

**CALIFORNIA ALTERNATIVE ENERGY AND
ADVANCED TRANSPORTATION FINANCING AUTHORITY**

***Consideration of Enovix Corporation's Request to Approve a Time Extension for the Initial
Term of the Master Regulatory Agreement¹***

**Enovix Corporation
Application No. 14-SM001**

January 15, 2019

Prepared By: *Matthew Parsons, Analyst*

SUMMARY

Applicant – Enovix Corporation

Location – Fremont, Alameda County

Industry – Lithium Ion Battery Production

Project – New Lithium Ion Battery Production Facility (Advanced Manufacturing)

Value of Qualified Property – \$16,234,215

Estimated Sales and Use Tax Exclusion Amount² – \$1,358,804

Amount of Time Requested:

- Two years, until February 18, 2021, for the Term of the Master Regulatory Agreement (seven years from the date of initial CAEATFA Board approval)

SUMMARY

In February 2014, the CAEATFA Board approved a sales and use tax exclusion (“STE”) for Enovix Corporation (“Enovix” or the “Applicant”) for the purchase of \$16,234,215 of Qualified Property for the construction of a lithium ion battery production facility (the “Project”). The Master Regulatory Agreement (“Agreement”) initial term provided the Applicant with three years from the date of Board Approval to utilize its STE award. The initial term of the Agreement can be extended by the Board upon a finding that an extension is in the public interest and advances the purposes of the program.³

¹ All capitalized terms not defined in this document are defined in the Program’s statute and regulations.

² This amount is calculated based on the average statewide sales tax rate at the time of initial approval, which was 8.37%.

³ The provision of the regulations allowing CAEATFA to waive the requirement that all purchases of Qualified Property be made within three years of Application approval is in Regulation Section 10035(b)(1)(A).

On January 17, 2017, the CAEATFA Board approved the Applicant for a two year extension of the initial term of the Agreement from its original expiration date of February 18, 2017 to accommodate delays in the achievement of technical milestones for the product life cycle. The Applicant stated that the pilot production project experienced delays when additional development work was required on the anode and cathode in the battery under development. To achieve the required milestones, Enovix had to modify its battery and transition to a new cathode material that was made available shortly thereafter.

As of December 2018, Enovix has used the STE to purchase \$3,271,680.03 of Qualified Property (20% of the total Qualified Property approved). Enovix is now requesting an extension of the Agreement initial term by two additional years to accommodate further technical delays related to product life cycle. According to the Applicant, the battery was producing only 200-250 cycles (the number of times a battery can be charged and discharged while maintaining 80% of the original capacity), while for commercial sales, batteries need to produce at least 500 cycles. However, the Applicant states it made a major change to its manufacturing process in February 2018, and as a result, the battery now produces over 600 cycles. The Applicant indicates that it has made significant progress over the last six months and have achieved the pilot production milestones for energy density and cycle life. Given its progress, in September 2018, the Applicant resumed purchase orders for two pilot production tools and anticipates completing the Project within two years.

About the Applicant

Enovix Corporation is a California corporation founded in 2006. Enovix is focused on developing and manufacturing lithium ion batteries for wearable devices (e.g. smartwatches), mobile phones, laptops/tablets, and electric vehicles.

Project Description

Enovix has been in the process of building a pilot scale manufacturing line to produce lithium ion batteries using its patented 3D wave architecture. The manufacturing process will utilize advanced materials that will result in a substantial advancement over traditional lithium ion battery manufacturing. Specifically, Enovix claims that using silicon wafer and silicon manufacturing methods to produce batteries on wafers, rather than traditional jellyroll manufacturing, will result in a battery with twice the energy density of commercially available batteries today. Since Enovix has created a new way of manufacturing batteries, the high-precision tools and equipment required for the process are being co-developed with suppliers from more traditional industries such as semiconductor, PCB (printed circuit board), and solar.

