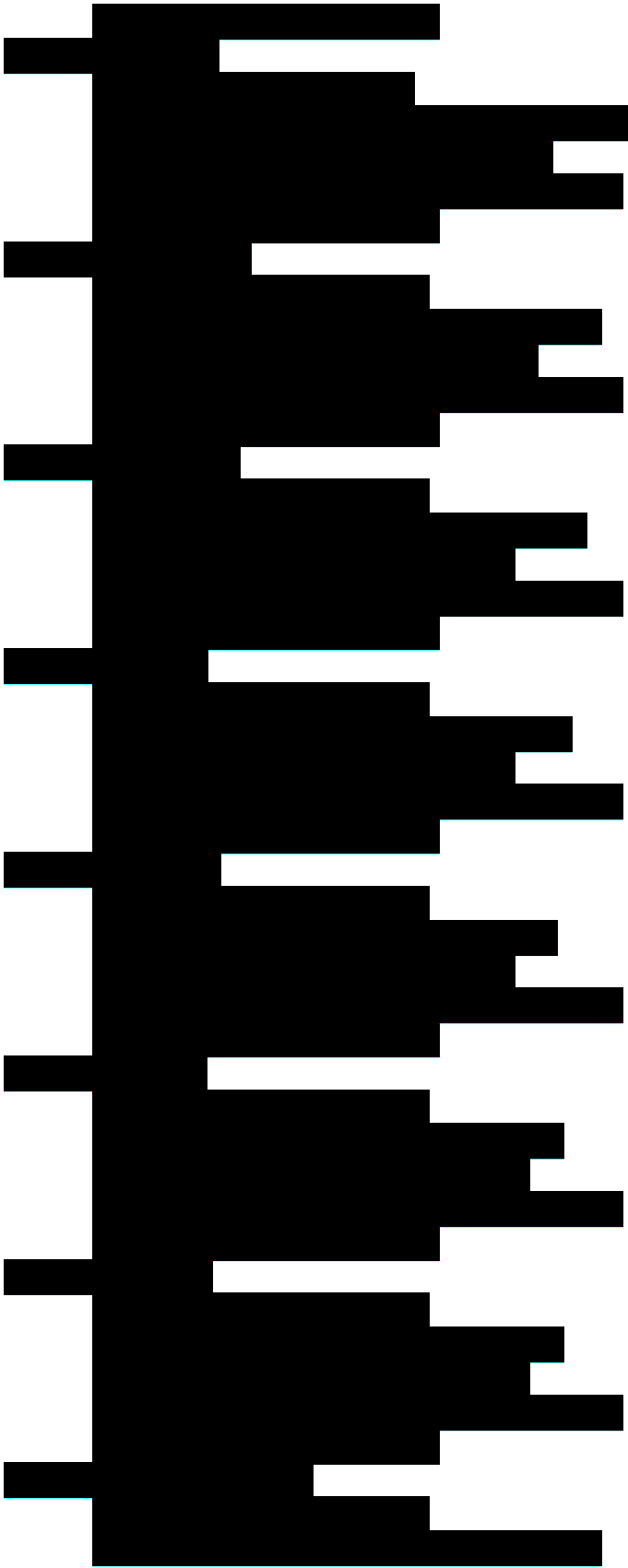
Development of the Ash Solar Project will be funded entirely by AFL. Construction and equipment procurement will be funded through a combination of equity from AFL (20%) and construction debt from [REDACTED] (80%) through a construction line of credit. Upon achieving commercial operation, AFL will leverage its existing sale-leaseback or term loan facility with [REDACTED] for long-term financing. Under the sale-leaseback facility, [REDACTED] will purchase the Project from AFL and lease it back to AFL for a prescribed period of time. [REDACTED] would acquire all tax attributes, including the ITC, as part of a sale-leaseback transaction. If AFL elects to leverage a term loan to finance the project, then [REDACTED] or another qualified bank would provide debt under a loan, which would be sized [REDACTED]

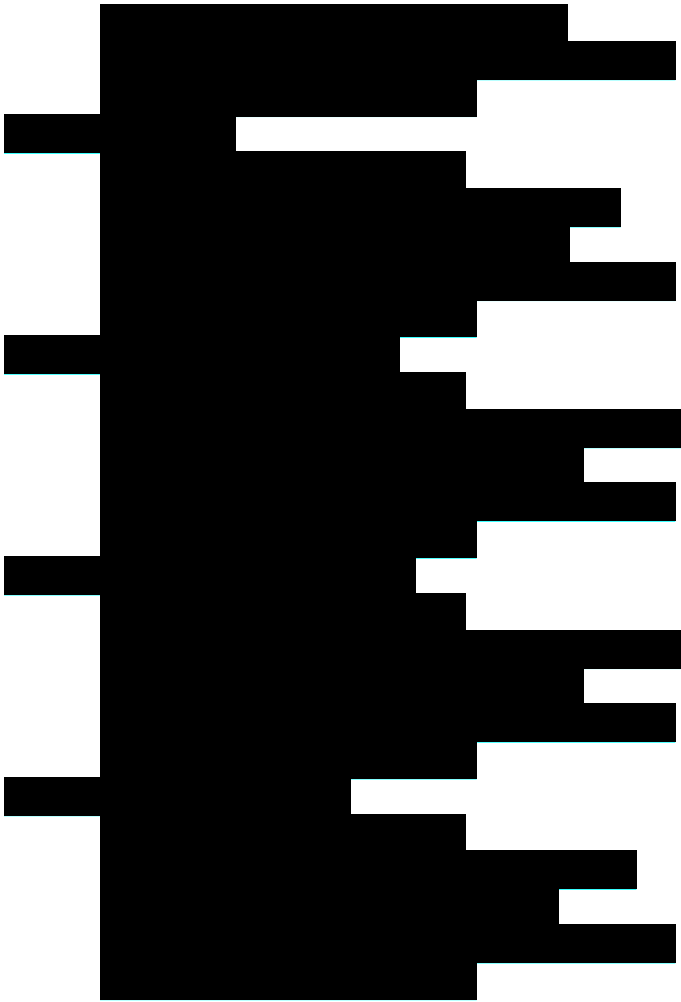
### 5.3 Financing Project Experience

*Provide documentation illustrating the experience of the project sponsor in securing financing for projects of similar size and technology. For each project previously financed provide the following information: i. Project name and location ii. Project type and size iii. Date of construction and permanent financing iv. Form of debt and equity financing v. Current status of the project*

AFL has successfully financed 17 solar projects since 2013, all of which AFL continues to operate to this day. Four of the 17 solar projects were financed through a term loan with [REDACTED], while also leveraging the 1603 cash grant program. One of the projects was financed through new market tax credits while also leveraging the 1603 cash grant program. The remaining 12 projects were financed through AFL's sale-leaseback facility. Below is a complete list of projects owned or operated by AFL and the financing details for each (all projects are PV solar):

1) [REDACTED]





#### 5.4 Financial Resources

*For projects that include new facilities or capital investment, provide evidence that the bidder has the financial resources and financial strength to complete and operate the project as planned.*

The Project being considered under this proposal is similar in financial scope, on an aggregate basis, to the numerous projects AFL has developed and constructed in the past. The funding for the construction and equipment for each of the 17 solar projects built and operated by AFL was provided entirely by AFL. Since the size of this project is larger in scope, AFL will be leveraging its construction line of credit with [REDACTED], along with its own cash, to fund the construction and equipment procurement for the project.

#### 5.5 Audited Financials

*Provide complete copies of the most recent audited financial statement or annual report for each bidder for each of the past three years; including affiliates of the bidder (if audited statements are not available, reviewed or compiled statements are to be provided). Also, provide the credit*

*ratings from Standard & Poor's and Moody's (the senior unsecured long term debt rating or if not available, the corporate rating) of the bidder and any affiliates and partners.*

See Exhibit "L" for audited financial statements for Allco Finance Limited for each of the past three years.

