



STATE OF CALIFORNIA

**GRANT REQUEST FORM (GRF)**

CEC-270 (Revised 12/2019)

CALIFORNIA ENERGY COMMISSION

**A) New Agreement # ARV-21-036 (to be completed by CGL office)**

<b>B) Division</b>	<b>Agreement Manager:</b>	<b>MS-</b>	<b>Phone</b>
600 Fuels and Transportation Division	Kate Reid	27	916-237-2536

<b>C) Recipient's Legal Name</b>	<b>Federal ID #</b>
Momentum Dynamics Corporation	27-0965163

<b>D) Title of Project</b>
Innovative Wireless Charging for Public Transit Project

**E) Term and Amount**

<b>Start Date</b>	<b>End Date</b>	<b>Amount</b>
10 / 13 / 2021	3 / 31 / 2026	\$ 1,700,000

**F) Business Meeting Information**

☐ ARFVTP agreements \$75K and under delegated to Executive Director

Proposed Business Meeting Date 10 / 13 / 2021 ☐ Consent ☒ Discussion

Business Meeting Presenter Kate Reid Time Needed: 5 minutes

Please select one list serve. Altfuels (AB118- ARFVTP)

**Agenda Item Subject and Description:**

MOMENTUM DYNAMICS CORPORATION. Proposed resolution approving Agreement ARV-21-036 with Momentum Dynamics Corporation for a \$1,700,000 grant to deploy 300 kW wireless charging infrastructure at seven strategic locations within the SolanoExpress service operated by Solano Transit Authority and adopting staff's determination that this action is exempt from CEQA. (Clean Transportation Program funding). Contact: Kate Reid (Staff Presentation: 5 minutes)

**G) California Environmental Quality Act (CEQA) Compliance**

1. Is Agreement considered a "Project" under CEQA?

☒ Yes (skip to question 2) ☐ No (complete the following (PRC 21065 and 14 CCR 15378)):

Explain why Agreement is not considered a "Project":

Agreement will not cause direct physical change in the environment or a reasonably foreseeable indirect physical change in the environment because .

2. If Agreement is considered a "Project" under CEQA:

a) ☐ Agreement **IS** exempt.

☐ Statutory Exemption. List PRC and/or CCR section number:

☒ Categorical Exemption. List CCR section number: 15301, 15303, & 15304

☐ Common Sense Exemption. 14 CCR 15061 (b) (3) Explain reason why Agreement is exempt under the above section:

Agreement is exempt under the above section: Explain reason why Agreement is exempt under the above section:

The project is categorically exempt from the provisions of CEQA pursuant to Class 1, 3, and 4 Categorical Exemptions of the State CEQA Guidelines. Operation and minor alteration of existing facilities and vehicle operations are categorically exempt from the



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provisions of CEQA under the Class 1 categorical exemption for the operation, repair, maintenance, and/or minor alteration of existing structures, facilities, and/or mechanical equipment involving negligible expansion of existing use (14 CCR § 15301). New Construction and Conversion of Small Structures and Equipment for the EV chargers is exempt from CEQA under the Class 3 Categorical Exemption (14 CCR §15303). Lastly, the project is exempt under the Class 4 for Minor Trenching (14 CCR §15304). The installation of the chargers will be located in “urbanized areas” and the total impacted areas will be less than 10,000 square feet (14 CCR §15303(c)).

- b) ☐ Agreement **IS NOT** exempt. (consult with the legal office to determine next steps)

Check all that apply

- ☐ Initial Study  
☐ Negative Declaration  
☐ Mitigated Negative Declaration  
☐ Environmental Impact Report  
☐ Statement of Overriding Considerations

**H) List all subcontractors (major and minor) and equipment vendors:** (attach additional sheets as necessary)

Legal Company Name:	Budget
TBD (Site Installation - 7 Sites x \$170K) (CEC funds)	\$ 74,000.00
TBD (Site / Project Film and Photography) (CEC funds)	\$ 31,000.00
TBD (3rd Party Data Analysis & Reporting) (CEC funds)	\$ 90,000.00
WSP USA, Inc. (Match) funds)	\$ 1,500,000.00
TBD (Site installation - 7 Sites x \$170) (Match funds)	\$ 1,116,000.00
Solano Transportation Authority (Program Management) (Match funds)	\$ 118,080.00

**I) List all key partners:** (attach additional sheets as necessary)

Legal Company Name:
Solano Transportation Corporation (STA)
Solano County Transit (SolTrans)
Fairfield and Suisun Transit (FAST)
Pacific Gas and Electric Corporation (PG&E)
National Renewable Energy Laboratory

**J) Budget Information**

Funding Source	Funding Year of Appropriation	Budget List Number	Amount
ARFVTP	FY 18/19	601.118K	\$1,700,000
Funding Source			\$
Funding Source			\$
Funding Source			\$
Funding Source			\$

R&D Program Area: Select Program Area

TOTAL: \$ 1,700,000



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CALIFORNIA ENERGY COMMISSION

Explanation for "Other" selection

Reimbursement Contract #:

Federal Agreement #:

