



## Consent Item 11

**TO:** Ava Community Energy Authority

**FROM:** Doug Allen, Modeler-in-Chief

**SUBJECT:** **A Resolution Authorizing Ava to Execute an Integrated Resource Planning Consulting Agreement with First Principles Advisory**

**DATE:** December 20, 2023

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### **Recommendation**

Approve a Resolution authorizing the Chief Executive Officer to negotiate and execute a Consulting Services Agreement with First Principles Advisory, LLC for support in expanding the capabilities of the model used to perform the capacity expansion optimization to be filed with the California Public Utilities Commission (CPUC), as part of the Integrated Resource Planning (IRP) process. First Principles Advisory will provide technical support to Ava staff in operating the capacity expansion tool, while working with the tool developer to expand the capabilities of the tool to enable more sophisticated analyses specific to Ava's needs within the California regulatory landscape. This contract has a fixed price component of \$75,000, dedicated to the expansion of the tool capabilities, and a time and materials not-to-exceed component of \$50,000 for staff training and support, with total compensation not to exceed \$125,000.

### **Background and Discussion**

This vendor was selected following the solicitation of bids from multiple potential consulting partners, with experience in open-source planning tools and the California regulatory landscape. First Principles Advisory provided a bid that builds on past work done in the IRP context, positions Ava Community Energy to bring more analytical capabilities in-house, and establishes an internal planning process in parallel to that required by the CPUC. This will allow for the ongoing development of scenarios and plans that better reflect the concerns specific to Ava Community Energy, while reducing

the incremental work necessary to be a good-faith and constructive participant in the biennial IRP process at the CPUC.

**Fiscal Impact**

This Agreement will be funded with \$125,000 from the previously approved Power Resources Budget.

**Attachments**

- A) Resolution of the Board of Directors of Ava Community Energy Authority Authorizing Ava to Execute an Integrated Resource Planning Consulting Agreement with First Principles Advisory
  
- B) DRAFT Consulting Services Agreement between Ava Community Energy and First Principles Advisory, LLC

**RESOLUTION NO. R-2023-XX**  
**A RESOLUTION OF THE BOARD OF DIRECTORS**  
**OF AVA COMMUNITY ENERGY AUTHORITY AUTHORIZING AVA TO EXECUTE AN**  
**INTEGRATED RESOURCE PLANNING CONSULTING AGREEMENT WITH FIRST**  
**PRINCIPLES ADVISORY**

**WHEREAS** The Ava Community Energy Authority (“Ava”) was formed as a community choice aggregation agency (“CCA”) on December 1, 2016, Under the Joint Exercise of Power Act, California Government Code sections 6500 *et seq.*, among the County of Alameda, and the Cities of Albany, Berkeley, Dublin, Emeryville, Fremont, Hayward, Livermore, Piedmont, Oakland, San Leandro, and Union City to study, promote, develop, conduct, operate, and manage energy-related climate change programs in all of the member jurisdictions. The cities of Newark and Pleasanton, located in Alameda County, along with the City of Tracy, located in San Joaquin County, were added as members of Ava and parties to the JPA in March of 2020. The city of Stockton, located in San Joaquin County was added as a member of Ava and party to the JPA in September of 2022. The city of Lathrop, located in San Joaquin County, was added as a member to Ava and party to the JPA in October of 2023. On October 24, 2023, the Authority legally adopted the name Ava Community Energy Authority, where it had previously used the name East Bay Community Energy Authority since its inception.

**WHEREAS** Ava, as a load-serving entity, is required by California Public Utilities Code section 454.52 to submit a biennial Integrated Resource Plan (“IRP”) to the California Public Utilities Commission (“CPUC”), laying out Ava’s long-term vision for resource procurement in the context of the state’s climate and energy industry goals, and employing a capacity expansion model to generate an optimized portfolio that meets both state and organizational goals;

**WHEREAS** consistent with Ava’s Administrative Procurement Policy, Ava selected First Principles Advisory LLC from among the firms from whom bids were solicited;

**WHEREAS** First Principles Advisory LLC has previously successfully assisted Ava with the compilation and submission of an IRP using the open-source GridPath portfolio optimization platform;

**WHEREAS** beginning work on the 2024 IRP in the coming months will position Ava to develop and submit an IRP that contributes to an understanding of the evolving California energy landscape in a timely fashion, while also preparing the internal team to expand the in-house analytical capability for portfolio planning;

**NOW, THEREFORE, THE BOARD OF DIRECTORS OF AVA COMMUNITY ENERGY AUTHORITY DOES HEREBY RESOLVE AS FOLLOWS:**

Section 1. Authorize the Chief Executive Officer to negotiate and execute a Consulting Services Agreement with First Principles Advisory LLC for support in expanding the capabilities of the model used to perform the capacity expansion optimization to be filed with the CPUC as part of the IRP process. This contract will be subject to approval of General Counsel and compensation will not exceed \$125,000 through December 31, 2024.

ADOPTED AND APPROVED this 20<sup>th</sup> day of December, 2023.

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Elisa Márquez, Chair

ATTEST:

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Adrian Bankhead, Clerk of the Board

**Consulting Services Agreement for  
Services By And Between Ava Community Energy Authority and  
First Principles Advisory LLC**

This Consulting Services Agreement (“Agreement”) is made this [xx] day of [Month], 2023 (“Effective Date”) by and between Ava Community Energy Authority, a joint powers authority formed under the laws of the State of California (“Ava”) and First Principles Advisory LLC, a California corporation (“Consultant”) for the purpose of providing Integrated Resource Planning support services to Ava.