Agreement Term Extension Request

Enovix has requested that the initial term of the Agreement be extended from February 18, 2019 to February 18, 2021 to accommodate technical development delays in the Project timeline.

Staff Evaluation

According to Enovix, there were two key milestones that were prerequisites to the full pilot line production: (1) energy density, and (2) cycle life. The Applicant states it was able to demonstrate energy density years ago, but has been working through cycle life. Enovix has indicated that although the Project initially experienced development delays, it has since overcome the manufacturing production obstacle for cycle life, and has resumed purchasing. Because Enovix's Project involves the development of new cutting-edge technology, some delay in the development timeline can be expected. Now that the energy density and cycle life pilot production milestones have been met, Enovix has laid out a new timeline to complete the Project within two years. Based on this information, staff believes that extending the term of the Agreement will allow for continued success, and is therefore in the public interest and advances the purpose of the program.

Fees

In accordance with CAEATFA Regulations,⁴ the Applicant will pay an Additional Administrative Fee of \$500 because extending the initial term requires a modification to the Applicant's Master Regulatory Agreement.

LEGAL QUESTIONNAIRE

Staff reviewed the Applicant's responses to the questions contained in the Legal Status portion of the extension request. The responses did not disclose any information that raises questions concerning the financial viability or legal integrity of this Applicant.

Staff Recommendation

Staff recommends that the Board approve Enovix Corporation's request to extend the initial term of the Agreement by two years to February 18, 2021 as it is in the public interest and advances the purpose of the program.

Attachments

Attachment A: Enovix Corporation's Letter Requesting Waiver (December 20, 2018)
Attachment B: Enovix Corporation's Staff Summary at Time of Approval.

⁴ California Code of Regulations Title 4, Division 13, Section 10036

**A RESOLUTION OF THE
CALIFORNIA ALTERNATIVE ENERGY AND ADVANCED TRANSPORTATION
FINANCING AUTHORITY APPROVING A TIME EXTENSION FOR
ENOVIX CORPORATION'S INITIAL TERM FOR THE MASTER REGULATORY
AGREEMENT**

January 15, 2019

WHEREAS, on February 18, 2014 the California Alternative Energy and Advanced Transportation Financing Authority (the "Authority"), a public instrumentality of the State of California, approved a Sales Tax Exclusion ("STE") in the amount of \$16,234,215 of Qualified Property for **Enovix Corporation** (the "Applicant"); and

WHEREAS, within three years of the approval by the Authority, the Applicant must make all purchases of the total amount of Qualified Property listed in the approval resolution (Regulations Section 10035(b)(1)); and

WHEREAS, upon a finding that it is in the public interest and advances the purposes of the Program, the Authority may waive the requirement that all purchases of Qualified Property be made within three years of Application approval (Regulations Section 10035(b)(1)(A)); and

WHEREAS, the Applicant had requested a waiver of the requirement to purchase all of the Qualified Property within three years, due to unexpected delays in the Project timeline, extending the term by two years to February 18, 2019; and

WHEREAS, the Applicant has requested a waiver of the requirement to purchase all of the Qualified Property within five years, due to unexpected technical delays, extending the term by two years to February 18, 2021;

WHEREAS, granting the waiver will allow the Project to proceed and the state to receive the anticipated environmental and economic benefits that justified the initial approval of the Project in accordance with the law, thereby advancing both the public interest and the purposes of the Program.

NOW THEREFORE BE IT RESOLVED by the California Alternative Energy and Advanced Transportation Financing Authority, as follows:

Section 1. The Authority finds that it is in the public interest and advances the purposes of the Authority to extend the initial term of the Agreement to February 18, 2021.

Section 2. This resolution shall take effect immediately upon its passage.

