

**Request for Proposals:**

**Understanding the business case for charging infrastructure**

*February 2023*

# Background and Objectives

A substantial share of electric vehicle (EV) chargers deployed to date have benefited from public financial support. However, a positive business case for public charging infrastructure deployment without subsidies is emerging in some applications in leading markets. Whether or when a positive business case develops, and thus when public funding is no longer needed, depends on the market, location, vehicle type (cars versus medium- or heavy-duty), type of chargers (AC vs DC chargers and different power levels), and many other elements.

This focus area would summarize the key factors which drive the costs and profitability for public charging infrastructure deployment and discuss policies to implement to foster private sector involvement and maximize the benefit from public funds. Then, a case study focusing on public medium- and heavy-duty charging would create an interactive tool that helps to identify the impact of key metrics in developing a positive business case.

# About the International Zero-Emission Vehicle (ZEV) Alliance

The International ZEV Alliance is a collaboration of 21 governments, founded in late 2015 to accelerate the global transition to zero-emission vehicles. The member governments are eight countries (Canada, Chile, Costa Rica, Germany, Netherlands, New Zealand, Norway, United Kingdom) and 13 subnational jurisdictions (Baden-Württemberg, British Columbia, California, Connecticut, Maryland, Massachusetts, New Jersey, New York, Oregon, Québec, Rhode Island, Vermont, Washington). The collaboration includes the sharing of data, best practices, and lessons learned and involves coordinating on action plans to help the group collectively achieve its ZEV deployment goals. The International Council for Clean Transportation (ICCT) serves as the Secretariat to the Alliance.

Each year the Alliance selects three high-priority focus area research topics for a deeper technical understanding and policy exchange; the project in question for this RFP is an integral part of one of the focus areas for 2023. This work builds on several previous focus area projects related to equity in ZEVs use and ownership, listed at the end of this document. See these links for more information on the ZEV Alliance [announcement](http://www.zevalliance.org/international-zev-alliance-announcement/) to accelerate global ZEV sales, [publications](http://www.zevalliance.org/publications/), and [events](http://www.zevalliance.org/all-events/).

# Project Elements

The primary project elements are: (1) periodic engagement with the ZEV Alliance governments; (2) an original research report as described below; (3) creation of an interactive calculation tool; and (4) one or more webinars or in-person events to publicize the research.

Engagement with the ZEV Alliance includes participation in monthly project management calls with the ZEV Alliance secretariat, an initial teleconference call with interested ZEV Alliance members to discuss the approach and project priorities, a preliminary results briefing, and incorporating feedback on the consultant’s draft report from the secretariat and ZEV Alliance members.

# Scope and organization of the research report

A key project deliverable is an original research report of approximately 20-25 pages in length containing the following elements (page counts only a rough estimate), along with an executive summary highlighting key conclusions. The exact structure of the report may be different than this outline but should include these elements.

* Introduction and background (2 pages)
  + Describe the motivation for the report and importance of creating a positive business case for charging infrastructure
  + Preview the structure of the report
* Leading international approaches to foster private sector leadership (3 pages)
  + Compile and compare examples of policies to encourage charging buildout without government subsidy (or with subsidy reducing over time)
  + Survey available data on the share of chargers built without public subsidies in different EV markets
  + Identify and discuss applications where government support may be needed for longer
* Summary of charger hardware and installation costs (2-3 pages)
  + Based on literature review and other sources, summarize hardware and installation costs (including grid upgrades as possible) for important charging applications, including for light- and heavy-duty vehicle charging
* Key factors driving charging profitability (3-4 pages)
  + Analyze the sensitivity of the charging infrastructure business case to key factors including the cost of fuel, cost of electricity, utilization rates, EV fleet penetration, and other factors deemed important
  + Discuss how these factors may impact the business case differently in urban versus rural areas
  + Where feasible, identify opportunities for government to improve the business case by mitigating barriers in these areas beyond direct subsidies
  + Discuss and include evidence on impacts of recent economic trends (e.g., increased energy costs, supply chain issues, higher interest rates)
* Detailed cost analysis for public medium- and heavy-duty chargers (based on interactive tool) (5-6 pages)
  + Provide brief overview of tool and methodology
  + Summarize key assumptions and data sources
  + Present results for selected case studies (including at least 2 ZEV Alliance regions, ideally including one offering some form of carbon credits to infrastructure providers)
* Conclusions (1-2 pages)
  + Summarize key findings from the study
  + Provide recommendations for designing subsidy schemes and other government policies