#### 5.6 Board of Directors

*Please also include a list of the board of directors, officers and trustees for the past three years and any persons who the bidder knows will become officers, board members or trustees.*

Thomas Melone is the sole member and President of Allco Finance Limited and Allco Renewable Energy Limited.

#### 5.7 Required Security

*The bidder should demonstrate its ability (and/or the ability of its credit support provider) to provide the required security, including its plan for doing so.*

Bidder shall post 50% of the Security (\$200,000, at \$20,000.00 per MW) at the time of contract execution. Bidder will provide remaining 50% of the Security following regulatory approval of the contract. AFL has more than sufficient cash on hand to pay the required security..

#### 5.9 Federal Production Tax Credit/Investment Tax Credit

*Describe the role of the Federal Production Tax Credit or Investment Tax Credit (or other incentives) on the financing of the project.*

AFL anticipates using its sale-leaseback facility with [REDACTED] as permanent financing for the project. As part of the sale-leaseback transaction, [REDACTED], will acquire all of the tax attributes generated by the proposed Project, including the federal Investment Tax Credits (ITC) and all depreciation. The financial viability of the Project is dependent on the ITC.

#### 5.10 Pending Litigation – Projects

*Bidders must disclose any pending (currently or in the past three years) litigation or disputes related to projects developed, owned or managed by Bidder or any of its affiliates in the United States, or related to any energy product sale agreement.*

Allco Finance Limited and affiliates have been involved in a various litigation involving PURPA, which is widely known, including a case pending in the First Circuit Court of Appeals against National Grid and the DPU. PURPA related cases that are currently pending or have occurred in the past three years include litigation in Massachusetts, Connecticut, Vermont, California and New Mexico. Allco is also involved in permitting litigation in Vermont with respect to a solar project. Allco Finance Limited and affiliates have also been involved in property tax disputes in

Indiana, Georgia, and California.

#### 5.11 Operating Life

*What is the expected operating life of the proposed project? What is the depreciation period for all substantial physical aspects of the bid, including generation facilities, transmission lead lines to move power to the grid, transmission proposals, and mandatory and voluntary transmission system upgrades?*

The expected operating life of the Project for financing purposes is thirty-five years.

#### 5.12 Project Financing Status

*For projects that include new facilities or capital investment, has the bidder already obtained financing, or a commitment of financing, for the project? If financing has not been obtained, explain how obtaining a long-term agreement as proposed will help you in obtaining financing for the proposed project, in obtaining more favorable terms for the financing of the proposed project, or in supporting the future capital investment.*

Since the Project does not currently have long-term off-take secured for the energy, RECs and capacity, AFL has not secured financing or a commitment of financing. A long-term agreement as proposed is required to obtain the necessary construction and permanent financing for the Project.

#### 5.13 Project Executed Agreements

*State whether the bidder or its affiliates have executed agreements with respect to energy, RECs and/or capacity for the project (including any agreements that have been terminated) and provide information regarding the associated term and quantities, and whether bidder has been alleged to have defaulted under or breached any such agreement.*

Bidder currently has not executed agreements with respect to energy, RECs, and/or capacity for this Project.

#### 5.14 Bidder Affiliated Entities

*List all of the Bidder's affiliated entities and joint ventures transacting business in the energy sector.*

Please reference Section 5.2 for description of Bidder and affiliated entities.

#### 5.15 Bankruptcy

*Has Bidder, or any affiliate of Bidder, in the last five years, (a) consented to the appointment of, or was taken in possession by, a receiver, trustee, custodian or liquidator of a substantial part of its assets, (b) filed a bankruptcy petition in any bankruptcy court proceeding, (c) answered,*

*consented or sought relief under any bankruptcy or similar law or failed to obtain a dismissal of an involuntary petition, (d) admitted in writing of its inability to pay its debts when due, (e) made a general assignment for the benefit of creditors, (f) was the subject of an involuntary proceeding seeking to adjudicate that Party bankrupt or insolvent, (g) sought reorganization, arrangement, adjustment, or composition of it or its debt under any law relating to bankruptcy, insolvency or reorganization or relief of debtors?*

Neither the Bidder nor its affiliates have (a) consented to the appointment of, or was taken in possession by, a receiver, trustee, custodian or liquidator of a substantial part of its assets, (b) filed a bankruptcy petition in any bankruptcy court proceeding, (c) answered, consented or sought relief under any bankruptcy or similar law or failed to obtain a dismissal of an involuntary petition, (d) admitted in writing of its inability to pay its debts when due, (e) made a general assignment for the benefit of creditors, (f) was the subject of an involuntary proceeding seeking to adjudicate that Party bankrupt or insolvent, (g) sought reorganization, arrangement, adjustment, or composition of it or its debt under any law relating to bankruptcy, insolvency or reorganization or relief of debtors.

#### 5.16 Conflicts of Interest

*Briefly describe any known conflicts of interest between Bidder or an affiliate of Bidder and any Distribution Company, or any affiliates of the foregoing.*

Bidder is not aware of any conflicts of interest between Bidder and its affiliates or any Distribution Company and their affiliates.

#### 5.17 Bidder Litigation Affecting Sale of Energy

*Describe any litigation, disputes, claims or complaints involving the Bidder or an affiliate of B-11 Bidder, against any Distribution Company or any affiliate of any Distribution Company.*

Allco Finance Limited and affiliates have been involved in PURPA litigation in Massachusetts against National Grid, and in Connecticut against Eversource.

#### 5.18 Contract Obligations

*Describe any litigation, disputes, claims or complaints, or events of default or other failure to satisfy contract obligations, or failure to deliver products, involving Bidder or an affiliate of Bidder, and relating to the purchase or sale of energy, capacity or renewable energy certificates or products.*

Bidder is not aware of any litigation, disputes, claims or complaints, or events of default or other failure to satisfy contract obligations, or failure to deliver products, involving Bidder or an affiliate of Bidder, and relating to the purchase or sale of energy, capacity or renewable energy certificates or products.



### 5.19 Bidder Confirmation

*Confirm that Bidder, and the directors, employees and agents of Bidder and any affiliate of Bidder are not currently under investigation by any governmental agency and have not in the last four years been convicted or found liable for any act prohibited by State or Federal law in any jurisdiction involving conspiracy, collusion or other impropriety with respect to bidding on any contract, or have been the subject of any debarment action (detail any exceptions).*

Bidder hereby confirms that Bidder and its directors, employees, agents and any affiliate of Bidder are not currently under investigation by any governmental agency and have not in the last four years been convicted or found liable for any act prohibited by State or Federal law in any jurisdiction involving conspiracy, collusion or other impropriety with respect to bidding on any contract, or have been the subject of any debarment action.

### 5.20 Regulatory Approvals

*Identify all regulatory and other approvals needed by Bidder to execute a binding sale agreement.*

The siting of utility-scale ground-mounted solar photovoltaic projects in Massachusetts is mainly administered at the local level. The local Conservation Commission will administer the state's Wetlands Protection Act. The municipality has zoning authority and will be involved should the presence of endangered or rare species be identified onsite. Bidder will consult with MESA and NEHSP should the presence of rare or endangered species be detected onsite. Bidder will submit an application to the Massachusetts Historical Commission and conduct archaeological surveys if required by the MHC.

The Project will seek regulatory approval through the ISO-NE's Schedule 22 Tariff.

### 5.21 Affiliate Relationships

*Describe and document any and all direct and indirect affiliations and affiliate relationships, financial or otherwise in the past three years between the bidder and one or more of the Distribution Companies and their affiliates, including all relationships in which one of the Distribution Companies has a financial or voting interest (direct or indirect) in the bidder or the bidder's proposed project.*

Bidder is not aware of any direct or indirect affiliations/affiliate relationships between Bidder and any of the Distribution Companies and their affiliates.