Attachment A: Enovix Corporation's Letter Requesting Waiver (December 20, 2018)



3501 W. Warren Ave, Fremont CA 94538 Ph:510-687-1330

December 20, 2018

Deana J. Carrillo
Executive Director
California Alternative Energy and Advanced Transportation Financing Authority

**Re: Extension of Alternative Source Transportation Manufacturing Sales and Use Tax Exclusion
for Enovix - Resolution #14-SM001**

Dear Deanna,

On February 14th, 2014, Enovix Corporation was granted a Sales and Use Tax Exclusion under SB71 for the fit out and purchase of pilot production equipment for our Fremont California facility, to produce proprietary Li-ion batteries using the company's technology. To date we have claimed sales and use tax exemptions on \$3,271,680.03 of purchases against an authorized amount of \$16,234,215. The reasons for this underage are delays in the achievement of key technical milestones that were pre-requisites to the full pilot line project. The two key milestones in question were the energy density of our batteries and its cycle life. We have made significant progress over the last 6 months and have achieved the pilot production milestones for energy density and cycle life and have started ordering the first pieces of pilot production equipment and are hereby requesting a two (2) year extension on our Sales and Use Tax Exclusion to February 18th, 2021.

Enovix has developed a new architecture Li-ion battery utilizing a 100% Silicon anode that delivers 50-100% more energy than conventional cells. We demonstrated this energy density advantage several years ago, but for the past 3 years have been struggling with one of the other key performance metrics, cycle life. This is a measure of how many times you can charge and discharge a battery while maintaining 80% of the original capacity. For commercial cells this needs to be 500 cycles or better. Through the end of 2017 the best we had demonstrated was 200-250 cycles. We made a major change to our manufacturing process and pivoted the entire company to that new approach in Feb of 2018. This new approach has dramatically improved cycle life. Our most recent cells are well over 600 cycles, with some cells reaching 800 cycles. With that hurdle behind us we are now moving forward with our pilot manufacturing activities. In October, we placed orders for the first two high volume pilot production tools. We are in the process of specifying the remaining tools over the next 6-9 months, with the goal of ordering all the tools for our first pilot line by late 2019. This new manufacturing approach has also made it practical to build a high volume battery factory in California, which we are currently considering. This project would significantly exceed the size of the pilot line for which we would likely submit a new CAE ATFA application.

As evidence of our ability to complete the fit out and purchase of pilot production equipment for our Fremont California facility within the term of this extension request, we have started



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purchasing the Pilot equipment. We recently placed purchase orders for 2 of the tools, totaling roughly \$2M. We are working on the designs for the other tools presently with the plan to order everything else by the end of 2019, with deliveries of the equipment occurring in late 2019 through 2020.

Sincerely,

A handwritten signature in blue ink, appearing to read "Harrold J. Rust".

Harrold J. Rust, Chief Executive Officer



3501 W. Warren Ave, Fremont CA 94538 Ph:510-687-1330

Deana J. Carrillo
Executive Director

**Addendum to Extension of Alternative Source Transportation Manufacturing Sales and Use Tax
Exclusion for Enovix - Resolution #14-SM001**

In the reference document we mentioned that we were requesting an extension to our sales and use tax exemption due to schedule delays in our pilot production project caused not achieving all the necessary milestones to complete the project. Specifically these delays were caused by additional development work required on the anode and cathode in our battery. To achieve the required milestones we had to modify the geometry and manufacturing process of our battery, the type of Silicon we use and transition to a new cathode material that was only recently made available.

Attachment B: Enovix Corporation's Staff Summary at Time of Approval

**CALIFORNIA ALTERNATIVE ENERGY AND
ADVANCED TRANSPORTATION FINANCING AUTHORITY**

Request to Approve Project for Sales and Use Tax Exclusion (STE)⁵

**Enovix Corporation
Application No. 14-SM001**

Tuesday, February 18, 2014

Prepared By: *Alejandro Ruiz*

SUMMARY

Applicant – Enovix Corporation

Location – Fremont, Alameda County

Industry – Lithium Ion Battery Production

Project – New Lithium Ion Battery Production Facility (Advanced Manufacturing)

Value of Qualified Property – \$16,234,215

Estimated Sales and Use Tax Exclusion Amount⁶ – \$1,358,804

Application Score –

Fiscal Benefits Points:	1,413
<u>Environmental Benefits Points:</u>	<u>90</u>
Net Benefits Score:	1,503
 <u>Additional Benefits Points:</u>	 <u>105</u>
Total Score:	1,608

Staff Recommendation – Approval

⁵ All capitalized terms not defined in this document are defined in the Program's statute and regulations.