### K) Recipient's Contact Information

#### 1. Recipient's Administrator/Officer

Name: Bob Kacergis

Address: 3 Pennsylvania Avenue

City, State, Zip: Malvern, PA 19355

Phone: 610.662.1461

E-Mail:

bob.kacergis@momentumdynamics.co  
m

#### 2. Recipient's Project Manager

Name: Bob Kacergis

Address: 3 Pennsylvania Avenue

City, State, Zip: Malvern, PA 19355

Phone: 610.662.1461

E-Mail:

bob.kacergis@momentumdynamics.co  
m

### L) Selection Process Used

☒ Competitive Solicitation Solicitation #: GFO-20-605

☐ First Come First Served Solicitation Solicitation #: - -

### M) The following items should be attached to this GRF

1. Exhibit A, Scope of Work

2. Exhibit B, Budget Detail

3. CEC 105, Questionnaire for Identifying Conflicts

4. Recipient Resolution

5. CEQA Documentation

☒ Attached

☒ Attached

☒ Attached

☒ N/A

☐ Attached

☐ N/A

☒ Attached

\_\_\_\_\_  
Agreement Manager

\_\_\_\_\_  
Date

\_\_\_\_\_  
Office Manager

\_\_\_\_\_  
Date

\_\_\_\_\_  
Deputy Director

\_\_\_\_\_  
Date

## Exhibit A Scope of Work

### TECHNICAL TASK LIST

Task #	CPR	Task Name
1		Administration
2		Identify & Assess Charging Locations
3	X	Site Design
4	X	Site Installation/Construction
5		Commission Chargers
6		Operator & Driver Training
7		Energy Tracking/Billing
8		Project Operation and Ongoing Management
9		Project Fact Sheet
10		Data Collection and Analysis

### KEY NAME LIST

Task #	Key Personnel	Key Subcontractor(s)	Key Partner(s)
1	Todd Daniel, Momentum Dynamics Corporation (MD) Anthony Adams, Solano Transportation Authority (STA)	None	
2	Todd Daniel, MD Anthony Adams, STA Bob Kacergis, MD	WSP USA, Inc. (WSP)	STA, Solano County Transit (SolTrans), Fairfield and Suisun Transit (FAST)
3	Bill Bayer, MD Todd Daniel, MD Anthony Adams, STA	WSP	STA, SolTrans, FAST, Pacific Gas and Electric Corporation (PG&E)
4	Bill Bayer, MD Todd Daniel, MD Anthony Adams, STA	WSP & Installer (TBD – will solicit construction bids during project)	PG&E
5	Bill Bayer, MD Joren Wendschuh, MD Phillip Woolen, MD		
6	Todd Daniel, MD Phillip Woolen, MD		STA, SolTrans, FAST
7	Joren Wendschuh, MD		STA, PG&E

## Exhibit A Scope of Work

	Tech Lead, STA		
8	Todd Daniel, MD Bob Kacergis, MD Anthony Adams, STA		
9	Todd Daniel, MD Anthony Adams, STA	TBD	STA
10	MD NOC Team	TBD	National Renewable Energy Laboratory

### GLOSSARY

Specific terms and acronyms used throughout this scope of work are defined as follows:

<b>Term/ Acronym</b>	<b>Definition</b>
BEB	Battery Electric Bus
CAM	Commission Agreement Manager
CAO	Commission Agreement Officer
CEC	California Energy Commission
Clean Transportation Program	Formerly known as the Alternative and Renewable Fuel and Vehicle Technology Program
CPO	Charge Point Operator
CPR	Critical Project Review
EV	Electric Vehicle
FAST	Fairfield and Suisun Transit
FTD	Fuels and Transportation Division
GA	Ground Assembly (system including power electronics cabinet & ground transmitter pads)
ICT	Innovative Clean Transit Regulation
MD	Momentum Dynamics Corporation
MOU	Memorandum of Understanding
NOC	Network Operations Center
OEM	Original Equipment Manufacturer
PG&E	Pacific Gas and Electric Corporation
Project	Innovative Wireless Charging for Public Transit Project
SolTrans	Solano County Transit

## **Exhibit A Scope of Work**

STA	Solano Transportation Authority
VA	Vehicle Assembly
VIN	Vehicle Identification Number

### **Background**

Assembly Bill (AB) 118 (Núñez, Chapter 750, Statutes of 2007), created the Clean Transportation Program, formerly known as the Alternative and Renewable Fuel and Vehicle Technology Program. The statute authorizes the California Energy Commission (CEC) to develop and deploy alternative and renewable fuels and advanced transportation technologies to help attain the state's climate change, clean air, and alternative energy policies. AB 8 (Perea, Chapter 401, Statutes of 2013) re-authorizes the Clean Transportation Program through January 1, 2024. The Clean Transportation Program has an annual budget of approximately \$100 million and provides financial support for projects that:

- Reduce California's use and dependence on petroleum transportation fuels and increase the use of alternative and renewable fuels and advanced vehicle technologies.
- Produce sustainable alternative and renewable low-carbon fuels in California.
- Expand alternative fueling infrastructure and fueling stations.
- Improve the efficiency, performance and market viability of alternative light-, medium-, and heavy-duty vehicle technologies.
- Electrify medium- and heavy-duty on-road and non-road vehicle fleets to alternative technologies or fuel use.
- Expand the alternative fueling infrastructure available to existing fleets, public transit, and transportation corridors.
- Establish workforce training programs and conduct public outreach on the benefits of alternative transportation fuels and vehicle technologies.

