

GRANTS/CONTINGENT AWARD REQUEST



To: Grants and Loans Office

Date: 8 / 23 / 2012

Project Manager: Jared Cacho Phone Number: (916) 654-5040 ext.
Office: Emerging Fuels and Technologies Division: Fuels and Transportation MS- 27
Project Title: Strategic Expansion of Volume Manufacturing Capacity for Electric Motorcycle Production in California

Type of Request: (check one)

New Agreement: (include items A-F from below) Agreement Number: ARV-12-006
Program: Alternative and Renewable Fuel and Vehicle Technologies Program
Solicitation Name and/or Number: PON-11-604 / Advanced Vehicle Technology Manufacturing
Legal Name of Recipient: Zero Motorcycles, Inc.
Recipient's Full Mailing Address: 170 Technology Circle, Scotts Valley, CA 95066
Recipient's Project Officer: Jay Friedland Phone Number: (831) 438-3500 ext.
Agreement Start Date: 10 / 10 / 2012 Agreement End Date: 03 / 31 / 2014

Amendment: (Check all that apply) Agreement Number: _____
 Term Extension – New End Date: _____ / _____ / _____
 Work Statement Revision (include Item A from below)
 Budget Revision (include Item B from below)
 Change of Scope (include Items A – F as applicable from below)
 Other: (Specify) _____

ITEMS TO ATTACH WITH REQUEST:

- A. Work Statement
- B. Budget
- C. Recipient Resolution, if applicable. (Resolution may be requested in Special Conditions if not currently available.)
- D. Special Conditions, if applicable.
- E. CEQA Compliance Form
- F. Other Documents as applicable
 - Copy of Score Sheets
 - Copy of Pre-Award Correspondence
 - Copy of All Other Relevant Documents

California Environmental Quality Act (CEQA)

CEC finds, based on recipient's documentation in compliance with CEQA:
 Project exempt: _____ NOE filed: / / _____
 Environmental Document prepared: _____ NOD filed: _____ / _____
 Other: _____
 CEC has made CEQA finding described in CEC-280, attached

Funding Information:

*Source #1: ARFVT Amount: \$ 1,815,123.00 Statute: 2012 FY: 11/12 Budget List #: 601.118D
*Source #2: _____ Amount: \$ _____ Statute: _____ FY: _____ Budget List #: _____
*Source #3: _____ Amount: \$ _____ Statute: _____ FY: _____ Budget List #: _____

If federally funded, specify federal agreement number: _____
* Source Examples include ERPA, PIER-E, PIER-NG, FED, GRDA, ARFVT, OTHER.

Business Meeting Approval: (refer to Business Meeting Schedule)

Proposed Business Meeting Date: 10 / 10 / 2012 Consent Discussion
Business Meeting Participant: Jared Cacho Time Needed: 5 (minutes)

Agenda Notice Statement: (state purpose in layperson terms)

Possible approval of a Grant / Contingent Award to...
Possible approval of Agreement ARV-12-006 for a grant of \$1,815,123.00 to Zero Motorcycles to expand its full vehicle electric motorcycle production capacity and scale with systematic redesign and manufacturing line improvements. These improvements will include an expansion of their manufacturing footprint through addition of a new production line, and increase in their production efficiency via a strategic redesign of most of their manufacturing and engineering processes. (ARFVT funding.) Contact: Jared Cacho. (5 minutes)

Project Manager _____ Date _____ Office Manager _____ Date _____ Deputy Director _____ Date _____



Award Number: ARV-12-006

Date: 9 / 20 / 12

Note: The Energy Commission Project Managers Manual includes detailed instructions on how to complete this section, with examples of grants that are “Projects” and are not “Projects”. When the Project Manager is completing this section, if questions arise as to the appropriate answers to the questions below, please consult with the Energy Commission attorney assigned to review grants or loans for your division.

1. Is grant/loan considered a “Project” under CEQA? Yes (skip to question #2) No (continue with question #1)

Please complete the following: [Public Resources Code (PRC) 21065 and 14 California Code of Regulations (CCR) 15378]:

Explain why the grant/loan is **not** considered a “Project”? The grant/loan will not cause a direct physical change in the environment or a reasonably foreseeable indirect physical change in the environment because grant/loan involves:

2. If grant/loan is considered a “Project” under CEQA: (choose either **IS** or **IS NOT**)

Grant/loan **IS** exempt:

Statutory Exemption: (List PRC and/or CCR section numbers) _____

Categorical Exemption: (List CCR section number) 15332. In-fill Development Projects

Common Sense Exemption. (14 CCR 15061(b)(3))

Explain reason why the grant/loan is exempt under the above section:

The project is consistent with the applicable general plan designation and all applicable general plan policies as well as with applicable zoning designataion and regulations. The proposed development occurs within city limits on a project site of no more than five acres substantially surrounded by urban uses. The project site has no value as habitat for endangered, rare or threatened species. Approval of the project would not result in any significant effects relating to traffic, noise, air quality, or water quality. The site can be adequately served by all required utilities and public services.