⁶ This amount is calculated based on the average statewide sales tax rate of 8.37%.

THE APPLICANT

Enovix Corporation (“Enovix” or the “Applicant”) is located in Fremont, California and was founded in 2006. Enovix is focused on developing and manufacturing lithium ion batteries that have twice the energy density of traditional batteries available today.

The major shareholders (10.0% or greater) of Enovix Corporation are:

Doll Corporation
Soffinova Ventures
Cypress Semiconductor
Rockport Capital

The corporate officers of Enovix Corporation are:

Harrold Rust – President and CEO

THE PROJECT

Enovix will build a pilot scale manufacturing line to produce lithium ion batteries using Enovix’s patented 3D wave architecture (the “Project”). The manufacturing process will utilize advanced materials that will result in a substantial advancement over traditional lithium ion battery manufacturing. Specifically, Enovix claims that using silicon wafer and silicon manufacturing methods to produce batteries on wafers, rather than traditional jellyroll manufacturing, will result in a battery with twice the energy density of commercially available batteries today. Since Enovix has created a new way of manufacturing batteries, the high-precision tools and equipment required for the process are being co-developed with suppliers from more traditional industries such as semiconductor, PCB (printed circuit board), and solar.

ANTICIPATED COSTS OF QUALIFIED PROPERTY

The anticipated Qualified Property purchases are listed below:

Wafer Processing	\$11,078,190
Building Retrofits	2,821,025
Electrical and Lighting Improvements	260,000
Dry Room	500,000
Specialty Chemical and Gas Processing and Handling	10,000
Water and Wastewater Treatment	1,515,000
Make-up Air System	50,000
Total	<u>\$16,234,215</u>

Note: The Qualified Property purchases reported in the Application and shown here in staff’s report are estimated costs. At the termination of the master regulatory agreement a finalized project equipment list will be prepared detailing the value of the Project equipment acquired and detailing the actual tax benefit realized pursuant to Revenue and Tax Code Section 6010.8. Variance from the costs shown in the Application and in this report may occur prior to the closing due to increased costs of certain components (of the Project) over original estimates, and other reasons. In addition, such costs may vary after closing due also to increased costs, as well as common design

and equipment modifications during construction, differences in equipment due to future changes in law or regulation, or for other reasons.

TIMELINE

Enovix expects to move into its new facility, establish its manufacturing line and begin production by the end of 2014.

PROJECT EVALUATION

NET BENEFITS

The total cost of the Qualified Property purchases is anticipated to be \$16,234,215. The Project received a Total Score of 1,608 points, which exceeds the required 1,000 point threshold; and a total Environmental Benefits Score of 90 points, which exceeds the 20 point threshold.