## **6. Siting, Interconnection and Deliverability**

### 6.1 Site Plan

*Provide a site plan including a map of the site that clearly identifies the location of the Eligible*

*Facility site and/or Transmission Project route, the assumed right-of-way width, the total acreage for Eligible Facilities, the anticipated interconnection point, and the relationship of the site to other local infrastructure, including transmission facilities, roadways, and water sources. In addition to providing the required map, provide a site layout plan which illustrates the location of all major equipment and facilities on the site.*

Please reference the enclosed preliminary Site Plan.

## 6.2 Evidence of Site Control

*Identify any real property rights (e.g., fee-owned parcels, rights-of-way, development rights or easements or leases) that provide the right to use the Eligible Facility site and/or Transmission Project route, including, for Eligible Facilities, and any rights of way needed for interconnection.*

AFL has entered into a purchase agreement to acquire the underlying real estate to support the proposed Project. The Project will interconnect to the distribution grid along [REDACTED] which is adjacent to the Project site. No additional real property rights are required for access to the Facility. AFL anticipates using existing infrastructure, right of way and poles to interconnect at the nearby [REDACTED].

## 6.3 Zoning

*Provide evidence that the Eligible Facility site and/or Transmission Project route is properly zoned or permitted. If the Eligible Facility site and/or Transmission Project route is not currently zoned or permitted properly, identify present and required zoning and/or land use designations and permits and provide a permitting plan and timeline to secure the necessary approvals.*

The Town of [REDACTED] has a zoning overlay district which applies to all districts within the Town. The proposed site, however, is zoned industrial and is completely surrounded by industrially zoned land and uses which should be viewed favorably by the Town of [REDACTED]. The design of the Project is consistent with the requirements of the zoning overlay bylaws, including setbacks, lot coverage and screening. AFL anticipates starting the local permitting process with the Town of [REDACTED] for the Project within weeks of submitting this proposal. AFL anticipates that land use entitlements with the Town of [REDACTED] will take approximately 6 to 8 months.

## 6.4 Site Description

*Provide a description of the area surrounding the Eligible Facility site and/or Transmission Project route, including a description of the local zoning, flood plain information, existing land use and setting (woodlands, grasslands, agriculture, other).*

An official address has not yet been assigned to the Site since it is vacant land, however the parcel is located near [REDACTED] parcel located in an Industrial zone as designated by the Town of [REDACTED]. The Site is currently vacant and contains no structures. The entire site is completely wooded as of this date, with approximately

2 acres of the Site comprised of wetlands. Factoring in the wetland buffers leaves approximately 74 acres of the parcel with upland areas. Topography on the site is mostly level and minimal grading will be required to construct the Facility. The land use of adjacent parcels varies, with a majority of abutters consisting of uncleared vacant land. Other uses include commercial and residential uses northwest of the site, however, the site is completely surrounded by industrially zoned land.

#### 6.5 Interconnection Path

*For Eligible Facilities, describe and provide a map of the proposed interconnection that includes the path from the generation site to the ISO New England Inc. ("ISO-NE") Pool Transmission B-13 Facilities ("PTF"). Describe how the bidder plans to gain interconnection path site control.*

The Project will interconnect to [REDACTED] by way of a dedicated [REDACTED]. The dedicated transmission circuit will utilize existing poles and road right of way and will not require additional site control to construct.

#### 6.6 Interconnection Status

*Please describe the status of any planned interconnection to the grid. Has the bidder made a valid interconnection request to ISO-NE, the applicable New England Transmission Owner, or any neighboring control areas, to interconnect at the Capacity Capability Interconnection Standard? Have any studies been completed by ISO-NE or the applicable Transmission or Distribution Owner? If multiple interconnection requests have been made, please specify all such active requests which have not been superseded by subsequent requests and information regarding the status of each. Provide copies of any requests made and studies completed. Describe how such studies and information support the costs assumed in preparing your bid and the associated timeline proposed.*

Bidder has submitted a valid interconnection request to ISO-NE to interconnect at the Capacity Capability Interconnection Standard. A copy of the interconnection application is enclosed with this proposal. ISO-NE has not completed any studies related to this application.

#### 6.7 EPS Impact

*Describe the Project's electrical system performance and its impact to the reliability of the New England Transmission system. For Transmission Projects provide a description of how the project would satisfy ISO NE's I.3.9 requirements. Provide the status of any interconnection studies already underway with ISO-NE and/or the transmission owner. Provide a copy of any studies completed to date. Provide a copy of an interconnection agreement, if any, executed by the bidder with respect to the proposed project. If an interconnection agreement has not been executed, please provide the steps that need to be completed before an interconnection agreement can be executed and the associated timeline.*

The proposed project has applied for interconnection with ISO-NE, but no studies regarding

system performance and its impact to the reliability of the New England Transmission system are available yet.

#### 6.8 Technical Reports/System Impact Studies

*Projects that do not have I.3.9 approval from ISO-NE must include technical reports or system impact studies that approximate the ISO-NE interconnection process, including but not limited to clear documentation of study technical and cost assumptions, reasoning, and justification of such assumptions. All studies must assume the project will interconnect using the Capacity Capability Interconnection Standard, must use the current ISO-NE interconnection process (including network impact scenarios from multiple projects interconnecting), and must also detail any assumptions with respect to projects ahead of the proposed project in the ISO-NE interconnection queue and any assumptions as to changes to the transmission system that differ from the current ISO-NE Regional System Plan. Please include a scenario analysis that shows how changes in the project interconnection queue could impact interconnection costs.*

The Project does not currently have I.3.9 approval from ISO-NE. Please reference the enclosed interconnection study prepared by [REDACTED]. The study was conducted to determine the thermal or voltage network impacts for the proposed Project interconnecting to the [REDACTED]. The results of the study did not identify any voltage, thermal or capacity problems with delivery into the [REDACTED]. The retirement of the Brayton and Pilgrim Generation Units did not have any further impact.

#### 6.9 Alternative Interconnection Scenario

*To the extent that you provide an alternative interconnection scenario based on ISO-proposed interconnection process changes, you must also include studies using the proposed ISO-NE proposed process. Any such studies must be accompanied with clear documentation of study technical and cost assumptions, reasoning, and justification of such assumptions.*

Bidder is not proposing an alternative interconnection scenario.

#### 6.10 Electrical Models

*Provide the electrical models of all energy resources supporting the proposed project in accordance with the filing requirements of the ISO-NE Tariff Schedule 22 and 23.*

Please find attached with this proposal, a copy of the PSSE model (Standard Library Model) provided by the inverter manufacturer. A copy of this model has been submitted to ISO-NE in connection with the interconnection application for their studies.

#### 6.11 One Line Diagram

*Provide a copy of an electrical one-line diagram showing the interconnection facilities and the relevant facilities of the transmission and/or distribution provider.*

A copy of the one-line diagram is attached with this proposal.

#### 6.12 Interconnection Facilities

*Specify and describe the current or new interconnection facilities (lines, transformers, switching equipment, system control protection, etc.) that bidder owns or is intending to construct or have constructed in order to deliver the proposed energy*

AFL anticipates using the existing [REDACTED]  
[REDACTED]. If required, Bidder will intend to construct a [REDACTED].

#### 6.13 Transmission Facilities Data Requirements

*Incremental data requirements for Projects that include Transmission facilities*

The Project does not anticipate use of Transmission Facilities.

#### 6.14 Energy Delivery Constraints

*Please detail with supporting information and studies (as available) that the energy contemplated in your proposal is able to be delivered to the Distribution Companies without material constraint or curtailment.*

Please reference the enclosed interconnection study prepared by [REDACTED].

#### 6.15 Transmission Facilities Data Requirements

*Please provide sufficient information and documentation to demonstrate that the proposed point of delivery into ISO-NE, along with their proposed interconnection and transmission upgrades including any transmission upgrades beyond the point of interconnection, is sufficient to ensure full dispatch of the proposal's Clean Energy Generation profile.*

Please reference the enclosed interconnection study prepared by [REDACTED].