Please attach draft Notice of Exemption (NOE). Consult with the Energy Commission attorney assigned to your division for instructions on how to complete the NOE.

Grant/loan **IS NOT** exempt. The Project Manager needs to consult with the Energy Commission attorney assigned to your division and the Siting Office regarding a possible initial study.

**Exhibit A
Scope of Work**

TECHNICAL TASK LIST

Task #	CPR	Task Name
1	N/A	Administration
2		Review & Redesign Engineering and Manufacturing Processes to Increase Production Capacity
3	X	Design & Install Pilot Manufacturing Line for MY14 and Build Prototype Motorcycles to Validate New Processes, Identify Bottlenecks and Improve Processes Where Needed
4	X	Build Automated Full Production Line for MY14 Production and Performance and Test the Line for Increased Efficiency and Capacity

KEY NAME LIST

Task #	Key Personnel	Key Subcontractor(s)	Key Partner(s)
1	Jay Friedland – ZMC Sylvie Denuit – ZMC John Borofka – ZMC		
2	Abe Askenazi – ZMC Mark Kennedy – ZMC Jay Friedland – ZMC Sylvie Denuit – ZMC John Borofka – ZMC		
3	Abe Askenazi – ZMC Mark Kennedy – ZMC Jay Friedland – ZMC Sylvie Denuit – ZMC John Borofka – ZMC		
4	Mark Kennedy – ZMC Jay Friedland – ZMC Sylvie Denuit – ZMC John Borofka – ZMC		

GLOSSARY

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

Term/ Acronym	Definition
AB 118	Assembly Bill 118, Alternative & Renewable Fuel and Vehicle Technology Program
ARFVT	Alternative and Renewable Fuel and Vehicle Technology

Term/ Acronym	Definition
ARFVTP	Alternative and Renewable Fuel and Vehicle Technology Program
CPR	Critical Project Review
D&R motorcycles	“Durability & Refinement” motorcycles are prototype motorcycles built using pilot production line and used to primarily test manufacturing processes, collect durability information and further refine engineering designs to support manufacturing efficiency. These manufacturing prototypes will be scrapped once production starts
Energy Commission	California Energy Commission
FTD	Fuels and Transportation Division
MY	Model year
SVP	Start of Volume Production
Validation motorcycles	Prototype vehicles built using actual production tooling to validate the manufacturing protocol and manufacturing processes
ZMC	Zero Motorcycles

Background:

Assembly Bill 118 (Núñez, Chapter 750, Statutes of 2007), created the Alternative and Renewable Fuel and Vehicle Technology (ARFVT) Program. The statute, subsequently amended by AB 109 (Núñez, Chapter 313, Statutes of 2008), authorizes the Energy Commission to develop and deploy alternative and renewable fuels and advanced transportation technologies to help attain the state’s climate change policies. The Energy Commission has an annual program 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
- Retrofit medium- and heavy-duty on-road and non-road vehicle fleets to alternative technology 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

The statute requires the Energy Commission to adopt and update annually an investment plan to determine funding priorities and opportunities and describe how program funding will be used to complement other public and private investments. The Energy Commission adopted its most recent investment plan on September 7, 2011. A link to the *2011-2012 Investment Plan for the Alternative and Renewable Fuel and*

Vehicle Technology Program (CEC-600-2011-006-CMF) can be found at <http://www.energy.ca.gov/2011publications/CEC-600-2011-006/CEC-600-2011-006-CMF.pdf>.

On February 6, 2012, the California Energy Commission issued solicitation PON-11-604 entitled "Advanced Vehicle Technology Manufacturing" under the Alternative and Renewable Fuel and Vehicle Technology Program (ARFVTP). This competitive grant solicitation was an offer to cost-share the development of manufacturing and/or assembly facilities in California that produce alternative fuel vehicles, advanced technology vehicles, and/or eligible vehicle components. To be eligible for funding, under PON-11-604, the projects must also be consistent with the Energy Commission's AB 118 Investment Plan updated annually. In response to PON-11-604, Recipient submitted proposal #6 which was proposed for funding in the Energy Commission's Notice of Proposed Awards on June 20, 2012. Both PON-11-604 and Recipient's proposal #6 are incorporated by reference herein in their entirety.