**Section 1. Recitals**

1.1 The Authority is an independent joint powers authority duly organized under the provisions of the Joint Exercise of Powers Act of the State of California (Government Code Section 6500 et seq.) (“Act”) with the power to conduct its business and enter into agreements.

1.2 Consultant possesses the skill, experience, ability, background, certification and knowledge to provide the services described in this Agreement pursuant to the terms and conditions described herein.

**NOW THEREFORE**, for good and valuable consideration, the amount and sufficiency of which is hereby acknowledged, the Parties to this Agreement, agree as follows:

**Section 2. Term**

The term of this Agreement is from the Effective Date of this Agreement through 12/31/2024, unless terminated earlier pursuant to Section 8.

**Section 3. Scope of Work/Compliance with Laws and Regulations**

3.1 Consultant agrees to perform the scope of work (the “Work”) in Exhibit A in accordance with the compliance schedule in Exhibit B.

3.2 Consultant represents and warrants that it has the skill and expertise to perform the Work. Consultant agrees to obtain any and all necessary licenses, approvals or permits necessary to perform the Work.

3.3 Consultant and its Subconsultants must comply with all federal, state and local laws and regulations in performing the Work under this Agreement.

**Section 4. Consultant Staffing**

Exhibit C contains a list of Consultant's project manager and all team members. Consultant will not change or substitute the project manager or any team members or add additional team members without consultation with Ava.

## **Section 5. Subconsultants**

**5.1** Consultant agrees to use only those Subconsultants listed on Exhibit D. Consultant shall notify Ava within a reasonable period of time of any changes, additions, or removals of a Subconsultant.

**5.2** Consultant agrees to require all Subconsultants to comply with the terms of this Agreement, including without limitation, maintaining insurance in compliance with the insurance obligations under Section 9, the Confidentiality requirements under Section 11 and indemnifying Ava under Section 12.

## **Section 6. Compensation and Payment**

**6.1** The maximum compensation under this Agreement is \$125,000.

**6.2** For the portion of the work under this Agreement is to be performed on a time and materials basis, Consultant must submit invoices to Ava on a monthly basis, complete with the name of the individual that conducted the Work, the time spent, and a brief description of the tasks performed during that time. On all invoices, Consultant must include the contract number provided by Ava and the total compensation left on the Agreement after deducting the amount of the invoice. Notification to Ava is required once the contract budget has been used up by 80% (including invoiced work and work that may not have been invoiced yet) which is \$100,000 for this Agreement. Invoices must be submitted to Ava by the 20<sup>th</sup> of the month following the month in which Consultant performed the Work.

**6.3** For the portion of the Work under this Agreement is to be performed on a task or project basis, the Consultant will submit an invoice within thirty (30) days of completing the project to the satisfaction of Ava for full payment, unless other arrangements have been made.

**6.4** Ava will not agree to pay any markups on Subconsultant Services or supplies unless such markups are included in Exhibit E, Compensation/Budget and such markups were included in Consultant's bid, if applicable.

**6.5** The following are conditions on Ava's obligation to process any payments under this Agreement:

**6.5.1** If the Consultant is a U.S. based person or entity, the Consultant must provide to Ava a properly completed Internal Revenue Service Form W-9 before Ava will process payment. If the Consultant is a U.S based person or entity but has neither a permanent place of business in California nor is registered with the California Secretary of State to

do business in California, the Consultant must provide Ava with a properly completed California Franchise Tax Board form related to nonresident withholding of California source income before Ava will process payment.

**6.5.2** If the Consultant is not a U.S. based person or entity, the Consultant must provide Ava with the applicable Internal Revenue Service form related to its foreign status and a California Franchise Tax Board form related to nonresident withholding before Ava will process payment.

**6.6** Ava agrees to pay invoices within forty-five (45) days of receipt. Invoices may be sent to Ava by U.S. mail or electronic mail to [AP@avaenergy.org](mailto:AP@avaenergy.org). Invoices will be deemed received on the next business day following the date of transmission via electronic mail or three days after placement in the U.S. mail.

**6.7** Ava, as a Joint Powers Authority, is a separate public entity from its constituent members and will be solely responsible for all debts, obligations and liabilities accruing and arising out of this Agreement. Consultant acknowledges that it will have no rights and agrees not to make any claims, take any actions or assert any remedies against any of Ava's constituent members in connection with this Agreement.

## **Section 7. Records Retention and Ownership of Work Product**

**7.1** The Consultant must retain all ledgers, books of accounts, invoices, vouchers, cancelled checks, background materials, or other records relating to its performance under this Agreement for a period of three years following termination of this Agreement.

**7.2** Ava owns all rights, including without limitation, all licenses, copyrights, service marks and patents, in and to all Work Product(s), whether written or electronic, without restriction or limitation upon their use and immediately when and as created by the Consultant, any Subconsultants, or any other person engaged directly or indirectly by the Consultant to perform under this Agreement. "Work Product(s)" means all writings, reports, drawings, plans, data, video, media, photographs, renderings, plans, software, models, and other similar documents and materials developed or created by Consultant or its Subconsultants on behalf of or for use by Ava under this Agreement. All Work Product(s) will be considered "works made for hire," and together with any and all intellectual property rights arising from their creation will be and remain the property of Ava without restriction or limitation upon their use, duplication or dissemination by Ava. Consultant agrees not to obtain or attempt to obtain copyright protection in its own name for any Work Product.