## **7. Environmental Assessment, Permit Acquisition Plan and New Class 1 RPS Certification**

### 7.1 Permit List

*Provide a list of all the permits, licenses, and environmental assessments and/or environmental impact statements required. If a bidder has secured any permit or has applied for a permit, please*

*identify in the response. i. Provide a list of all Federal, state and local permits, licenses, and environmental assessments and/or environmental impact statements required to construct and B-15 operate the project. ii. Identify the governmental agencies that will issue or approve the required permits, licenses, and environmental assessments and/or environmental impact statements*

The Project has been designed to avoid any impacts to sensitive plant or wildlife species or the associated habitats. The below permitting studies will be performed to identify the potential for any sensitive species or habitat:

- 1) Phase I Environmental Site Assessment
- 2) Wetlands Report
- 3) Priority Habitat of Rare Species Review

The siting of utility-scale ground-mounted solar photovoltaic projects in Massachusetts is mainly administered at the local level. The municipality has zoning authority and will be involved should the presence of endangered or rare species be identified. Bidder does not anticipate that the site contains habitat for any rare or endangered species. If such species are present onsite, discussion with MESA and NEHSP will be initiated and Bidder shall file an Environmental Notification Form and Environmental Impact Report.

The Project will obtain an Electrical Permit and Building Permit from the Town of Ashburnham, which will also govern any wetland impacts through its Conservation Commission. The Project will adhere to the Town's Large-Scale Ground-Mounted Photovoltaic Installations Bylaws, including all Site Plan Review requirements.

The Bidder will request review of the Facility and Site by the Massachusetts Historical Commission ("MHC"). The MHC will determine whether further review (including an archaeological survey or historic study) is necessary.

The Project is not anticipated to have an adverse impact to the water resources of the State. The Project's fixed panel solar arrays can be considered pervious groundcover. The racking provides adequate height above the ground to promote vegetative growth underneath the solar array and allow for infiltration. Natural drainage patterns and vegetal cover will be preserved throughout the project footprint by minimizing ground disturbances. Grading activities for the Facility will be minimized to the access roadway and utility trenching. All graded areas will be seeded to a low growth low maintenance meadow/native grass condition. Construction of the Facility will result in a grading disturbance of approximately ■ acres of land. Bidder will implement a storm water management plan to minimize any potential adverse environmental effects.

The following permits are anticipated to be needed for the Ash Solar Project:

- Compliance with ■ By-Laws, including site plan review and approval
- Conservation Commission review and approval
- Building Permit

- Electrical Permit
- Construction Bonding, if required
- Decommissioning Plan Approval

It's anticipated that the permitting process with the Town of [REDACTED] will take 6 to 8 months to complete.

## 7.2 Permit Timeline

*Provide the anticipated timeline for seeking and receiving the required permits, licenses, and environmental assessments and/or environmental impact statements. Include a project approval assessment which describes, in narrative form, each segment of the process, the required permit or approval, the status of the request or application and the basis for projection of success by the milestone date. All requirements should be included on the project schedule in Section 10.*

Below is the expected permitting timeline for the Ash Solar Project:

- ALTA Survey: Completed August 31, 2017
- Initial Civil Plans and Site Plan: Completed September 30, 2017
- Phase I Environmental Site Assessment: Completed August 31, 2017
- Pre-Application Meeting with Town Staff: Mid-October, 2017
- Community Outreach Meeting: Late October, 2017
- Site Plan and Conservation Commission Application to Town: November, 2017
- Public Hearing for Site Plan: January 2018
- Public Hearing for Conservation Commission: February 2018
- All approvals obtained by February 2018

## 7.3 Preliminary Environmental Assessment

*Provide a preliminary environmental assessment of the site and project, including both construction and operation, as applicable. In addition, the bidder should identify environmental impacts associated with the proposed project, any potential impediments to development, and its plan to mitigate such impacts or impediments. The analysis should address each of the major environmental areas presented below, as applicable to the proposed project: i. Impacts during site development ii. Transportation infrastructure iii. Air quality impacts iv. Access to water resources/water quality impacts v. Ecological and natural resources impacts vi. Land use impacts vii. Cultural resources viii. Previous site use (e.g., greenfield, brownfield, industrial, etc.) ix. Noise level impacts x. Aesthetic/visual impacts xi. Transmission infrastructure impacts xii. Fuel supply access, where applicable*

The Project will result in zero carbon emissions and air quality impacts as a solar photovoltaic facility. The Project will be constructed in compliance with all federal, state, and local licenses, permits, and regulations. Bidder will adhere to the Town's Large-Scale Ground-Mounted Photovoltaic Installations Bylaws, including all Site Plan Review requirements.

i. Site Development. Bidder will conduct a full environmental review, including a Phase 1

Environmental Assessment, Wetlands Report, and Habitat of Rare Species review, before initiating the permitting process. Natural drainage patterns and vegetal cover will be preserved throughout the project footprint by minimizing ground disturbances. Grading activities for the Facility will be minimized to the access roadway and utility trenching. All graded areas will be seeded to a low growth low maintenance meadow/native grass condition. Bidder will implement a storm water management plan to minimize any potential adverse environmental effects.

ii. Transportation Infrastructure. The Project will have minimal impact on transportation structure. Construction will result in local and temporary increases in traffic to the site. The Project will not alter existing roadways but will install graves access roads to reach Project facilities. Once Project construction is complete, the Site will only require 1-2 monthly visits for maintenance purposes in addition to annual module washings.

iii. Air Quality. Solar photovoltaic is a zero emission technology and hence the Project will not negatively impact air quality.

iv. Access to water resources/water quality. The Project will not require access to water resources. Bidder will implement a storm water management plan to minimize any potential adverse environmental effects.

v. Ecological and Natural Resources. Bidder will communicate with the Town of Ashburnham Conservation Commission to determine if there will be any wetland impacts. If necessary, Bidder will develop a plan in consultation with MESA and NEHSP if rare or endangered species habitat is found onsite.

vi. Land use impacts. Land use would be converted from forest to utility solar.

vii. Cultural Resources. Bidder does not anticipate any adverse impacts to cultural resources.

viii. Previous Site Use. The Site is currently unoccupied and consists mainly of woodlands.

ix. Noise Level. Construction will increase noise locally due to traffic and construction equipment. The Project itself will not generate significant (>50dB) noise.

x. Aesthetic/Visual. The Project will be screened from the road and adjacent properties and have a minimal aesthetic impact.

xi. Transmission Infrastructure. Bidder does not anticipate that the Project will result in impacts to transmission infrastructure.

xii. Fuel Supply Access. Not applicable as solar photovoltaic projects do not require fuel.

xiii. Interconnection Facilities. The Project will seek regulatory approval through ISO-NE's Schedule 22 Tariff. The Project anticipates using existing infrastructure along [REDACTED]



#### 7.4 Public Support

*Provide documentation identifying the level of public support for the project including letters from public officials, newspaper articles, etc. Include information on specific localized support and/or opposition to the project of which the bidder is aware. Provide copies of any agreements with communities and other constituencies impacted by the project, and a plan for community B-16 outreach activities, and discuss the status of that plan.*

The Project will be sited per the Town of [REDACTED] Zoning Regulations for structure setbacks and the Town of [REDACTED] Conservation Commission wetland buffer requirements. The Facility will be sited and designed so as to be a positive addition to the community by complying with local siting requirements and the Bidder will work with the Town throughout the review of the project. As the Project is early in the development stage there are currently no letters of public support. However, Bidder anticipates conducting a public outreach meeting prior to submitting any formal land use applications to the Town in order to seek feedback from the neighbors and members of the community. Since the project will be sited on an industrially zoned property, we fully expect local support for the Project.