# Interactive tool for assessing charging business case

The second key deliverable for this focus area project is a publicly available interactive tool which would allow users to assess the costs and revenue of public chargers for heavy-duty trucks (50 kW-DC and up) according to user inputs. Inputs would include, but are not limited to:

* Make-ready infrastructure and charger hardware
* Utility upgrades (e.g., substations, transformer upgrades)
* Land acquisition
* Financing of capital expenditures
* Cost of electricity (including demand charges)
* IT, network, and payment service subscriptions (e.g., payment to be part of network)
* Optional components such as energy storage and on-site renewable electricity generation
* Permitting and administrative costs
* Utilization (potentially as a function of EV penetration)
* Pricing structures ($/kWh for user) (with comparison to price of diesel)
* Credits from low carbon fuel standards or related policies
* Ancillary revenue streams (e.g., advertising, increased retail sales)

Outputs would include annual costs and revenue both in absolute terms as well as in $ (or local currency)/kWh.

Some of these features may not be the responsibility of the charging provider, which could be represented by a functionality to exclude certain costs from the overall assessment. To the extent possible, this tool would include default values for different regions and use cases.

The tool should also be accompanied by documentation for users. This tool may be web-based, Excel-based, or another program, but it should be usable without any programming experience.

# Project Timeline and Engagement Steps

This project timeline is set by the schedule in Table 1 below. The secretariat (International Council on Clean Transportation) expects to notify the selected consultant by mid-March and sign a contract for this work with the consultant by the end of March. There are several critical dates related to this project. A January 10th ZEV Alliance meeting served as a project kickoff with ZEV Alliance members to discuss priorities, approaches, and related activities for the focus area; the Secretariat will share results of this meeting with the consultant. The consultant’s work would primarily be done from April through September. An informal discussion between the consultant and interested ZEV Alliance members will offer an opportunity to further refine the project scope, tentatively scheduled for **April 13th** (but can be rescheduled if necessary).

The core research of this project and development of the interactive tool would take place from April-July. The consultant would share preliminary results and answer member questions on a **August 8th** teleconference with ZEV Alliance members, who may provide feedback to incorporate into the report. A preliminary draft report would be submitted to the secretariat by **September 6th** and a complete draft report to the ZEV Alliance members by **September 29th**.

The interactive tool would be developed in parallel with the report. A draft version of the tool would be submitted to the secretariat and to selected ZEV Alliance expert reviewers by **September 15th.** The revised version of the tool would then be used for the final version of the report.

The secretariat will serve as the project manager to help coordinate with the consultant and meet ZEV Alliance member expectations throughout the project. This includes assisting in collecting and managing ZEV Alliance member input. The engagement also includes short project management check-in calls (monthly unless otherwise agreed) with the consultant and secretariat from March through November. Following the draft report submission to the ZEV Alliance members by September 29th the members will have two weeks to review the draft. The consultant would incorporate input, with support from the secretariat, by late October, at which point the report would be submitted for final editing and publication. Ideally, the report [and the tool] would be released in conjunction with an event in late 2023 (for example, at COP 28 or a member-hosted event). The report will be made publicly available at the ZEV Alliance page (see [publications](http://www.zevalliance.org/publications/)), and its findings publicized via a public webinar or event.

Table 1. Timeline for proposed 2023 ZEV Alliance project

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Project element | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov |
| Submit proposal |  |  | / |  |  |  |  |  |  |  |  |
| Contract agreement signed |  |  | / |  |  |  |  |  |  |  |  |
| Early check-in with interested ZEV Alliance members |  |  |  | / |  |  |  |  |  |  |  |
| Preliminary presentation teleconference with ZEV Alliance |  |  |  |  |  |  |  | X |  |  |  |
| Develop interactive tool |  |  |  |  |  |  |  |  | X |  |  |
| Conduct research and analysis, draft report |  |  |  |  |  |  |  | / | X |  |  |
| Incorporate ZEV Alliance report and tool input |  |  |  |  |  |  |  |  |  | / |  |
| Finalize report, publish report and tool on ZEV Alliance website |  |  |  |  |  |  |  |  |  | / | X |
| Present findings via webinar and/or event |  |  |  |  |  |  |  |  |  |  | X |

*X = major project milestone; / = interim milestone with the secretariat*

# Evaluation Criteria for Proposals

Evaluation of submitted proposals will be based on the following six criteria.