On August 7, 2020, the CEC released a Grant Solicitation and Application Package entitled "BESTFIT Innovative Charging Solutions" under the Clean Transportation Program. This competitive grant solicitation offered to fund projects that demonstrate transformative technology solutions and work to accelerate the successful commercial deployment of electric vehicle (EV) charging for both light-duty (LD) and medium- and heavy-duty (MD/HD) applications. In response to GFO-20-605, the Recipient submitted application #18 which was proposed for funding in the CEC's Notice of Proposed Awards on April 16, 2021. GFO-20-605 and Recipient's application are hereby incorporated by reference into this Agreement in their entirety.

In the event of any conflict or inconsistency between the terms of the Solicitation and the terms of the Recipient's Application, the Solicitation shall control. In the event of any conflict or inconsistency between the Recipient's Application and the terms of Commission's Award, the Commission's Award shall control. Similarly, in the event of any conflict or inconsistency between the terms of this Agreement and the Recipient's Application, the terms of this Agreement shall control.

## **Exhibit A**

### **Scope of Work**

#### **Problem Statement:**

California's public transit agencies are facing severe challenges to meet the state's mandate to achieve 100% zero-emission electric bus fleets by 2040.<sup>1</sup> Most transit depots cannot meet the demands of full fleet electrification without expensive and protracted grid upgrades, and California's transit agencies are struggling to overcome the daunting upfront capital costs for electrical infrastructure—especially as revenues have crashed during Covid-19. Without innovation and collaboration, prohibitively expensive utility upgrades will be necessary for nearly all of the state's 200 individual transit operators, and, sadly, most of the traditional infrastructure investments would be under-utilized by each individual transit operator. Each individual agency needs to invest in landside electrical upgrades, but these upgrades will only be used for a small portion of each day. Daily bus routes often exceed the actual range of currently available zero-emission bus technology, which causes intermediate charging delays and requires even more range-extending charging infrastructure in fringe service territories that will only be used briefly each day—unless multiple agencies share a charging interface that allows for collaborative investments and optimized infrastructure utilization.

An economical solution is urgently needed to overcome these obstacles and drive the deployment of zero-emission buses and charging infrastructure. Fortunately, the opportunity is ripe since most of the state's public transit agencies are still in the planning stages for their zero-emission transitions.<sup>2</sup> Timing is ideal for the proposed project to demonstrate and deploy a cost-effective, innovative charging interface solution that will minimize infrastructure costs via shared charging, increase charger utilization, and reduce utility upgrade costs for each agency. A collaborative charging interface will facilitate extended functional vehicle range to serve long routes, distribute the load on the electrical grid, and simplify operations and maintenance. Finally, it will help transit operators statewide successfully implement the state's Innovative Clean Transit Regulation (ICT).

#### **Goals of the Agreement:**

The goal of this agreement is to demonstrate a state-of-the-art electric vehicle (EV) wireless inductive charging system to accelerate the commercial deployment of EV charging for application in the medium- and heavy-duty vehicle sector. This agreement will make it possible for Solano Transportation Authority (STA) to transition its existing diesel long-haul coach buses to a zero-emission fleet, and will serve as a model of interagency operations as well as cross-OEM and cross-power level interoperability needed for the advancement of zero-emission electric transit in California and the U.S.

#### **Objectives of the Agreement:**

The objectives of this agreement are to:

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<sup>1</sup> California Air Resources Board. "California Transitioning to All Electric public bus fleet by 2040." Dec. 14, 2018. <https://ww2.arb.ca.gov/news/california-transitioning-all-electric-public-bus-fleet-2040>

<sup>2</sup> California Air Resources Board. "Status of Battery and Fuel Cell Electric Buses in California Transit Agencies." <https://ww3.arb.ca.gov/msprog/ict/faqs/zbusmap.pdf>

## **Exhibit A**

### **Scope of Work**

1. Deploy 7 wireless chargers to serve 13 electric buses within STA's SolanoExpress service.
2. Demonstrate the benefits of innovative, automated wireless charging.
3. Showcase a cost-effective charging solution that addresses range issues, reduces expensive utility upgrades, and mediates upfront capital cost.
4. Demonstrate operational advancements for charging infrastructure, including system sharing and interoperability with multiple EVs and power levels.
5. Create a replicable charging model and roadmap for California public transit agencies.
6. Accelerate the commercial deployment of transformative wireless EV charging for multiple vehicle applications, including autonomous.
7. Facilitate the adoption of EVs by making the charging experience seamless and maximizing charger utilization.
8. Serve as a showcase of interagency and inter-OEM infrastructure collaboration.

#### **TASK 1 ADMINISTRATION**

##### **Task 1.1 Attend Kick-off Meeting**

The goal of this task is to establish the lines of communication and procedures for implementing this Agreement. The Commission Agreement Manager (CAM) shall designate the date and location of this meeting and provide an agenda to the Recipient prior to the meeting.