#### 7.5 Class 1 Documentation

*For bids that include New Class I Renewable Portfolio Standard Eligible Resources, provide documentation demonstrating that the project was or will be qualified as such. If the facility is already in operation, please indicate when the facility received such qualification.*

The Project will generate renewable energy from solar power and thus will satisfy the definition of a Class 1 Renewable Portfolio Standard Eligible Resource. M.G.L. c. 25A, § 11F subsection (b) states that “solar photovoltaic or solar thermal electric energy” is a qualifying fuel source and subsection(c) stated that the Project must begin operations after “December 31, 1997”. The Ash Solar Project meets the following criteria stated in MA 225 CMR: “solar photovoltaic or solar thermal electric energy”; commercial operating date after December 31, 1997; and capacity (if any) will be claimed only in ISO-NE.

As the Project is still in the development phase it does not currently has Class 1 documentation, but Bidder will obtain certification shortly following commercial operation.

#### 7.6 REC Tracking

*All bidders must include sufficient information and documentation that demonstrates that the bidder will utilize an appropriate tracking system to ensure a unit-specific accounting of the delivery of Clean Energy Generation, to enable the Department of Environmental Protection, in consultation with DOER, to accurately measure progress in achieving the commonwealth's goals under chapter 298 of the acts of 2008 or Chapter 21N of the General Laws. The RECs and*

*environmental attributes associated with Clean Energy Generation must be delivered into the Distribution Companies' NEPOOL GIS accounts.*

Bidder has experience with REC tracking within ISO-NE (and specifically Massachusetts) and will utilize a DOER-approved DAS provider to ensure appropriate unit-specific accounting of the Clean Energy Generation. The RECs and environmental attributes will be delivered into the Distribution Company's NEPOOL GIS account.

### 7.7 Litigation

*Identify any existing, preliminary or pending claims or litigation, or matters before any federal agency or any state legislature or regulatory agency that might affect the feasibility of the project or the ability to obtain or retain the required permits for the project*

There are no existing, preliminary, or pending claims or litigations, or matters before any federal agency or any state legislature or regulatory agency that might affect the feasibility of the project or the ability to obtain or retain the required permits that are known to Bidder.

## **8. Engineering and Technology; Commercial Access to Equipment**

The 20.0MW (ac) generating array from the Project will consist of approximately [REDACTED] The major equipment that AFL plans to install for the Project will consist of the following:

[REDACTED]	[REDACTED]
	[REDACTED]
	[REDACTED]
	[REDACTED]
	[REDACTED]
	[REDACTED]

The equipment listed above is the equipment that AFL expects to utilize for the Project as of the date of this RFP, however AFL reserves the right to change any of the equipment installed for the Project at any time. AFL is making this reservation due to equipment availability and market price fluctuations that can occur over from the time this proposal is submitted until the time equipment is actually ordered.

PV solar is a mature technology, and currently there is over 1,500 MW of solar PV installed in the Commonwealth of Massachusetts (see SEIA website <http://www.seia.org/state-solar-policy/massachusetts>). All Project equipment, including solar panels, racking systems, and inverters, are new and meet industry standards for Tier 1 equipment and warranties. The equipment shall be UL listed and meet all applicable building codes. Lead times for these products from order to delivery are approximately three to six months. Long procurement

contracts are not required.

The solar modules will be ground-mounted upon a steel and aluminum racking structure. (RBI Solar) The racking system will consist of multiple rows of two modules in portrait orientation each. The racking system will be in a fixed position and will not move to track the sun throughout the day. [REDACTED] The racking system will be supported above the ground by W6X9 (or similar) galvanized steel h-beam posts that are driven directly into the ground. No concrete foundations will be required.

[REDACTED]

[REDACTED]

Output from the transformer will be connected via underground cabling to a pad-mounted fused master AC disconnect switch for the Project. This output will be connected to a pad-mounted automated recloser, which will provide automated overcurrent protection to the Project [REDACTED]

[REDACTED] before being connected to the nearby distribution circuit.

The Project's estimated average annual availability is expected to 98 percent, which is accounted for in the annual estimated energy production. The minimum specifications for the solar module production warranty are 90 percent of nameplate capacity at year 10 and 80 percent of nameplate capacity at year 20. Similarly, the inverters are warranted to be free from defects in material and workmanship for a period of 25 years with the purchase of available extended warranties. The components of the inverter can be replaced and repaired if maintenance is required. The racking system and associated foundation piers are made of aluminum and galvanized steel and have a useful life in excess of 25 years. AFL does not anticipate any operating restrictions arising from environmental or other regulatory requirements.

## **9. Operation and Maintenance**

Solar PV offers low operations and maintenance costs compared to other renewable technologies. The primary maintenance activities will consist of landscaping mowing and snow removal. A unique maintenance plan will be created for the Project to ensure the performance of the solar facilities. It will include a scheduled check of the main items and a predictive maintenance approach of the devices subjected to derating/degradation. Bidder has established relationships with multiple O&M providers and will execute a long term O&M contract with a qualified provider if selected. The main scheduled activities are listed below:

- ) Housekeeping of the site: road maintenance, grass cutting, fence and gate inspection, lighting system check, and PV panel washing (if required).

- ) Performance monitoring: weekly or monthly download of the data acquired by the on-site met station (energy produced, alarms, faults, etc.).
- ) Inspection of the main equipment:
  - ) PV panels: visual check of the panels, tracking system and surrounding grounds to verify the integrity of the panels and tracking structure, the presence of animals and nests, etc.
  - ) Inverters, transformer and electrical panels:
    - ) Visual check of the devices including the connection cabinet and the grounding network. Check for presence of water and dust;
    - ) Electrical check: measurement of the insulation level and dispersion. Check of the main switches and safety devices (fuses);
    - ) Noise: check of abnormal sounds.
- ) Cabling and Wiring: visual check of the buried and aerial electrical line and connection box to verify their status.

All maintenance activities will be performed by qualified personnel. There will be an area for the storage of the spare parts and the tools. The generation plant will be remotely operated through a real time control system. All the monitored data will be managed by AFL.

Table 9.1 below describes the O&M tasks and their frequency.

**Table 9.1 Operations and Maintenance Tasks and Frequency**

Service Schedule			
Item		Service Description Ash Solar Project	Frequency / Response Time
<b>Preventive Maintenance</b>			
1		Visual inspection of Project general site conditions, PV arrays, electrical equipment, mounting structure, fence, shading, trackers, vegetation, animal damage, erosion, corrosion, and discolored panels.	1x per year
2		Visual inspection and correction of SPS for loose electrical connections and ground connections.	1x per year
3		Visual inspection of medium voltage or step-up transformers, including meters, oil gauge, and temperature gauge.	1x per year
4		Perform open circuit voltage testing on 25% of the strings.	1x per year
5		Perform I-V curve traces on 25% of the strings.	1x per year

6	Inspect switches and disconnect, test to ensure they are functioning properly.	1x per year
7	IR scans on combiner boxes, re-combiner boxes, and string boxes; tighten connections and unresolved “warm” connections.	1x per year
8	<b>Sensors and meters, including pyranometers and anemometers.</b>	See below
8a	Record meter readings as available.	1x per year
8b	Turn off and on to ensure they are communicating and ensure battery backups are working.	1x per year
9	<b>Inverter preventive maintenance for inverters per manufacturer’s operating guidelines</b>	See below
9a	Clean inverter cabinet air vents.	1x per year
9b	Clean and change inverter air filters from Owner’s spare part inventory, per manufacturer’s warranty requirements.	1x per year
9c	Clean and remove dust from inverter heat sinks per manufacturer’s warranty requirements.	1x per year
9d	Check torque marks and re-tightening appropriate wiring connections to design specification torque force per manufacturer’s guidelines.	1x per year
9e	Perform thermal imaging and address connections and hot spots.	1x per year
10	<b>PV array module maintenance for modules</b>	See below
10a	Wash all panels with water with no chemicals in a method approved by the Owner.	1x per year
10b	IR scan of 25% of front of modules for shorted cells	1x per year
10c	IR scan of 25 % of junction boxes on rear of modules	1x per year
11	<b>Vegetation mitigation non-covered services</b>	As required
11a	Clear debris within the fenced area. If this activity becomes excessive, Owner and Contractor will agree upon a method to have this work performed as Non-covered Services.	1x per year
12	<b>Written service report within 10 days of visit</b>	See below