## **Section 8. Termination**

**8.1** Ava may terminate this Agreement for any reason by giving Consultant written notice. The termination notice may set the date of termination, but if no such date is given, termination is effective seven (7) days following the date of the written notice.

**8.2** Ava may terminate this Agreement immediately upon written notice for any material breach of this Agreement by Consultant or any of its Subconsultants. If Ava terminates this Agreement for cause and obtains the same services from another consultant at a greater cost, the Consultant is responsible for such excess costs in addition to any other remedies available to Ava.

**8.3** Upon termination for any reason, Ava has the option of requiring the Consultant to complete work up to the date of termination or to cease work immediately. Ava has the further option to require Consultant to provide Ava any finished or unfinished Work or Work Product prepared by the Consultant up to the date of termination.

**8.4** Ava will pay Consultant the reasonable value of services satisfactorily rendered by the Consultant to Ava up to the date of written Notice of Termination. If Ava authorizes Consultant to continue performing the Work through the date of termination, Ava will pay Consultant the reasonable value of services satisfactorily rendered up through the date of termination, providing such services are in compliance with the Compensation/Budget in Exhibit E.

**8.5** Upon termination of this Agreement, and at no cost to Ava, Consultant, its Subconsultants and anyone working for Ava under control of Consultant must return all Work Product to Ava. Consultant may only retain copies of the Work Product by express written permission of Ava.

## **Section 9. Insurance**

**9.1** Consultant must procure, maintain and comply with the insurance requirements in Exhibit F throughout the full Term of this Agreement. Consultant must provide proof of insurance either in the form of a certificate of insurance or, if requested by Ava, a copy of the insurance policy, prior to performing any work under this Agreement.

**9.2** Consultant agrees to stay in compliance with the insurance coverage requirements during the term of this Agreement. Consultant must give Ava ten (10) days written notice and obtain Ava's written approval prior to making any modifications that would reduce its insurance coverage.

**9.3** Consultant must either include Subconsultants under its insurance policies or require each Subconsultant to comply with the insurance obligations in Exhibit F.

## **Section 10. No Discrimination or Conflict of Interest**



**10.1** Consultant represents and warrants, on behalf of itself and its Subconsultants, that it has not and will not discriminate against anyone based on his/her age, color religion, sex, sexual orientation, disability, race or national origin.

**10.2** Consultant represents and warrants, on behalf of itself and its Subconsultants, that it is familiar with local, state and federal conflict of interest laws, that in entering into this Agreement it is not violating any of the conflict of interest laws, that it will avoid any conflicts of interest during the term of this Agreement, and that it will notify Ava immediately if it identifies any conflicts of interest Consultant understands that violations of this Section 10 could result in immediate termination of this Agreement and disgorgement of compensation.

**10.3** In accordance with the California Political Reform Act (Cal. Gov't Code section 81000 *et seq.*), Consultant will cause each of the following people performing services under this Agreement to file a Form 700 within 30 days after the person begins performing services under this Agreement and subsequently on an annual basis in conformance with the requirements of the Political Reform Act by filing the original with the Ava Clerk to the Board of Directors. Form 700 submissions should be sent to [cob@avaenergy.org](mailto:cob@avaenergy.org), with carbon copy to the AVA contact. Each of the identified positions must disclose interests in accordance with the AVA Resolution-2018-7, Conflict of Interest Code, which may be amended from time to time. For the work currently outlined in Exhibit A, this Agreement does not require the Filing of Form 700 at this time.

Name	Position or Assignment

## **Section 11. Confidentiality**

**11.1** Except as authorized by Ava or as otherwise required by law, Consultant shall not disclose to any third party/ies any draft or final Work Product, discussions or written correspondence between Consultant and its Subconsultants or discussions or written correspondence between Consultant and Ava staff. In the event Consultant receives a request from any third-party requesting disclosure of any Work Product, discussions, communications or any other information Consultant is prohibited from disclosing, Consultant will immediately notify Ava and wait for direction from Ava before disclosing the information.

**11.2** For the purposes of this Section 11, “third parties” refers to any person or group other than Ava staff and Board members. For example, “third parties” include community groups, Board advisory groups, other governmental agencies, other consultants or members of the community.

**11.3** This Section 11 will survive the expiration or termination of this Agreement.

**11.4 The Parties acknowledge that this Consulting Services Agreement, and any future agreement between the parties, will be subject to public disclosure under the California Public Records Act.**

**Section 12. Indemnity**

**12.1** Except with regard to any matter involving professional negligence, Consultant agrees, at its sole cost and expense, to indemnify, defend with counsel reasonably approved by Ava, and protect and hold harmless Ava, its officers, directors, employees, agents, attorneys, designated volunteers, successors and assigns, and those Ava agents serving as independent contractors in the role of Ava staff (collectively “Ava Indemnitees”) from and against any and all damages, costs, expenses, liabilities, claims, demands, causes of action, proceedings, penalties, judgements, liens and losses of whatever nature (“Claims”) that arise, directly or indirectly, in whole or in part, out of or are in any way related to Consultant’s or Subconsultant’s performance or failure to perform the Work under this Agreement, regardless of whether the Consultant or its Subconsultants acted or failed to act intentionally, willfully, recklessly or negligently. Consultant agrees that its indemnity and defense obligations include all costs and expenses, including all attorney fees, expert fees, mediation, arbitration, or court costs in connection with the defense. Consultant further agrees to indemnify, defend, protect and hold harmless Indemnitees from and against any breach of this Agreement and any infringement of patent rights, trade secret, trade name, copyright, trademark, service mark or any other proprietary right of any person(s) caused by Ava’s use of any services, Work Product or other items provided by Consultant or its Subconsultants under this Agreement.