##### **The Recipient shall:**

- Attend a "Kick-Off" meeting with the CAM, the Commission Agreement Officer (CAO), and a representative of the Energy Commission Accounting Office. The Recipient shall bring their Project Manager, Agreement Administrator, Accounting Officer, and any others determined necessary by the Recipient or specifically requested by the CAM to this meeting.
- Discuss the following administrative and technical aspects of this Agreement:
  - Agreement Terms and Conditions
  - Critical Project Review (Task 1.2)
  - Match fund documentation (Task 1.6) No reimbursable work may be done until this documentation is in place.
  - Permit documentation (Task 1.7)
  - Subcontracts needed to carry out project (Task 1.8)
  - The CAM's expectations for accomplishing tasks described in the Scope of Work
  - An updated Schedule of Products and Due Dates
  - Monthly Progress Reports (Task 1.4)
  - Technical Products (Product Guidelines located in Section 5 of the Terms and Conditions)
  - Final Report (Task 1.5)



## **Exhibit A Scope of Work**

### **Recipient Products:**

- Updated Schedule of Products
- Updated List of Match Funds
- Updated List of Permits

### **Commission Agreement Manager Product:**

- Kick-Off Meeting Agenda

### **Task 1.2 Critical Project Review (CPR) Meetings**

CPRs provide the opportunity for frank discussions between the Energy Commission and the Recipient. The goal of this task is to determine if the project should continue to receive Energy Commission funding to complete this Agreement and to identify any needed modifications to the tasks, products, schedule or budget.

The CAM may schedule CPR meetings as necessary, and meeting costs will be borne by the Recipient.

Meeting participants include the CAM and the Recipient and may include the Commission Agreement Officer, the Fuels and Transportation Division (FTD) program lead, other Energy Commission staff and Management as well as other individuals selected by the CAM to provide support to the Energy Commission.

### **The CAM shall:**

- Determine the location, date, and time of each CPR meeting with the Recipient. These meetings generally take place at the Energy Commission, but they may take place at another location.
- Send the Recipient the agenda and a list of expected participants in advance of each CPR. If applicable, the agenda shall include a discussion on both match funding and permits.
- Conduct and make a record of each CPR meeting. Prepare a schedule for providing the written determination described below.
- Determine whether to continue the project, and if continuing, whether or not modifications are needed to the tasks, schedule, products, and/or budget for the remainder of the Agreement. Modifications to the Agreement may require a formal amendment (please see section 8 of the Terms and Conditions). If the CAM concludes that satisfactory progress is not being made, this conclusion will be referred to the Lead Commissioner for Transportation for his or her concurrence.
- Provide the Recipient with a written determination in accordance with the schedule. The written response may include a requirement for the Recipient to revise one or more product(s) that were included in the CPR.

## **Exhibit A Scope of Work**

### **The Recipient shall:**

- Prepare a CPR Report for each CPR that discusses the progress of the Agreement toward achieving its goals and objectives. This report shall include recommendations and conclusions regarding continued work of the projects. This report shall be submitted along with any other products identified in this scope of work. The Recipient shall submit these documents to the CAM and any other designated reviewers at least 15 working days in advance of each CPR meeting.
- Present the required information at each CPR meeting and participate in a discussion about the Agreement.

### **CAM Products:**

- Agenda and a list of expected participants
- Schedule for written determination
- Written determination

### **Recipient Product:**

- CPR Report(s)

### **Task 1.3 Final Meeting**

The goal of this task is to closeout this Agreement.

### **The Recipient shall:**

- Meet with Energy Commission staff to present the findings, conclusions, and recommendations. The final meeting must be completed during the closeout of this Agreement.

This meeting will be attended by, at a minimum, the Recipient, the Commission Grants Office Officer, and the Commission Agreement Manager. The technical and administrative aspects of Agreement closeout will be discussed at the meeting, which may be two separate meetings at the discretion of the Commission Agreement Manager.

The technical portion of the meeting shall present an assessment of the degree to which project and task goals and objectives were achieved, findings, conclusions, recommended next steps (if any) for the Agreement, and recommendations for improvements. The Commission Agreement Manager will determine the appropriate meeting participants.

The administrative portion of the meeting shall be a discussion with the Commission Agreement Manager and the Grants Officer about the following Agreement closeout items:

- What to do with any equipment purchased with Energy Commission funds (Options)
- Energy Commission's request for specific "generated" data (not already provided in Agreement products)

## **Exhibit A**

### **Scope of Work**

- Need to document Recipient's disclosure of "subject inventions" developed under the Agreement
- "Surviving" Agreement provisions
- Final invoicing and release of retention
- Prepare a schedule for completing the closeout activities for this Agreement.

#### **Products:**

- Written documentation of meeting agreements
- Schedule for completing closeout activities

#### **Task 1.4 Monthly Progress Reports**

The goal of this task is to periodically verify that satisfactory and continued progress is made towards achieving the objectives of this Agreement on time and within budget.

The objectives of this task are to summarize activities performed during the reporting period, to identify activities planned for the next reporting period, to identify issues that may affect performance and expenditures, and to form the basis for determining whether invoices are consistent with work performed.