1. Commitment to complete the scope of work (Maximum 2.5 pages)

* The selected consultant must clearly commit to completing all elements of the focus area (the research report, interactive tool, engagement with the secretariat and members of the ZEV Alliance, and presentations) or, if necessary, describe the rationale for excluding or modifying any of the scope elements. The consultant should provide details on where case studies would be conducted for sections where analysis would be tailored to specific geographies and on the format of the tool.

(2) Commitment to the project timeline (Maximum 1 page)

* The selected consultant must commit to meeting the specified project timeline. The commitment can be satisfied by copying the “Project timeline” table and text above into the proposal.
* This may also include a description of the consultant’s internal process, use of internal milestones and contingency planning to quickly troubleshoot issues, method for updating and working with the secretariat, and any additional steps needed to ensure the project timeline is met.

(3) Prerequisite technical and policy experience (Maximum 1 page)

* The selected consultant must provide sufficient evidence that it has the prerequisite technical and policy expertise and experience to complete the proposed work by:
  + Sharing (link okay) up to 3 reports authored by the consultant that are most directly related to this work; and
  + Summarizing (in up to 150 words for each public report) how each report relates to this proposed project.

(4) Staff management plan (Maximum 1 page)

* Identify up to three key individual staff members who will work on this project, and for each:
  + Describe (in 300 words or less for each member) their individual roles in completing the work elements above and why they are well suited for the work; and
  + Include the curriculum vitae for the principal investigator who will be the primary contact and responsible for executing the project (max. 3 pages, separate document).

(5) Knowledge sharing and outreach (Maximum 1 page)

* The selected consultant must commit to presenting the findings of the work at a public webinar and/or in-person event(s);
* The proposal should include ideas of how to maximize the reach and utility of this research report and tool; and
* The proposal should provide examples of past consultant experiences communicating related work.

(6) Additional value-add (Maximum 1 page)

* Please name any additional tools, data, partnerships, case studies, knowledge-sharing opportunities, or project experience the consultant can offer to advance the overall project objectives in a unique or exceptional way (limit of 500 words).

***Budget***

* The maximum allotted compensation for the proposed work is $60,000 (total, including all taxes and fees). **Any proposals exceeding this amount will not be eligible for consideration.**
* Please provide a high-level overview of your budget (e.g., amount to be spent on staff time, subcontractors, travel, software and data purchases, etc.) Also include preferred payment timing to match the project timeline and milestones (300 words maximum).

# Format, References, and Submission

We emphasize the importance of succinct proposals. Proposals should be between five and eight pages in length and submitted in Word format using 11- or 12-point font. **Proposals exceeding 8 pages will not be accepted.**

Please include two references that can personally attest to the consultant’s experience in successfully executing similar projects, ideally on a similar topic. A complete submission should include only the following: (1) the proposal in Word or pdf format of 5-8 pages: (2) the principal investigator’s curriculum vitae of up to 3 pages; (3) 3 examples of related projects, if not publicly accessible online; and (4) contact information for two professional references.

The proposal should be submitted to [secretariat@zevalliance.org](mailto:secretariat@zevalliance.org) by **no later than March 13, 2023**. If potential bidders express initial interest in submitting a proposal by March 1, the secretariat will email any potential updates to this Request for Proposals. The secretariat may answer or ask questions for clarification but is not obligated to respond to inquiries.

# Related ZEV Alliance work

This focus area builds on several previous ZEV Alliance focus areas, including the following:

* [Policies for a mature, flourishing equitable EV charging ecosystem](https://zevalliance.org/mature-ev-charging-ecosystem-nov21/), 2021
* [Lessons learned from early DC fast charging deployments](https://zevalliance.org/fast-charging-lessons-learned/), 2018
* [Emerging best practices for electric vehicle charging infrastructure](https://zevalliance.org/emerging-electric-charging-practices/), 2017
* [Charging solutions for battery electric trucks](https://zevalliance.org/charging-solutions-battery-electric-trucks-dec22/), 2022

The focus area report should draw on the findings of these reports as well as other research from the ICCT, from member governments, and other expert sources.