**12.2** With regard to any matter involving professional negligence, Consultant agrees, at its sole cost and expense, to indemnify, defend with counsel reasonably approved by Ava, and protect and hold harmless the Ava Indemnitees from and against any and all Claims to the extent arising out of or resulting from Consultant’s or Subconsultant’s negligence, recklessness, or willful misconduct. In no event shall the cost to defend charged to Consultant exceed the Consultant’s proportionate percentage of fault.

**12.3** Consultant’s obligations in Subsection 12.1 and 12.2 do not apply to the extent any Claim results from the negligence or willful misconduct of the Ava Indemnitees.

**12.4** Except as limited by Subsection 12.2, Consultant's obligation to defend Ava applies to the maximum extent allowed by law and includes defending Indemnitees as set forth in California Civil Code sections 2778 and 2782.8.

**12.5** The Consultant's obligations under Section 12 applies regardless of the existence or amount of insurance the Consultant carries or has made available to Ava.

**12.6** The Parties agree that this Section 12 survives the expiration or earlier termination of the Agreement.

### **Section 13. Consultant is an Independent Contractor**

**13.1** Consultant and its Subconsultant(s) are and at all times will be independent contractors. Consultant has complete control over its operations and employees and is not an agent or employee of the Ava and must not represent or act as the Ava's agent or employee. Consultant agrees, on behalf of itself and its employees and Subconsultants, that it does not have any rights to retirement benefits or other benefits accruing to Ava employees, and expressly waives any claim it may have to any such rights.

**13.2** As an independent contractor, Consultant has complete control over its Subconsultants, Sub, suppliers, affiliates agents and any other person or entity with whom the Consultant contracts in furtherance of this Agreement (collectively "Subconsultants"). Subject to the requirements of Section 5 of this Agreement, Consultant is solely responsible for selecting, managing and compensating its Subconsultants, and for ensuring they comply with this Agreement.

### **Section 14. Miscellaneous Terms and Conditions**

#### **14.1 Ava Authority.**

The Chief Executive Officer or his/her designee is authorized to take all actions under this Agreement, including without limitation, amendments that fall within the Chief Executive Officer's signing authority, termination or modification of terms.

#### **14.2 Waiver.**

Waiver by either party of any one or more conditions, Sections, provisions or performance of this Agreement will not be a waiver of any other provision; nor will failure to enforce a provision or Section in one instance waive the right to enforce such provision or Section in the future. In no event will payment by Ava to Consultant constitute or be construed as a waiver by Ava of any breach or default of this Agreement, nor will such payment prejudice any of Ava's other rights or remedies.

#### **14.3 Governing Law.**

Consultant and Ava agree that this Agreement will be interpreted under the laws of the State of California.

**14.4 Venue.**

Any litigation resulting from this Agreement will be filed and resolved by a state court in Alameda County, California, or if appropriate, the federal courts in the Northern District of California located in San Francisco.

**14.5 Audit Rights.**

All records or documents required to be kept pursuant to this Agreement must be made available for audit at no cost to Ava, at any time during regular business hours, upon written request by Ava. Copies of such records or documents shall be provided to Ava at Ava's offices unless an alternative location is mutually agreed upon.

**14.6 Recitals and Exhibits.**

The Recitals in Section 1 above are intentionally made a part of this Agreement. All Exhibits and any other documents incorporated by reference are a part of this Agreement.

**14.7 Notices.**

Any notices required to be given under this Agreement must be made in writing and may be delivered a) personally, in which case they are effective upon receipt; b) by U.S. Mail, in which case they are effective three (3) days following deposit in the U.S. Mail, unless accompanied by a return receipt in which case, they are effective upon the date on the receipt; or c) by electronic mail, in which case they are effective upon confirmation of receipt, and if no confirmation of receipt, they are effective one day after transmission, providing that a hard copy is also sent via U.S. mail. All notices must be sent to the addresses below:

AVA

Attn: Doug Allen  
Ava Community Energy  
1999 Harrison Street, Suite 2300  
Oakland, CA 94612  
Email: [dallen@avaenergy.org](mailto:dallen@avaenergy.org)  
Phone: 510.998.5899

Consultant

Attn: James Himelic  
First Principles Advisory LLC  
1116 Sills Ct #3  
Capitola, CA 95010  
Email: [jhimelic@firstprinciples.run](mailto:jhimelic@firstprinciples.run)  
Phone: 520.979.1375

**14.8 Assignment.**

Except to the extent this Agreement authorizes Consultant to use Subconsultants, Consultant will not assign any part of this Agreement without the Ava's prior written consent. Ava at its sole discretion, may void this Agreement if a violation of this provision occurs.

**14.9 Integrated Agreement.**

The Recitals, this Agreement and the Exhibits attached to this Agreement contain the complete understanding between Ava and Consultant and supersedes any prior or contemporaneous negotiations, representations, agreements, understandings and statements, written or oral respecting the Work up through the Effective Date of this Agreement.

**14.10 Amendments.**

Any and all amendments or modifications to this Agreement must be made in writing and signed by each Party before such amendment will be effective.

**14.11 Government Claims Act.**

Nothing in this Agreement waives the requirements to comply with the Governmental Claims Act, where applicable.

**14.12 Severability.**

If a court of competent jurisdiction holds any Section or part of this Agreement to be invalid or unenforceable for any reason and the Work can still be performed, the Parties agree to sever the invalid or unenforceable Section from this Agreement and that all remaining Sections or parts of this Agreement will continue to be enforceable.