12a	Include details of preventive maintenance work, such as meter readings, thermal images, and system testing results.	1x per year
12b	Include non-conformance reports to identify potential site issues effecting short-term and long-term power production (soiled panels, shading, corrosion etc.)	1x per year
12c	Include work orders for non-conformances	1x per year
	Service Support	
13	Contractor will be available by e-mail and by 24x7x365 Technical Phone Support hotline	Ongoing
14	Dispatch commitment: dispatch resources in response to alarms and alerts/service requests received by Contractor from Owner	Within 24 hours
15	Site monitoring to include quarterly and annual production reports, provided that access to monitoring system is provided by customer.	Ongoing

The minimum specifications for the solar module production warranty are 93 percent of nameplate capacity at year 10 and 86 percent of nameplate capacity at year 20. Similarly, the inverters are warranted to be free from defects in material and workmanship for a period of 10 years. The components of the inverter can be replaced and repaired if maintenance is required. The associated foundation piers are made of aluminum and galvanized steel and have a useful life in excess of 20 years.

AFL will establish an O&M escrow account to provide funding for both planned and unplanned O&M requirements. Funding will be provided at first from financing of the project and funded in later years from energy production income.

The Project will include a suite of monitoring, metering, and communication equipment so that Project performance and status can be monitored and controlled offsite. This monitoring suite will also include weather sensors. A number of network video cameras will be installed so that the site can be monitored offsite. AFL has installed similar monitoring equipment and oversees operations and maintenance activities for the sixteen solar photovoltaic projects listed in Section 11. AFL will partner with a third-party operations and maintenance provider to ensure prompt response to any required service of the Project.

## **10. Project Schedule**

### **10.1 Timing**

*Identify the elements on the critical path. The schedule should include, at a minimum, preliminary*

*engineering, financing, acquisition of real property rights, Federal, state and/or local permits, licenses, environmental assessments and/or environmental impact statements (including anticipated permit submittal and approval dates), completion of interconnection studies and approvals, procurement, facility contracts, start of construction, construction schedule, fuel supply, and any other requirements that could influence the project schedule and the commercial operation date*

The Project has a projected commercial operations date Q4 2020. Please reference Tables 10.1(a) through (c) for project schedule details and see attached Project Schedule.

## 10.2 Critical Path/Status

*Detail the status of all critical path items, such as receipt of all necessary siting, environmental, and ISO-NE approvals*

The Project has a proposed commercial operation date of Q4 2019. The proposed construction and procurement schedule for the Project have been vetted for fatal flaws and include flexibility in the critical path of the procurement, permitting and construction schedules. The selected technology is offered by numerous vendors in the marketplace. This provides flexibility in the procurement of the module, inverter and racking technologies protecting the Project from sole source procurement risk.

The Project has achieved a number of critical path items. The following items have been completed:

- AFL has land control of the site (reference attached purchase agreement) sufficient to construct the 20MW facility
- Preliminary engineering design and site plan

AFL will complete the remaining items required to permit the project, obtain an interconnection agreement with National Grid/ISO-NE, and pursue further outreach efforts to gain support from the local area for the Project.

Procurement of the major equipment and engineering design has not yet commenced, however, based on AFL development experience, we anticipate engineering and equipment procurement to follow the milestones set forth on The following Tables 10.1(a) and (b). AFL will have a single designated point of contact to coordinate with the Distribution Company and ISO-NE regarding progress of major project milestones.

**Table 10.1(a) Engineering Timeline**

<b>Item</b>	<b>Completion</b>
Geotechnical Evaluation	20 days before Civil Design completion
Electrical Design	120 days before construction

Civil Design	120 days before construction
Transportation Plan	75 days before construction
Interconnection Design	90 days before construction

**Table 10.1(b) Procurement Timeline**

Item	Completion	
	Ordered	Delivered
Equipment		
Panels	120 days before construction	TBD
Inverters	150 days before construction	TBD
Medium/High Voltage Switching	150 days before construction	TBD
Low Voltage Equipment	100 days before construction	TBD
Transformers	200 days before construction	TBD

Table 10.1c below provides data on how AFL will schedule the construction process for the facility including task duration and key predecessors.

**Table 10.1c Development/Construction Timeline**

Task	Duration	Key Predecessor
DPU Approval	TBD	NA
Land Control	Complete	NA
Site Preparation, Grubbing and Clearing	1 to 2 days per acre	Construction begins
Laydown, staking and Temporary Job Site Trailers	7 days	Construction begins
Civil Construction	10 days per acre	Laydown and Temporary Job Site Trailers
Execution of Interconnection Agreement	TBD	Completed System Impact Study
PV Mounting Posts	10 days/MW	Site Preparation, Grubbing and Clearing
Underground Collection System	10 days/MW	Site Preparation, Grubbing and Clearing
Electrical Enclosure/Inverter	15 days/unit	Laydown and Temporary Job Site Trailers
		Laydown and Temporary



Racking Installation	3 days/MW	Job Site Trailers
PV Module Installation	3 days/MW	Racking Installation
Interconnection Tie	10 days/100 feet	Laydown and Temporary
Testing	20 days	Interconnection Tie
Class 1 Certification	TBD	Commercial Operation

## **11. Project Management Experience**

### **11.1 Organizational Structure**

*Provide an organizational chart for the project that lists the project participants and identifies the corporate structure, including general and limited partners.*

Please reference the enclosed organizational chart.

### **11.2/11.3 Bidder Experience**

*For a project that includes new facilities or capital investment, provide statements that list the specific experience of the bidder and each of the project participants (including, when applicable, the bidder, partners, EPC contractor and proposed contractors), in developing, financing, owning, and operating generating or transmission facilities (as applicable), other projects of similar type, size and technology, and any evidence that the project participants have worked jointly on other projects.*

The AFL project design team brings years of experience to the Project that allows it to avoid major engineering and design pitfalls that a less experienced developer may face. The equipment being proposed for the Project has been industry tested and vetted with our lender for financing purposes. The solar modules we procure for all of our facilities will come from a manufacturing facility that has been audited by a third party for manufacturing process defects, meaning that the modules AFL uses on its solar projects are high quality and are less prone to manufacturing defects. AFL will implement other design features, such as the Power Electronics inverters, to maximize the uptime of the Project during operation. Protection mechanisms, such as reclosers, will be incorporated into the design of the system to protect the system against power surges that would otherwise damage equipment and shut down the Project for long periods of time. Design features such as these allow AFL to construct a Project that will ensure maximum uptime and availability during operation.

AFL procures all of its own equipment, including solar panels, inverters, racking and transformers, directly from the manufacturers. This allows AFL to eliminate middleman or distributor markups on all of the equipment for the solar farms. AFL has relationships and lines of credit with some of the largest solar equipment providers in the world, including SolarWorld, Trina Solar, Adani Solar, Power Electronics, RBI Solar, GE, Hill Phoenix, SMA, Solectria,

Noveda, Draker, Meteocontrol, LeGrande, ABB, Switchgear Power Systems, G&W and many more.

#### **11.4 Management and Key Personnel**

*Provide a management chart that lists the key personnel dedicated to this project and provide resumes of the key personnel.*

AFL has successfully developed and currently operate many projects of similar size to the one proposed under this RFP. Allco has extensive experience financing power generation projects, including the solar projects referenced in this section. Members of Allco's team are described below.