#### **The Recipient shall:**

- Prepare a Monthly Progress Report which summarizes all Agreement activities conducted by the Recipient for the reporting period, including an assessment of the ability to complete the Agreement within the current budget and any anticipated cost overruns. Each progress report is due to the Commission Agreement Manager within 10 days of the end of the reporting period. The recommended specifications for each progress report are contained in Section 6 of the Terms and Conditions of this Agreement.
- In the first Monthly Progress Report and first invoice, document and verify match expenditures and provide a synopsis of project progress, if match funds have been expended or if work funded with match share has occurred after the notice of proposed award but before execution of the grant agreement. If no match funds have been expended or if no work funded with match share has occurred before execution, then state this in the report. All pre-execution match expenditures must conform to the requirements in the Terms and Conditions of this Agreement.

#### **Product:**

- Monthly Progress Reports

#### **Task 1.5 Final Report**

The goal of the Final Report is to assess the project's success in achieving the Agreement's goals and objectives, advancing science and technology, and providing energy-related and other benefits to California.

## **Exhibit A**

### **Scope of Work**

The objectives of the Final Report are to clearly and completely describe the project's purpose, approach, activities performed, results, and advancements in science and technology; to present a public assessment of the success of the project as measured by the degree to which goals and objectives were achieved; to make insightful observations based on results obtained; to draw conclusions; and to make recommendations for further projects and improvements to the FTD project management processes.

The Final Report shall be a public document. If the Recipient has obtained confidential status from the Energy Commission and will be preparing a confidential version of the Final Report as well, the Recipient shall perform the following activities for both the public and confidential versions of the Final Report.

#### **The Recipient shall:**

- Prepare an Outline of the Final Report.
- Prepare a Final Report following the latest version of the Final Report guidelines which will be provided by the CAM. The CAM shall provide written comments on the Draft Final Report within fifteen (15) working days of receipt. The Final Report must be completed at least 60 days before the end of the Agreement Term.
- Submit one bound copy of the Final Report with the final invoice.

#### **Products:**

- Outline of the Final Report
- Draft Final Report
- Final Report

#### **Task 1.6 Identify and Obtain Matching Funds**

The goal of this task is to ensure that the match funds planned for this Agreement are obtained for and applied to this Agreement during the term of this Agreement.

The costs to obtain and document match fund commitments are not reimbursable through this Agreement. Although the Energy Commission budget for this task will be zero dollars, the Recipient may utilize match funds for this task. Match funds shall be spent concurrently or in advance of Energy Commission funds for each task during the term of this Agreement. Match funds must be identified in writing and the associated commitments obtained before the Recipient can incur any costs for which the Recipient will request reimbursement.

#### **The Recipient shall:**

- Prepare a letter documenting the match funding committed to this Agreement and submit it to the Commission Agreement Manager at least 2 working days prior to the kick-off meeting. If no match funds were part of the proposal that led to the Energy Commission awarding this Agreement and none have been identified at the time this Agreement starts, then state such in the letter. If match funds were a part of the proposal that led to the Energy Commission awarding this Agreement, then provide in the letter a list of the match funds that identifies the:

## **Exhibit A**

### **Scope of Work**

- Amount of each cash match fund, its source, including a contact name, address and telephone number and the task(s) to which the match funds will be applied.
  - Amount of each in-kind contribution, a description, documented market or book value, and its source, including a contact name, address and telephone number and the task(s) to which the match funds will be applied. If the in-kind contribution is equipment or other tangible or real property, the Recipient shall identify its owner and provide a contact name, address and telephone number, and the address where the property is located.
- Provide a copy of the letter of commitment from an authorized representative of each source of cash match funding or in-kind contributions that these funds or contributions have been secured. For match funds provided by a grant a copy of the executed grant shall be submitted in place of a letter of commitment.
- Discuss match funds and the implications to the Agreement if they are reduced or not obtained as committed, at the kick-off meeting. If applicable, match funds will be included as a line item in the progress reports and will be a topic at CPR meetings.
- Provide the appropriate information to the Commission Agreement Manager if during the course of the Agreement additional match funds are received.
- Notify the Commission Agreement Manager within 10 days if during the course of the Agreement existing match funds are reduced. Reduction in match funds must be approved through a formal amendment to the Agreement and may trigger an additional CPR meeting.

#### **Products:**

- A letter regarding match funds or stating that no match funds are provided
- Copy(ies) of each match fund commitment letter(s) (if applicable)
- Letter(s) for new match funds (if applicable)
- Letter that match funds were reduced (if applicable)

#### **Task 1.7 Identify and Obtain Required Permits**

The goal of this task is to obtain all permits required for work completed under this Agreement in advance of the date they are needed to keep the Agreement schedule on track.

Permit costs and the expenses associated with obtaining permits are not reimbursable under this Agreement. Although the Energy Commission budget for this task will be zero dollars, the Recipient shall budget match funds for any expected expenditures associated with obtaining permits. Permits must be identified in writing and obtained before the Recipient can make any expenditure for which a permit is required.