**14.13 Counterparts.**

This Agreement may be executed in one or more counterparts, all of which taken together will constitute one and the same instrument and each of which will be deemed an original.

**14.14 No Party Deemed Drafter.**

This Agreement will be considered for all purposes as prepared through the joint efforts of the Parties and will not be construed against one Party or the other as a result of the preparation, substitution, submission, or other event of negotiation, drafting or execution hereof.

**14.15 Supplier Diversity.**

Ava is required to report to the California Public Utilities Commission on their diverse suppliers, as defined by CPUC General Order 156. Consistent with the California Public Utilities Code and California Public Utilities Commission policy objectives, Contractor agrees to document and provide information to Ava regarding Contractor's status and any engagement of women, minority, disabled veteran, and LGBT owned

business enterprises in its provision of Services under this Agreement. Specifically, Contractor agrees to complete Ava's Supplier Diversity questionnaire, which may be updated or revised during the term of the Agreement, and otherwise reasonably cooperate with Ava to provide the information described above. Contractor shall provide such information in the timeframe requested by Ava and in no event later than January 31 of the year following the Effective Date of this Agreement.

## Section 15. Authorized Signatories

### 15.1 Proper Countersignatures

Type of Entity	Authorized Signatories		
For a corporation:	Pursuant to California Corporations Code Section 313 proof of authority to execute the Agreement is established if one of the corporate officers listed in Column A below and one of the corporate officers listed in Column B below both sign the documents.		
	<b>Column A</b>	<b>AND</b>	<b>Column B</b>
	Chairman of the Board, or		Secretary, or
	President, or		Assistant Secretary, or
	Vice President		Chief Financial Officer, or Assistant Treasurer
	If the agreement is signed by any combination of persons other than those listed above or by an individual, then the agreement must be accompanied by a copy of the Board minutes, resolution, Corporate Secretary's certificate, or articles of incorporation stating that the signatories have the authority to bind the corporation.		
For a general partnership, a limited partnership, or a limited liability partnership:	All the general partners must sign the Agreement (a general partnership agreement is sufficient to establish the names of all general partners) unless the person signing the Agreement provides proof that he/she has authority to bind the partnership.		
For a limited liability company (LLC)	Copies of the following documents should be provided to establish who has authority to bind the LLC: (1) State Forms LLC-1 and LLC-12 if the company was formed in California; and (2) the operating agreement for the LLC – whether formed in California or another state.		
For a sole proprietor, or a sole proprietor doing business under another name:	Only the individual who owns the business can sign. Either a Fictitious Business Name Statement or a Business Tax Certificate is sufficient to establish the authority of an individual to bind a sole proprietorship.		

*[signatures on following page]*

DRAFT

**IN WITNESS WHEREOF**, the parties have caused the Agreement to be executed as of the date set forth above.

First Principles Advisory, LLC  
A Limited Liability Corporation

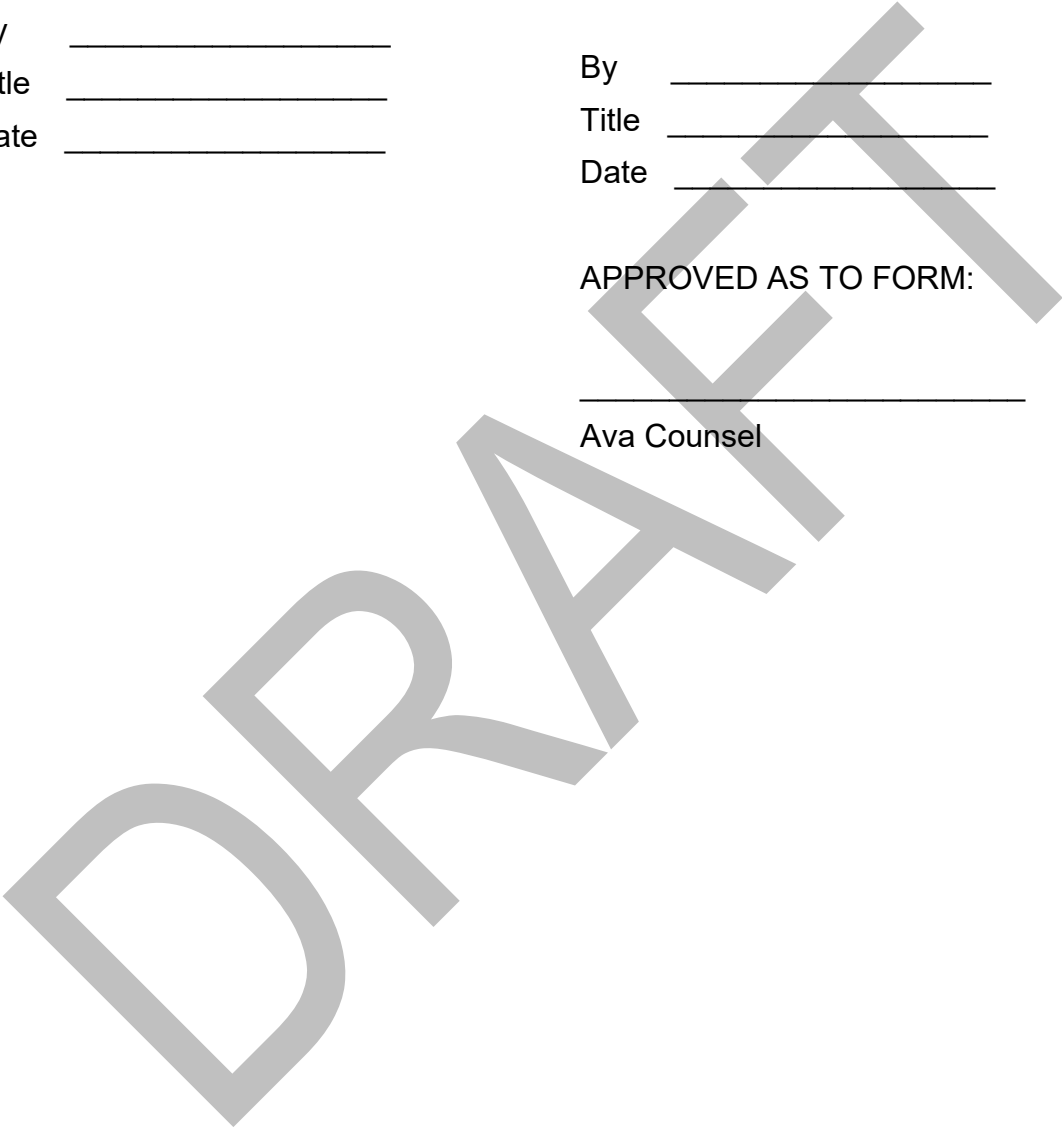
By \_\_\_\_\_  
Title \_\_\_\_\_  
Date \_\_\_\_\_