##### **Thomas M. Melone, President and CEO**

Tom joined Allco in 1994 from the law firm of Hunton & Williams where he was a tax partner. In 1995, Tom led Allco to a pre-eminent position in the large asset finance market. Prior to joining Hunton & Williams in 1991, Tom was Director, European Leasing for Chase Investment Bank in London. Prior to joining Chase in 1989, Tom practiced law at Cravath, Swaine & Moore (from 1982) and specialized in leveraged leasing and project finance. From 1978 to 1982, Tom served as a Revenue Agent with the US Internal Revenue Service, where he was the project coordinator for DISCs (Domestic International Sales Corporations), which were the predecessor to FSCs (Foreign Sales Corporations).

Tom was the founding benefactor of the Jacqueline Kennedy Onassis School of Ballet at American Ballet Theatre in New York, and a founder of the Vineyard Arts Project, an incubator for the creation of new work in dance and theatre on Martha's Vineyard, Massachusetts.

Tom currently sits on the Board of Advisors of the Institute for Policy Integrity at New York University School of Law. Tom is a 1979 graduate of Fairleigh Dickinson University (BS magna cum laude in accounting and business management) and received his JD with high honors from Rutgers Law School - Newark in 1983. Tom also received a Master of Laws (LLM in taxation) from New York University School of Law in 1989 and his CPA certificate in 1980.

##### **Michael J. Melone, Vice President and General Counsel**

Michael joined Allco in 2013. Prior to joining Allco, Michael was a corporate finance attorney at Morgan, Lewis & Bockius LLP in their New York, Los Angeles and Miami offices where he specialized in entertainment finance. While at Morgan Lewis, Michael represented commercial banks, hedge funds and individuals with respect to their investments in the entertainment industry, including film and television. Prior to Morgan Lewis, Michael was an entertainment attorney at O'Melveny & Myers LLP in their New York and Los Angeles offices where he represented film studios, producers, distributors and talent. Michael received his law degree from NYU School of Law in New York and his undergraduate degree from Middlebury College in Vermont.

Members of the Project team include the following AFL development group:

**Tim Young, Vice President, Project Development**

Tim joined the AFL Energy team in March 2008 after 6 years as President, Sierra Capital Services, a financial services company focused primarily on arranging financing for renewable energy projects. Prior to that, Tim was involved in international shipping for over 20 years as Chief Financial Officer and ship-owner. He spent 13 years as Chief Financial Officer for the Marine Chartering Group of Companies in San Francisco. The group owned and operated a fleet of containerships, breakbulk carriers, chemical tankers and refrigerated ships throughout Europe, Asia and the Americas. Tim managed the group's chemical tanker business, with ships trading throughout Asia, and containership business, with ships operating throughout Central America and the Caribbean. Prior to that, Tim was CFO and management consultant for a number of startup companies in the San Francisco Bay Area. Tim started his career at American President Companies in Oakland, CA.

Tim is responsible for managing development of the project team's project pipeline of solar projects throughout the United States. In addition, Tim manages and oversees the interconnection application and study process for all of AFL Energy's solar PV projects. Tim also is responsible for obtaining power purchase agreements to sell power from AFL Energy's solar PV projects.

Tim received his BS, Business Administration from the University of California, Berkeley and his MBA, Finance and International Business from the Haas School of Business, University of California, Berkeley.

**Chris Little, Director of Development**

Chris Little joined AFL Energy LLC in March of 2008. As Director of Development for AFL Energy's distributed generation photovoltaic (PV) solar projects, Chris's responsibilities include project land acquisition, risk management, contract administration, permitting and financing. Chris plays an integral role in overseeing AFL Energy's development of distributed generation solar projects in the Midwest, the West Coast and the East Coast. He has experience working with distributed generation solar projects with numerous utilities throughout the U.S. Chris was responsible for acquiring the land and overseeing the development and construction of 38 MW DC of solar PV installations since 2011.

Prior to joining AFL Energy, Chris worked as a Land Acquisition Manager for Ryland Homes as well as spending 6 years working developing utility related projects for We Energies, a Wisconsin based utility. Chris received his Bachelor of Business Administration in Real Estate and Urban Land Economics from the University of Wisconsin-Madison.

**Brad Wilson, Senior Project Manager**

Brad has been a Senior Project Manager for AFL Energy since 2010. He is responsible for day to day project management of the company's solar projects during construction. Brad is also

responsible for all equipment procurement for AFL Energy's solar projects including scheduling and logistics. In 2012, Brad acquired the solar modules, racking equipment, inverters, AC switchgear, equipment skids, monitoring equipment and piers for eight solar PV projects totaling over 26.15 MW<sub>DC</sub>.

Brad earned his Bachelor of Science degree in Corporate Environmental Management from the University of Minnesota.

### **Steve Broyer, Civil Engineer**

Steve Broyer joined the AFL Energy team on April 1, 2013. Steve comes to AFL from Westwood Professional Services where Steve was responsible for managing the preparation of civil and electrical documents for Westwood's wind and solar clients around the country.

At AFL, Steve will be responsible for preparation of civil engineering design drawings for all of AFL Energy's solar PV projects, including grading, storm water and erosion control and site plan design.

Steve earned a Bachelor of Science in Civil Engineering from the University of Minnesota – Civil Engineering.

### **Blake Nicholson, Project Analyst**

Blake has been Project Analyst for AFL Energy since 2009. As Project Analyst, Blake engages in development and permitting activities for the group's solar projects throughout the country.

Blake received his BA in Economics from Carleton College with a minor in Environmental and Technology Studies.

### **Cari Helberg, Asset Manager**

Cari joined AFL Energy in August of 2014. Cari is a licensed Master Electrician and is responsible for overseeing the day to day operations of AFL Energy's solar facilities. Cari works closely with the contracted operation and maintenance companies to ensure that prompt attention is paid to scheduled and non-scheduled maintenance in order to maximize uptime of every operating solar facility.

## **11.5 Project Experience**

*Provide a listing of all projects the project sponsor has successfully developed or that are currently under construction. Provide the following information as part of the response: i. Name of the project ii. Location of the project iii. Project type, size and technology iv. Commercial operation date v. Estimated and actual capacity factor of the project for the past three years vi. Availability factor of the project for the past three years vii. References, including the names and current addresses and telephone numbers of individuals to contact for each reference*


AFL Energy has successfully developed, constructed, owns and currently oversees operations and maintenance of the following projects:



Age Group	Percentage
18-24	85%
25-34	75%
35-44	65%
45-54	55%
55-64	45%
65+	15%

[illegible]

[REDACTED]



[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]

[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]

[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]

[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]

[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]

[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

11.6 Project Team Responsibilities

*With regard to the bidder’s project team, identify and describe the entity responsible for the*

*following, as applicable: i. Construction Period Lender, if any ii. Operating Period Lender and/or Tax Equity Provider, as applicable iii. Financial Advisor iv. Environmental Consultant B-20 v. Facility Operator and Manager vi. Owner's Engineer vii. EPC Contractor (if selected) viii. Transmission Consultant ix. Legal Counsel*

i. Allco Finance Limited (20%) and [REDACTED] (80%)

ii. [REDACTED]

iii. Allco Finance Limited

iv. AFL has not yet engaged an environmental consultant for the project, however, it will likely use [REDACTED]

v Cari Helberg oversees the day to day operations of AFL Energy's solar facilities. Cari works closely with the contracted operation and maintenance companies to maximize uptime.

vi. Steve Broyer is responsible for preparation of civil engineering design drawings for all of AFL Energy's solar PV projects, including grading, storm water and erosion control and site plan design. AFL anticipates any additional required engineering services will be provided by Westwood Engineering.

vii. Brad Wilson is responsible for all equipment procurement for AFL Energy's solar projects.

viii. Tim Young is responsible for managing the interconnection process for the Project and AFL has engaged the services of [REDACTED] as its interconnection and transmission consultant.

ix. Legal counsel - Available upon request.