## **Exhibit A**

### **Scope of Work**

#### **The Recipient shall:**

- Prepare a letter documenting the permits required to conduct this Agreement and submit it to the Commission Agreement Manager at least 2 working days prior to the kick-off meeting. If there are no permits required at the start of this Agreement, then state such in the letter. If it is known at the beginning of the Agreement that permits will be required during the course of the Agreement, provide in the letter:
  - A list of the permits that identifies the:
    - Type of permit
    - Name, address and telephone number of the permitting jurisdictions or lead agencies
  - The schedule the Recipient will follow in applying for and obtaining these permits.
- Discuss the list of permits and the schedule for obtaining them at the kick-off meeting and develop a timetable for submitting the updated list, schedule and the copies of the permits. The implications to the Agreement if the permits are not obtained in a timely fashion or are denied will also be discussed. If applicable, permits will be included as a line item in the Progress Reports and will be a topic at CPR meetings.
- If during the course of the Agreement additional permits become necessary, provide the appropriate information on each permit and an updated schedule to the Commission Agreement Manager.
- As permits are obtained, send a copy of each approved permit to the Commission Agreement Manager.
- If during the course of the Agreement permits are not obtained on time or are denied, notify the Commission Agreement Manager within 5 working days. Either of these events may trigger an additional CPR.

#### **Products:**

- Letter documenting the permits or stating that no permits are required
- A copy of each approved permit (if applicable)
- Updated list of permits as they change during the term of the Agreement (if applicable)
- Updated schedule for acquiring permits as changes occur during the term of the Agreement (if applicable)
- A copy of each final approved permit (if applicable)

## **Exhibit A**

### **Scope of Work**

#### **Task 1.8 Obtain and Execute Subcontracts**

The goal of this task is to ensure quality products and to procure subcontractors required to carry out the tasks under this Agreement consistent with the Agreement Terms and Conditions and the Recipient's own procurement policies and procedures. It will also provide the Energy Commission an opportunity to review the subcontracts to ensure that the tasks are consistent with this Agreement, and that the budgeted expenditures are reasonable and consistent with applicable cost principles.

##### **The Recipient shall:**

- Manage and coordinate subcontractor activities.
- Submit a draft of each subcontract required to conduct the work under this Agreement to the Commission Agreement Manager for review.
- Submit a final copy of the executed subcontract.
- If Recipient decides to add new subcontractors, then the Recipient shall notify the CAM.

##### **Products:**

- Letter describing the subcontracts needed, or stating that no subcontracts are required
- Draft subcontracts
- Final subcontracts

#### **TECHNICAL TASKS**

##### **TASK 2 IDENTIFY & ASSESS CHARGING LOCATIONS**

The goal of this task is to identify the best locations for charging equipment placement and perform route operations/energy modeling to ensure (a) that successful route operations will be achieved in all weather conditions, (b) that there are commercially available Battery Electric Buses (BEBs) that can complete the route requirements, and (c) that there is sufficient charger capacity to avoid bottlenecks when multiple routes/vehicles could be competing for access to charging.

##### **The Recipient shall:**

- Review the routes that are envisioned to be supported by the wireless chargers, including an understanding of potential evolutions of the service (additional stops, route length, and service intervals).
- Develop an understanding of the envisioned equipment needed to serve the route demands (seating capacity).
- Inventory the ranges of potential vehicles available to serve each route's demands (manufacturers, models, battery sizes, performance specifications).
- Produce a status of OEMs' readiness for delivering wireless ready buses into STA service area, including timelines and specifications.
- Provide a copy of the OEM Status to the CAM.

## **Exhibit A**

### **Scope of Work**

- For each route, perform dynamic route energy modeling to assess adequacy of charging power level across expected temperature conditions and across multiple vehicles (if available).
- Calculate an expected worst case utilization analysis of each charging site to assess capacity adequacy, which will avoid creating operational bottlenecks and define guiding principles to help plan future capacity.
- Conduct a Utilization Analysis showing time of day energy and time-on-charger demand for each charger location for weekend/off-peak operations & weekday operations, including layout, mechanical, electrical plan, environmental testing, permitting.
- Provide a copy of the Utilization Analysis to the CAM.
- Prepare a Recommendation Report of specific charging sites with supporting rationale including:
  - Route operational/energy analysis of most demanding service block.
  - Summary of route operations analysis with available BEBs.
  - Summary of route operations analysis across range of expected operating temperatures.
- Provide a copy of the Recommendation Report to the CAM.

#### **Products:**

- OEM Status
- Utilization Analysis
- Recommendation Report

### **TASK 3 SITE DESIGN**

The goal of this task is to use the high-level site evaluations from Task 2 to develop and complete construction-ready site designs the project team will present to obtain construction and installation bids/quotes.

#### **The Recipient shall:**

- Review existing site schematics and complete an initial overlay of potential locations for power electronics, connection points to grid, and ground charging pads.
- Provide As-built site designs and drawings to the CAM.
- Assess power adequacy for initial and future phases of BEB powering from each site.
- Perform a site visit in conjunction with Design Firm, MD, and transit operators who use each site to compare as-built configuration to schematics, assess vehicle ingress/egress, other users, landscaping/design considerations, determine signage needs (for vehicles/for passengers).
- Provide a Site Visit Report with key findings and implications for site design to the CAM.



## **Exhibit A**

### **Scope of Work**

- Develop site design, including electrical design, civil design, into build-ready plans suitable for obtaining build/install quotes.
- Provide a copy of detailed site designs to the CAM, including electrical and civil components updated with any observed changes to the as-built drawings
- Review site design with STA and transit agencies who operate at each site confirm the design is consistent with the operating plan.
- Develop a draft MOU/Operating Agreement for each site.
- Execute MOU/Operating Agreements for each site.
- Provide copies of executed MOU and Operating Agreements for each operating site to the CAM.