AVA COMMUNITY ENERGY AUTHORITY  
A Joint Powers Authority

By \_\_\_\_\_  
Title \_\_\_\_\_  
Date \_\_\_\_\_

APPROVED AS TO FORM:

\_\_\_\_\_  
Ava Counsel





**LIST OF EXHIBITS**

EXHIBIT A: SCOPE OF WORK

EXHIBIT B: SCHEDULE

EXHIBIT C: CONSULTANT STAFFING

EXHIBIT D: SUBCONSULTANTS

EXHIBIT E: COMPENSATION/BUDGET

EXHIBIT F: INSURANCE REQUIREMENTS

DRAFT

**Exhibit A****SCOPE OF WORK**

1. Work with Ava employees to develop processes to programmatically generate input files for and execute model runs using the open-source GridPath modeling platform

a. Consultant's primary responsibility under this requirement will be providing sample files for Ava staff to use as templates and troubleshooting issues with files generated from the processes designed by Ava staff

Response:

First Principles advisory will support Ava staff in the development of workflow processes related to model setup, execution, and querying and visualizing model results. First Principles has extensive experience in creating the input files required for a successful execution of a GridPath model run. Moreover, the firm has built extensive visualization tools to assist in the analysis of modeling results. These dashboards query GridPath results and present them in both Excel-based Power Pivot tables and Microsoft BI. First Principles can leverage its experience in this area to assist Ava, as the organization works on building out agency-specific processes that are compatible with their existing internal IT systems and data analytics procedures.

**2. Lead efforts to expand GridPath capabilities to include:**

a. Analysis of the slice-of-day RA framework

b. Expanded ability to incorporate alternative objectives for optimization

i. For example, adding the ability to incorporate marginal emissions accounting into the optimization rather than simply system averages

c. Incorporate ability to run stochastic optimizations over uncertain futures

Response:

First Principles will work with Blue Marble Analytics to update the GridPath software so that it can incorporate the CPUC's RA Slice-of-Day accounting in addition to optimizing for 24/7 GHG-free emission policies.

First Principles Advisory, in joint collaboration with Dr. Patankar, proposes to develop systematic approaches to explore parametric uncertainties in power system models to assist ACE in obtaining a better understanding of how uncertainty impacts their long-term planning procedures. The objective of this work is for GridPath to go beyond deterministic optimization by incorporating Decision Making Under Uncertainty (DMUU)

tools, which allow the model to better account for uncertainty in key inputs. The results from these stochastic optimization exercises can inform stakeholder's decisions as they relate to uncertainty in key risk variables affecting the selection of the preferred portfolio. It achieves this by systematically evaluating the impact of uncertain parameters on decision outcomes, helping decision-makers assess the value of additional information and the potential cost savings associated with reducing uncertainty in the power system or other complex domains.

While incorporating uncertainties in power system models such as GridPath is challenging, Decision Making Under Uncertainty strategies provide a self-consistent framework for evaluating parametric uncertainties, allowing power system modelers to examine future technology and fuel pathways under specific modeling objectives to develop more robust long-term plans. For example, in a stochastic optimization formulation of the problem, it requires the modeler to develop a scenario tree, assign subjective probabilities and outcomes to each branch in a tree, and then optimize the model over a whole tree. Moreover, a powerful aspect of STOCHASTIC OPTIMIZATION is its ability to calculate the Expected Value of Perfect Information (EVPI) and the Expected Cost of Imperfect Information (ECIU) in decision-making scenarios.

EVPI quantifies the potential value of acquiring perfect information about uncertain variables in the power generation portfolio, offering insight into the maximum benefit that can be achieved through additional data acquisition or improved forecasting methods. Conversely, ECIU measures the cost associated with acting on imperfect information, highlighting the financial consequences of making decisions based on incomplete or inaccurate data. By computing these metrics within the decision support system, power system stakeholders will be empowered to make informed choices regarding data investments, risk mitigation strategies, and portfolio optimization, ultimately enhancing their ability to thrive in a dynamic and uncertain energy market.