### 11.7 Project Team Responsibilities

*Provide details of the bidder's experience in ISO-NE other Markets affected by the bid. With regard to bidder's experience with ISO-NE markets, please indicate the entity that will assume the duties of Lead Market Participant for your Project. Please provide a summary of the proposed Lead Market Participant's experience with each of the ISO-NE markets.*

AFL will act as Lead Market Participant. AFL has successfully developed the [REDACTED]  
[REDACTED]  
[REDACTED]

## 12. Emissions

### 12.1 Emissions Estimates



*For new generation facilities, provide emissions estimates based on available data from the unit manufacturer. Alternatively, provide actual emissions data determined in accordance with the paragraph above for a similar facility built within the past 3 years. Include copies of supporting documentation for all emissions estimates.*

The Project itself will not generate any emissions during its operating lifetime. Overall, the Facility will have minor air emissions of regulated air pollutants and greenhouse gases during construction and no air permit will be required. During construction, any air emission effects will be temporary and will be controlled by enacting appropriate mitigation measures (e.g. water for dust control, avoiding mass early morning vehicle startups, etc.). Accordingly, any potential air effects as a result of the Facility construction activities will be negligible.

## 12.2 Emissions Profile Improvement

*Describe any past investments that will, or have been made to your facility to improve its emissions profile or any planned future investments made to your facility in order to improve its emissions profile.*

Not applicable.

## 12.3 Massachusetts GWSA

*Describe how your project will contribute to the Massachusetts 2008 Global Warming Solutions Act (GWSA) and the 2010 Clean Energy and Climate Plan for 2020. Describe how your project will contribute both to the short term 2020 goal, and longer term 2050 goal found in these laws.*

The Project will positively contribute to the goals of the Massachusetts 2008 Global Warming Solutions Act in both the short and long term. Since the Project will generate electricity from a 100% emission-free source, the Project will positively contribute to the State's renewable energy and greenhouse gas goals. During operation, the Project will not produce air emissions of regulated air pollutants or greenhouse gases (e.g. PM10, PM2.5, VOCs, GHG, or Ozone). Thus, no air permit will be required. The Project will result in the offset/elimination of approximately 115,000 tons of CO2 equivalent, which is equal to 21,800 vehicles off the road, 37,600 tons of avoided landfill waste, 23.6 tons of NOX emissions avoided, or 59 tons of SO2 emissions avoided. The Project will have a net benefit effect on air quality.

Table 12.3 below summarizes potential environmental impacts of the Project.

<b>Table 12.3: Summary of Environmental Impacts</b>	
Water Quality	Construction will potentially cause a small but temporary increase in erosion and runoff into surface waters.
Ecological and Natural Resources	Construction will result in the temporary and permanent removal of certain vegetation.
Wildlife/Protected and Sensitive Species	No adverse impacts are anticipated for any listed species based on available information.

Wetlands	The Project will not cause any direct impacts to wetlands.
Noise	Construction will increase noise locally due to traffic and construction equipment. The Project itself will not generate significant (>50dB) noise.
Air Quality	Construction of the Project will result in local and temporary use of diesel engines, heavy equipment, and generators. The O&M phase of the project will result in occasional vehicle site visits.
Cultural Resources	Bidder does not anticipate any adverse impacts to local cultural resources.
Transportation	Construction will result in local and temporary increases in traffic to the site.
Land Use	Land use would be converted from open fields and forest to utility solar. Decommissioning funds will be secured through a bond or letter of credit.
Previous Site Use	The site was previously an open field with some forested areas.
Aesthetic/Visual	The Project will be screened from the road and adjacent properties and have a minimal aesthetic impact.
Transmission/Distribution	The Project will not require upgrades to the transmission system. AFL is currently awaiting the results of the System Impact Study to determine any upgrades necessitated by the Project to the distribution system.
Fuel Supply	Not applicable

Photovoltaic solar has an advantage over other renewables in that it has low costs and risks with respect to operations and maintenance. The operating lifetime of the Project is estimated at 40 years, which well exceeds the 20 year term contemplated under this RFP. With respect to Project components, the modules are guaranteed to produce a minimum of 80% by Year 20, and inverters are warranted to be free from defects in material and workmanship for a period of 25 years with the purchase of available extended warranties. The racking system and associated foundation piers are made of aluminum and galvanized steel and have a useful life in excess of 25 years.

### **13. Contribution to Employment and Economic Development**

#### **13.1 Job Creation**

*Please provide an estimate of the number of jobs to be created directly during project development and construction (for a project that includes new facilities or capital investment), and during operations, and a general description of the types of jobs created, estimated annual compensation, the employer(s) for such jobs, and the location. Please treat the development, construction, and operation periods separately in your response.*

Please reference Table 13.1 below for the estimated number of jobs to be created in Massachusetts during the construction and operating phases of the Project.

<b>Table 13.1: Total Employment and Economic Impact in MA during construction.</b>
--

Type of Economic Impact	Employment (Job-Years)	Earnings (2018)
Direct	65.9	\$4,270,000
Indirect	54.5	\$5,188,000
Induced	65.6	\$4,659,000
Total	281.3	\$21,762,000

<b>Table 13.2: Total Employment and Economic Impact in MA during operation.</b>		
Type of Economic Impact	Annual Employment	Earnings (2018)
Direct	4.5	\$272,800
Indirect	1.1	\$106,000
Induced	1.0	\$68,500
Total	6.6	\$447,400

Figures shown in the above tables are based on estimates provided by the NREL JEDI model and use 2018 dollars.

### 13.2 Indirect MA Job Creation

*Please provide the same information as provided in response to question 13.1 above but with respect to jobs that would be indirectly created as a result of the proposed project.*

Please reference Table 13.2 for an estimate of indirect job creation in Massachusetts as a result of the Project.

### 13.3 Economic Development Impacts

*Please describe any other economic development impacts (either positive or negative) that could result from the proposed project, such as creating property tax revenues or purchasing capital equipment, materials or services for New England businesses. Please provide the location(s) where these economic development benefits are expected to occur.*

The Project will contribute significant annual property taxes to the Town of Ashburnham as well as utilizing local labor when feasible. In addition to the jobs that will be directly and indirectly created during the construction and operation phases, the Project will also bring other benefits to the surrounding area and Commonwealth of Massachusetts. The Project will provide fuel cost certainty and hedge against volatile fossil fuel prices.

The Project will lessen the Commonwealth's dependence on fossil fuels and provide generation during on-peak hours, which can reduce capacity costs and ease the need for future transmission upgrades. Solar PV will aid Massachusetts in achieving its goals to generate more renewable electricity and curb CO<sub>2</sub>, SO<sub>2</sub>, and NO<sub>x</sub> emissions.

### 13.4/13.5 Additional Information

*To the extent not already specified elsewhere in your response, please address the factors listed in Section 2.2.2.9 and describe any benefits or impacts associated with the proposed project.*

The Project will provide clean on peak energy and local jobs while generating significant investment in the region. Increased efficiency in solar panel production combined with declining solar panel costs have made solar photovoltaic energy price-competitive with fossil fuels without the environmental drawbacks. Solar energy produces fewer aesthetic and negative impacts than other renewable technologies and is the best choice to attain the objectives under this RFP.

The Project will also help Massachusetts move closer to meeting its renewable portfolio standards. Further, providing increased renewable capacity helps further distance Massachusetts from foreign energy supply and helps support energy independence, a local and national goal. The project will also hire local labor, as practical, and be a source of increased revenue for local businesses during construction. As part of larger state, national, and global strategies, reductions in greenhouse gas emissions from this Project will have long-term secondary biological, social, and economic benefits. Similarly, the advancement of renewable resources at a distributed level contribute to our Nation's desire for energy independence and reduces our dependency upon foreign countries where geo-political issues may introduce issues with the reliability of their fuel supply.

#### **14. Additional Information Required for Transmission Projects (and All System Upgrades)**

Bidder is not proposing a Transmission Project.

#### **15. Exceptions to Form PPA or Variations from the Proposed Tariff Requirements**

Bidder does not propose exceptions to the Form PPA or variations from the proposed tariff requirements, at this time but reserves the right to do so.