#### **Products:**

- As-built site designs/drawings
- Site Visit Report
- Detailed site design(s)
- Executed MOU/Operating Agreement(s)

**[CPR WILL OCCUR DURING THIS TASK. See Task 1.2 for details.]**

#### **TASK 4 SITE INSTALLATION/CONSTRUCTION**

The goal of this task is to prepare/upgrade each site's electric infrastructure to ensure adequate electrical service for the charging infrastructure, connect to the electrical grid, lay the conduit, and install the charging equipment.

#### **The Recipient shall:**

- Work with PG&E utility to, where necessary, upgrade electrical service to each site to ensure adequate electrical service for the charging infrastructure.
- Provide copies of scheduled utility upgrades signed off by PG&E to the CAM.
- Excavate sites for conduit runs (grid to power electronics, power electronics to pads) and pad installation sites.
- Run conduits.
- Install ground sockets.
- Complete/finish sites (cement, cleanup, painting).
- Install power electronics, cabling, charging pads.
- Document the installed equipment (final drawings, site photos, written description).
- Provide written confirmation, photographs, and final drawings for installations of:
  - Electrical service upgrade
  - Installation ready excavation

## **Exhibit A Scope of Work**

- Installed conduit and ground sockets
- Installed electrical equipment and cabling
- Submit an AB 841 Certification that certifies the project has complied with all AB 841 (Ting, Chapter 372, Statutes of 2020) requirements specified in Exhibit C or describes why the AB 841 requirements do not apply to the project. The certification shall be signed by Recipient's authorized representative. Although AB 841 becomes effective January 1, 2022, as a policy matter the CEC is applying the EVITP certification requirements to project work funded under this Agreement, regardless of whether it might be performed prior to January 1, 2022, unless an exception applies.
- Submit Electric Vehicle Infrastructure Training Program (EVITP) Certification Numbers of each EVITP-certified electrician that installed electric vehicle charging infrastructure or equipment. EVITP Certification Numbers are not required to be submitted if AB 841 requirements do not apply to the project.

### **Products:**

- Scheduled utility upgrades signed off by PG&E
- Written confirmation, photographs, and final drawings of installations
- AB 841 Certification
- EVITP Certification Numbers of each EVITP certified electrician

**[CPR WILL OCCUR DURING THIS TASK. See Task 1.2 for details.]**

### **TASK 5 COMMISSION CHARGERS**

The goal of this task is to activate the charging equipment installed in Task 4 and perform operational testing with a wirelessly enabled BEB. Data collection and reporting for charging management will be verified.

#### **The Recipient shall:**

- Secure access to a wirelessly enabled vehicle to utilize for operational verification and system readiness (vehicle and wireless enablement are not part of this grant application).
- Ensure that the system operates as designed by testing with a wireless ready vehicle, e.g., in-vehicle alignment feedback, automatic session initiation, in-vehicle charge state information, and automatic session termination.
- Verify that all elements of system communications are operating as designed:
  - Vehicle-to-charger communication
  - Pad-to-pad communication
  - System-to-network communication (cellular modem or wireless to local network)
- Verify operation of energy metering system and that session data (charger state data and vehicle session data) are captured, logged, and retrievable.

## **Exhibit A**

### **Scope of Work**

- Verify that session energy usage is tagged to the Vehicle Identification Number (VIN) in a format suitable for automatic billing, including the interface to the billing system (whether this is real-time or batch process).
- After testing is complete, summarize system acceptance testing results.
- Provide a copy of system acceptance testing results to the CAM.
- Obtain sign-off and acceptance of charger owner(s).
- Provide written sign-off and acceptance of charging systems by new owner(s).

#### **Products:**

- Summary of system acceptance testing results
- Written sign-off and acceptance of charging systems by new owner(s)

### **TASK 6 OPERATOR AND DRIVER TRAINING**

The goal of this task is to ensure that system and coach operators are trained on the basic operations and maintenance of the charging system.

#### **The Recipient shall:**

- Revise System Operations and Maintenance Manual with any location specific updates (i.e., site photos, any instructions that are site specific).
- Provide a copy of the System Operations and Maintenance Manual to the CAM.
- Run a training session for key staff responsible for system operations at each of the operating sites, including appropriate staff from different transit agencies or CPOs based on the ownership/operating model for each location).
- Share approach for first-line support with MD's customer support team.
- Provide a copy of the maintenance log/checklist and approach for sharing with the CAM.
- Train system operators on the use of the remote data monitoring system.

#### **Products:**

- System Operations and Maintenance Manual (for operator of each site)
- Maintenance log/checklist and approach for operational / product support from Recipient

### **TASK 7 ENERGY TRACKING/BILLING**

The goal of this task is to establish the process for cross-agency tracking of energy consumption and charger utilization to facilitate cross-billing for charger usage.

#### **The Recipient shall:**

- Identify the key parties who need to be involved in agency energy billing/cross-billing, e.g., STA, transit agencies and utility and financial partners within the organization of each site owner.
- Provide a copy of the list of key parties for each site to the CAM.