Failure to address uncertainties in key input variables can lead to suboptimal decision-making, which could jeopardize an organization's ability to meet its long-term carbon reduction goals in a cost-effective manner. This risk highlights the pressing necessity for advanced modeling techniques that account for unpredictability and variability in LSEs' portfolios.

Overall, this task will leverage the expertise of the Binghamton University graduate student, Dr. Patankar (faculty), and staff to support First Principles mission to help their client make informed decisions. Co-supervised by Binghamton University faculty and Sponsor personnel, one graduate research associate (GRA) would work on specific projects as tentatively outlined in this proposal. More specifically, the GRA will assist in the following main tasks:

- Task 1: Data Integration: Create hypothetical power system data for First Principal Advisory's client, including generation, fuel consumption, operating condition, maintenance records, candidate resources, retail gross consumption, etc.

- Task 2: Model Modification: Adapt GridPath<sup>1</sup> to accommodate stochastic variables and scenarios, allowing for probabilistic representations of uncertain demand projections, renewable generation, and fuel price parameters within the model. Incorporate EVPI and ECIU calculations as a part of post-processing scripts.
- Task 3: Scenario Generation: Develop algorithms or methods for generating multiple scenarios reflecting different possible future states of the power system, considering factors like weather, demand variability, and fuel price fluctuations.
- Task 4: Objective Function Refinement: Modify the model's objective function to optimize decisions under uncertainty, considering cost and risk factors.
- Task 5: Solver Selection: Choose suitable solvers and optimization algorithms capable of efficiently handling stochastic linear programming problems.
- Task 6: Data Validation: Validate the model using historical data and real-world scenarios to ensure it accurately represents the power system's behavior.
- Task 7: Testing and Sensitivity Analysis: Conduct extensive testing and sensitivity analysis to assess the model's performance under various uncertainty levels and compare results against deterministic models.
- Task 8: Create comprehensive documentation detailing the modified model's structure, assumptions, and data sources, ensuring transparency and replicability.
- Task 9: Provide training to power system professionals and analysts on using the updated GridPath model effectively, especially in uncertainty modeling.
- Task 10: Validation with Case Studies: Validate the model's effectiveness by applying it to real-world case studies, evaluating its ability to provide actionable insights and improved decision support.

By pursuing these action items and thoroughly testing the modified GridPath model, this project aims to empower power system stakeholders with a powerful tool for making informed decisions that account for the inherent uncertainties in the energy landscape and provide helpful matrices such as Expected Value of Perfect Information (EVPI) and

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<sup>1</sup> The project proposal references GridPath as the proposed platform to implement DMUU. However, the project team requests that there is risk in GridPath's architecture ultimately not being able to support this functionality, and thus the project team would investigate the ability for other open-source platforms such as MIT's GenX model to provide deterministic functionality that is comparable to GridPath and would satisfactorily comply with all the CPUC IRP-related modeling requirements.

Expected Cost of Ignoring Uncertainty (ECIU), ultimately enhancing grid reliability and resilience.

### Project Outcomes and Deliverables

According to the proposed research tasks, the outcome will appear in the technical reports, program codes, and digital data set. All these data will be appropriately generated and stored in the archive. The PI will use appropriate digital data format, e.g., spreadsheet file (Microsoft Excel) or comma-separated values (CSV) file format, for the scenario data and numerical experimental results. Also, the mathematical optimization will be developed using free, commercially compatible, and open-source languages, Julia, and the generated program codes will be compiled and packaged as standalone binary executable files that contain everything needed to run the program, e.g., metadata and resources.

#### 3. Technical support for development of IRP filing

- a. Assistance with preparation of necessary portfolios per CPUC guidance
- b. Guidance on development of additional scenarios consistent with EBCE's goal of making the Integrated Resource Planning an ongoing process

#### Response:

First Principles Advisory will assist AVA staff in generating a conforming portfolio for IRP compliance as well as any additional alternative portfolios the agency wishes to evaluate. In addition, First Principles will provide support, as needed, to ensure the agency is successful in completing its IRP filing requirements by providing support for any modeling-related topics. This can include documenting the modeling process in the Narrative, ensuring accurate alignment between the RDT and the defined portfolio in GridPath, and technical assistance with the Clean System Power (CSP) calculator workbook. Although the modeling completed under this work order will be primarily for IRP compliance, the nature of the modeling workflow will be such that AVA can seamlessly utilize the framework to provide support on future RFP procurement exercises.

#### Additional Services:

Consultant will not provide additional services outside of the services identified in Exhibit A, unless it obtains advance written authorization from the project manager or lead Ava representative prior to commencement of any additional services.

**Exhibit B**

**SCHEDULE**

As directed by Ava. This analysis will need to be completed in time for the filing of the Integrated Resource Plan in the fall of 2024, though finalizing some of the knowledge transfer may last until the end of the year.

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**Exhibit C**

**CONSULTANT STAFFING**

Jim Himelic, Founder, First Principles Advisory.

Ana Mileva, Founder, Blue Marble Analytics.

Professor Neha Patankar, SUNY Binghamton.

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**Exhibit D**

**SUBCONSULTANTS**

Subconsultants must be authorized in advance, in writing by Ava.

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**Exhibit E**

**COMPENSATION/BUDGET**

, First Principles will be compensation for each of the two components of the work:

i) Technical support and model expansion, without a focus on stochastic optimization working with Blue Marble Analytics. First Principles will provide IRP assistance to Ava and deterministic upgrades to Gridpath on a time and materials basis at a rate of \$250/hr, with a not-to-exceed amount of \$50,000.

ii) Technical support and model expansion including work towards stochastic optimization working with Prof Patankar, First Principles will provide Ava with stochastic optimization and other DMUU strategies functionality in GridPath for an additional fixed cost of \$75,000.<sup>2</sup>

The maximum compensation under this Agreement is \$125,000.