Problem Statement:

In the past 20 years, significant portions of the United States and especially California manufacturing bases have moved elsewhere. Zero Motorcycles believes that it is possible to reverse this trend and is currently successfully designing and building high performance electric motorcycles in California. Zero Motorcycles has previously investigated and implemented manufacturing in Asia, only to choose to bring the manufacturing and assembly back to California. California manufacturing allows Zero Motorcycles to achieve higher quality and better process control by on-shoring rather than off-shoring.

With the California Energy Commission's support under this grant, Zero Motorcycles proposes to expand and scale their existing factory in Scotts Valley, CA, so that they can quadruple electric motorcycle production capacity by the end of the project. By leveraging design and process improvements, along with the investment in capital equipment to reduce costs, Zero Motorcycles will manufacture competitive products with scalable volume production in California. Currently, the main barrier to achieve widespread use and acceptance of their product is proving the value proposition of electric motorcycles to end-users. This will require a level playing field between electric vehicles and conventional internal combustion engine powered vehicles. While electric motorcycles have unique advantages, comparing the two often result in electric vehicles lagging in two key aspects, range and retail price. Building overall efficiency into their motorcycles (resulting from increased production efficiency and capacity) will help create customer value parity ultimately resulting in widespread acceptance of their technology.

The Energy Commission funding is ideally suited for this kind of project and the company is prepared to fully match the investment to leverage 21st century California clean-tech manufacturing to reach this goal. Timing is critical since widespread

adoption of electric vehicles includes electric motorcycles which offer an attractive and affordable transportation market as an entry point for a wide variety of consumers.

Goals of the Agreement:

The goal of this Agreement is to create a program that will strategically expand Zero Motorcycles' full vehicle electric motorcycle production capacity and scale with systematic redesign and manufacturing line improvements. These improvements will include an expansion of their manufacturing footprint through addition of new production lines as well as an increase in their production efficiency via a redesign of most of their manufacturing and engineering processes.

Objectives of the Agreement:

The objectives of this Agreement are to:

- Design engineering and manufacturing processes for the scalable production of electric motorcycles in Scotts Valley, CA and document the results
- Achieve a 50% improvement in production workflow (as measured by motorcycles per labor hour) via process and design updates
- Leverage capital expenditures to invest in additional production and sub-assembly lines
- Use the above factors to accomplish a quadrupling of overall electric motorcycle manufacturing capacity by the end of the project

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 Recipient shall:

- Attend a "Kick-Off" meeting with the Commission Agreement Manager, the Grants Officer, and a representative of the Accounting Office. The Recipient shall bring its Project Manager, Agreement Administrator, Accounting Officer, and others designated by the Commission Agreement Manager to this meeting. The administrative and technical aspects of this Agreement will be discussed at the meeting. Prior to the kick-off meeting, the Commission Agreement Manager will provide an agenda to all potential meeting participants.

The administrative portion of the meeting shall include, but not be limited to, discussion of the following:

- Terms and conditions of the Agreement
- Critical Project Review (Task 1.2)

- Match fund documentation (Task 1.6)
- Permit documentation (Task 1.7)
- Subcontracts needed to carry out project (Task 1.8)

The technical portion of the meeting shall include, but not be limited to, a discussion of the following:

- The Commission Agreement Manager's expectations for accomplishing tasks described in the Scope of Work
- An updated Schedule of Products
- Progress Reports (Task 1.4)
- Technical Products (Product Guidelines located in Section 5 of the Terms and Conditions)
- Final Report (Task 1.5)

The Commission Agreement Manager shall designate the date and location of this meeting.

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

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.

CPRs provide the opportunity for frank discussions between the Energy Commission and the Recipient. The Commission Agreement Manager may schedule CPRs as necessary, and CPR costs will be borne by the Recipient.

Participants include the Commission Agreement Manager and the Recipient and may include the Commission Grants Officer, the Fuels and Transportation Division (FTD) team lead, other Energy Commission staff and Management as well as other individuals selected by the Commission Agreement Manager to provide support to the Energy Commission.

The Commission Agreement Manager 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. One of the outcomes of this meeting will be 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 Commission Agreement Manager 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.

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 Commission Agreement Manager 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.

Commission Agreement Manager 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.

- Present at the technical portion of the meeting 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.
- Discuss with the Commission Agreement Manager and the Grants Officer the following Agreement closeout items at the administrative portion of the meeting:
 - 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)
 - 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.

The Commission Agreement Manager will determine the appropriate meeting participants.

Recipient 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 research 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 its goals and objectives, advancing science and technology, and providing energy-related and other benefits to California.