## **Exhibit A**

### **Scope of Work**

- Define the content of billing record reports (i.e., time, VIN, energy amount) required to support the cross-agency billing process.
- Provide an outline of content/fields to be contained in billing record reports to the CAM.
- Establish the business process for ongoing cross-agency energy billing, e.g., responsible party for aggregating and reporting and the approach for cross agency payments.
- Provide a description of process and responsible parties for ongoing cross-agency energy billing to the CAM.

#### **Products:**

- List of key parties for each site
- Outline of content/fields to be contained in billing record reports
- Description of process and responsible parties for ongoing cross-agency energy billing

### **TASK 8 PROJECT OPERATION AND ONGOING MANAGEMENT**

The goal of this task is to successfully operate and grow the charging network and program. These activities will ensure the Project is a successful showcase of interoperability and interagency charging interfaces.

#### **The Recipient shall:**

- Work with STA to identify and onboard additional transit operators on the charging network throughout the length of the project.
- Provide an updated list of participating transit agencies and OEM demos to the CAM.
- Assist transit agencies in getting their vehicle fleets operational on the charging network.
- Identify opportunities for OEMs to conduct onsite demos of transit EVs for transit operators, and work with regional transit agencies.
- Provide ongoing data on transit agency usage to STA / the identified billing agency to support the billing process.
- Gather ongoing qualitative feedback from participating transit agencies (in support of Task 10).
- Prepare a report summarizing the successful operation of the billing approach and provide a copy to the CAM.
- Work with STA to develop media for marketing/education efforts, incorporating content and lessons learned from the Project (e.g., video content, bus & power cabinet display wraps, blog content, etc.).
- Produce digital copies/photos of educational and marketing materials and provide a copy to the CAM.

## **Exhibit A Scope of Work**

### **Products:**

- Updated list of participating transit agencies and OEM demos
- Digital copies/photos of educational and marketing materials
- Report summarizing the successful operation of the billing approach

### **TASK 9 PROJECT FACT SHEET**

The goal of this task is to develop an initial and final project fact sheet that describes the CEC-funded project and the benefits resulting from the project for the public and key decision makers.

### **The Recipient shall:**

- Prepare an Initial Project Fact Sheet at start of the project that describes the project and the expected benefits. Use the format provided by the CAM.
- Prepare a Final Project Fact Sheet at the project's conclusion that describes the project, the actual benefits resulting from the project, and lessons learned from implementing the project. Use the format provided by the CAM.
- Provide at least six High Quality Digital Photographs (minimum resolution of 1300x500 pixels in landscape ratio) from the project.

### **Products:**

- Initial Project Fact Sheet
- Final Project Fact Sheet
- High Quality Digital Photographs

### **TASK 10 DATA COLLECTION AND ANALYSIS**

The goal of this task is to collect operational data from the project, to analyze that data for economic and environmental impacts, and to include the data and analysis regular progress reports and the Final Report.

### **The Recipient shall:**

- Develop data collection test plan for deployed charging equipment.
- Troubleshoot any issues identified.
- Collect a minimum of 12 months of data on charging events for the deployed infrastructure including, but not limited to:
  - Charge and session duration
  - Energy delivered (kWh)
  - Peak power delivered (kW)
  - Applicable price for charging, including but not limited to: electric utility tariff, EVSP service contract, or public charger price
  - Payment method
  - Types of vehicles using the charging equipment
  - Number of unique vehicles and frequency of "repeat vehicles"

## **Exhibit A**

### **Scope of Work**

- Energy delivered back to grid or facility if a bidirectional charging use case (kWh)
- Submit the data described above electronically in a monthly progress report throughout the duration of the data collection period.
- Develop a plan to provide other relevant data and information throughout the duration of the funding agreement including, but not limited to:
  - Lessons learned
  - Best practices (e.g., permitting and installation processes)
  - Job creation
  - Economic development
  - Increased state revenue
- Submit the data described above electronically in a quarterly progress report throughout the duration of the agreement.
- Identify any planned use of renewable energy in the project.
- Compare any project performance and expectations provided in the proposal to the Energy Commission with actual project performance and accomplishments.
- Collect data, information, and analysis described above and include in the Final Report.

#### **Products:**

- Data collection on charging events will be submitted electronically in a monthly progress report
- Data collection on other relevant data and information described above will be submitted electronically in a quarterly progress report
- Data collection information and analysis will be included in the Final Report

STATE OF CALIFORNIA

STATE ENERGY RESOURCES  
CONSERVATION AND DEVELOPMENT COMMISSION

RESOLUTION: MOMENTUM DYNAMICS CORPORATION

**RESOLVED**, that the State Energy Resources Conservation and Development Commission (CEC) adopts the staff CEQA findings contained in the Agreement or Amendment Request Form (as applicable); and

**RESOLVED**, that the CEC approves Agreement ARV-21-036 with Momentum Dynamics Corporation for a \$1,700,000 grant to deploy 300 kW wireless charging infrastructure at seven strategic locations within the SolanoExpress service operated by Solano Transit Authority; and

**FURTHER BE IT RESOLVED**, that the Executive Director or their designee shall execute the same on behalf of the CEC.

**CERTIFICATION**

The undersigned Secretariat to the CEC does hereby certify that the foregoing is a full, true, and correct copy of a Resolution duly and regularly adopted at a meeting of the CEC held on October 13, 2021.

AYE:

NAY:

ABSENT:

ABSTAIN:

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Liza Lopez  
Secretariat