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<sup>2</sup> Professor Patankar is still finalizing this number, but this is our best estimate at this time. There is the risk that this amount could be up to \$85k, depending on the ultimate scope. In the spirit of getting this functionality built, First Principles Advisory is willing to credit Ava Community Energy with up to \$10k for work related to Task 1, effectively reducing the NTE from \$50k to \$40k, should the project require it.

**Exhibit F**

**INSURANCE REQUIREMENTS**

A. Minimum Scope and Limits of Insurance. Consultant must procure, and at all times during the term of this Agreement carry, maintain, and keep in full force and effect, insurance as follows:

1) Commercial General Liability Insurance with a minimum limit of One Million Dollars (\$1,000,000.00) per occurrence for bodily injury, personal injury and property damage and a general aggregate limit of Two Million Dollars (\$2,000,000.00) per project or location. If Consultant is a limited liability company, the commercial general liability coverage must be amended so that Consultant and its managers, affiliates, employees, agents and other persons necessary or incidental to its operation are insureds.

2) Automobile Liability Insurance for any owned, non-owned or hired vehicle used in connection with the performance of this Agreement with a combined single limit of One Million Dollars (\$1,000,000.00) per accident for bodily injury and property damage.

3) Workers' Compensation Insurance as required by the State of California and Employer's Liability Insurance with a minimum limit of One Million Dollars (\$1,000,000.00) per accident for bodily injury or disease. If Consultant has no employees while performing Services under this Agreement, workers' compensation policy is not required, but Consultant must execute a declaration that it has no employees.

4) Professional Liability/Errors & Omissions Insurance with minimum limits of Two Million Dollars (\$2,000,000.00) per claim and in aggregate.

B. Acceptability of Insurers. The insurance policies required under this Exhibit E must be issued by an insurer admitted to write insurance in the State of California with a rating of A:VII or better in the latest edition of the A.M. Best Insurance Rating Guide.

C. Additional Insured/Additional Named Insured. The automobile liability policies must contain an endorsement naming Ava, its officers, employees, agents and volunteers as additional insureds. The commercial general liability policy must contain an endorsement naming Ava, its officers, employees, agents and volunteers as additional named insureds.

D. Primary and Non-Contributing. The insurance policies required under this Agreement must apply on a primary non-contributing basis in relation to any other insurance or self-insurance available to Ava. Any insurance or self-insurance maintained by Ava, its officers, employees, agents or volunteers, will be in excess of Consultant's insurance and will not contribute with it.

E. Consultant's Waiver of Subrogation. The insurance policies required under this Agreement will not prohibit Consultant and Consultant's employees, agents or Subconsultants from waiving the right of subrogation prior to a loss. Consultant hereby waives all rights of subrogation against Ava.

F. Deductibles and Self-Insured Retentions. Any deductibles or self-insured retentions must be declared to and approved by Ava. At Ava's option, Consultant must either reduce or eliminate the deductibles or self-insured retentions with respect to Ava, or Consultant must procure a bond guaranteeing payment of losses and expenses.

G. Cancellations or Modifications to Coverage. Consultant agrees not to cancel any insurance coverage during the Term. Consultant further agrees not to, reduce or otherwise modify the insurance policies required by this Agreement during the term of this Agreement, without the prior written approval of Ava. The commercial general and automobile liability policies required under this Agreement must be endorsed to state that should the issuing insurer cancel the policy before the expiration date, the issuing insurer will endeavor to mail 30 days' prior written notice to Ava. If any insurance policy required under Agreement is canceled or reduced in coverage or limits, Consultant must, within two business days of notice from the insurer, phone and notify Ava via electronic mail and certified mail, return receipt requested, of the cancellation of or reductions to any policy.

H. Ava Remedy for Noncompliance. If Consultant does not maintain the policies of insurance required under this Agreement in full force and effect during the term of this Agreement, or in the event any of Consultant's policies do not comply with the requirements of this Exhibit F, Ava may either immediately terminate this Agreement or, if insurance is available at a reasonable cost, Ava may, but has no duty to, take out the necessary insurance and pay, at Consultant's expense, the premium thereon. Consultant must promptly reimburse Ava for any premium paid by Ava or Ava, in its sole discretion, may withhold amounts sufficient to pay the premiums from payments due to Consultant.

I. Evidence of Insurance. Prior to the performance of Services under this Agreement, Consultant must furnish Ava with a certificate or certificates of insurance and all original endorsements evidencing and effecting the coverages required under this Agreement. The endorsements are subject to Ava's approval. Ava may request, and Consultant must provide complete, certified copies of all required insurance policies to Ava. Consultant must maintain current endorsements on file with Ava. Consultant must provide proof to Ava that insurance policies expiring during the term of this Agreement have been renewed or replaced with other policies providing at least the same coverage. Consultant must furnish such proof at least two weeks prior to the expiration of the coverages.

J. Indemnity Requirements not Limiting. Procurement of insurance by Consultant will not be construed as a limitation of Consultant's liability or as full performance of Consultant's duty to indemnify Ava under Section 12 of this Agreement.

K. Subconsultant Insurance Requirements. Consultant's insurance coverage must include its Subconsultants or Consultant must require each of its Subconsultants that perform Work under this Agreement to maintain insurance coverage that meets all the requirements of this Exhibit F.

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