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 approved outline and the latest version of the Final Report guidelines which will be provided by the

Commission Agreement Manager. The Commission Agreement Manager 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:

- Draft Outline of the Final Report
- Final 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:
 - 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.

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.

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)

Task 1.8 Manage Subcontracts

The goal of this task is to ensure quality products and to procure subcontracts required to carry out the tasks under this Agreement consistent with the terms and conditions of this Agreement 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, 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, it shall notify the Commission Agreement Manager.

Products:

- Draft subcontracts
- Final subcontracts

TECHNICAL TASKS

Task 2 – Review & Redesign Engineering and Manufacturing Processes to Increase Production Capacity

The goal of this task is to redesign the Recipient's electric motorcycle product line to make it inherently more manufacturable as well as optimize and automate the manufacturing processes to gain substantial improvements in production workflow in order to scale the production of these new designs.

The Recipient shall:

- Review all engineering processes and redesign motorcycles for MY14 to increase manufacturability and improve final vehicle quality
- Review and improve manufacturing process to increase production efficiency and optimize facility utilization resulting in increased capacity
- Identify capital equipment, tooling, asset management systems & software needed to reduce costs, improve efficiency & directly expand capacity (including identifying renewable solar power equipment to offset manufacturing energy usage)
- Purchase pre-production tooling, equipment, software, etc. needed for engineering & manufacturing process improvement activities
- Prepare & submit an "Engineering and Manufacturing Process Redesign Report" summarizing the engineering & manufacturing processes changes needed for MY14 listing the expected efficiency improvements and capacity gains

Products:

- Engineering & Manufacturing Process Redesign Report

Task 3 – Design & Install Pilot Manufacturing Line for MY14 and Build Prototype Motorcycles to Validate New Processes, Identify Bottlenecks and Improve Processes Where Needed

The goal of this task is to prepare the manufacturing facilities for all tooling and pilot line build out, install the tooling for the pilot line, and use the installed pilot line to produce two prototype motorcycles in order to validate the new engineering design and processes as well as identify manufacturing bottlenecks and make improvements where needed.

The Recipient shall:

- Design pilot manufacturing line based on reviewed engineering and manufacturing processes defined in task 2.
- Make necessary building facility modification to support the installation of the pilot line

- Purchase & install capital equipment & tooling identified in task 2 that are needed for prototype building on pilot line
- Manage tooling installation & software installation for pilot line
- Build 2 prototype motorcycles (D&R bike 1 and D&R bike 2) on pilot manufacturing line to validate engineering design and processes
- Identify manufacturing bottlenecks while building prototype bikes using pilot line
- Determine process improvements needed to address manufacturing bottlenecks for full production line
- Prepare and submit a “Pilot Manufacturing Line Description Report” describing new pilot manufacturing line including descriptions of tooling and equipment installations, facility lay-out, photos of pilot line & prototype motorcycles, etc.
- Take detailed, comprehensive photographs and prepare description of the 2 prototype bikes built on new automated manufacturing lines
- Prepare and submit “Process Validation Report” including data & results of process validation, identification of bottlenecks as well as improvements needed for future full manufacturing line

Products:

- Pilot Manufacturing Line Description Report
- Detailed, comprehensive photographs & description of prototype motorcycles
- Process Validation Report

Task 4 – Build Automated Full Production Line for MY14 Production and Performance and Test the Line for Increased Efficiency and Capacity

The goal of this task is to prepare the building for all tooling and full manufacturing line build out, install the tooling & equipment for the automated manufacturing line, and use the installed automated full manufacturing line to produce at least 15 validation motorcycles in order to test performance of the assembly line.

The Recipient shall:

- Make necessary building facility modifications to support the installation of the manufacturing equipment & full automated production line
- Order and procure the necessary equipment and materials for establishment of the manufacturing line
- Manage the tooling installation, work flow logistics, software installation, and asset management systems
- Install engineering systems management, asset management systems and software
- Install tooling & equipment
- Establish production line protocol

- Produce validation motorcycle from the automated full production line while testing protocol compliance as well as performance of new manufacturing line
- Produce at least 15 validation motorcycles built on new automated manufacturing line
- Prepare and submit “Automated Full Manufacturing Line Description Report”, including facility layout plan, descriptions of the tooling and equipment installations, production line protocol, and the ability of the assembly line to produce motorcycles in compliance with the protocol.
- Take detailed, comprehensive photographs and prepare description of the 15 validation bikes built on new automated manufacturing lines
- Prepare and submit “Full Manufacturing Line Performance Report” analyzing performance (efficiency) and increased capacity of new production line

Products:

- Automated Full Manufacturing Line Description Report
- Detailed and comprehensive photographs & description of validation motorcycles
- Full Manufacturing Line Performance Report