- A. **Fiscal Benefits (1,413 points).** The net present value of the total fiscal benefits over the lifetime of the Qualified Property is derived from the Applicant's sales taxes, personal income taxes paid by the firm's employees, firm taxes on profits, property taxes and other indirect fiscal benefits of the Applicant, and amounts to \$1,920,567, resulting in a Fiscal Benefits score of 1,413 points for the Project.
- B. **Environmental Benefits (90 points).** The Project will result in an Environmental Benefits Score of 90. The Applicant received points in the following categories:
 1. **Energy Consumption (30 of 30 points).** The Applicant's manufacturing process will result in a 50% reduction in energy consumption relative to the industry standard manufacturing process.
 2. **Solid Waste (30 of 30 points).** The Applicant's manufacturing process will result in a 50% reduction in solid waste produced relative to the industry standard manufacturing process.
 3. **Hazardous Waste (30 of 30 points).** The Applicant's manufacturing process will result in a 50% reduction in hazardous waste produced relative to the industry standard manufacturing process.
- C. **Additional Benefits (105 of 200 points).** Applicants may earn up to 200 additional points for their Total Score. The applicant submitted information and received 105 additional points:
 1. **Permanent Jobs (35 of 75 points).** The Applicant's Project will support a total of 55 permanent jobs at its Facility. CAEATFA estimates that approximately 4 of these jobs will be attributable to a marginal increase in jobs created due to the approved STE, resulting in a Permanent Jobs Score of 35 points for the Project.

2. **Construction Jobs (20 of 75 points).** The Applicant's Project will support a total of 20 construction jobs at its Facility. CAEATFA estimates that approximately 1 of these jobs will be attributable to a marginal increase in jobs created due to the approved STE, resulting in a Construction Jobs Score of 23 points for the Project.
3. **Research and Development Facilities (25 points).** The Applicant has verified that it has a facility located in California that performs research and development functions related to the development of lithium ion batteries.
4. **Workforce Partnerships (25 points).** The Applicant has a partnership with Lawrence Berkeley National Labs for the purpose of training the workers at the Facility.

STATUS OF PERMITS/OTHER REQUIRED APPROVALS

Enovix will apply for the following permits in 2014: Wastewater Treatment Discharge Permit from the Union Sanitation District, Hazardous Materials Storage Permit from the Fremont Fire Department, Operating Permit(s) from the Bay Area Air Quality Management District, and a Hazardous Waste Generator ID form the Department of Toxic Substances Control.

LEGAL QUESTIONNAIRE

Staff reviewed the Applicant's responses to the questions contained in the Legal Status portion of the Application. The responses did not disclose any information that raises questions concerning the financial viability or legal integrity of this Applicant.

CAEATFA FEES

In accordance with CAEATFA Regulations,⁷ the Applicant has paid CAEATFA an Application Fee of \$8,117.11 and will pay CAEATFA an Administrative Fee of up to \$64,936.86.

RECOMMENDATION

Staff recommends approval of Resolution No. 14-SM001 for Enovix Corporation's purchase of Qualified Property in an amount not to exceed \$16,234,215, anticipated to result in an approximate sales and use tax exclusion value of \$1,358,804.

⁷ California Code of Regulations Title 4, Division 13, Section 10036

**RESOLUTION APPROVING AND AUTHORIZING EXECUTION OF A MASTER
REGULATORY AGREEMENT WITH THE ENOVIX CORPORATION**

February 18, 2014

WHEREAS, the California Alternative Energy and Advanced Transportation Financing Authority (the “Authority” or “CAEATFA”) has received the Application of **Enovix Corporation** (the “Applicant”), for financial assistance in the form of a master regulatory agreement (the “Agreement”) regarding tangible personal property utilized in an Advanced Manufacturing process or for the design, manufacture, production or assembly of Advanced Transportation Technologies or Alternative Source products, components, or systems (“Qualified Property”) as more particularly described in the staff summary and in the Applicant’s Application to the Authority (collectively, the “Project”); and

WHEREAS, the Applicant has requested the Authority to enter into the Agreement to acquire Project equipment with an estimated cost not to exceed \$16,234,215 over a period of 3 years; and

WHEREAS, the Applicant believes that this form of financial assistance will enable it to avail itself of the benefits of an exclusion from sales and use taxes relative to the Qualified Property pursuant to California Revenue and Taxation Code Section 6010.8; and

WHEREAS, approval of the terms of the Agreement and authority for the Executive Director, Deputy Executive Director, or Chair of the Authority to execute the necessary documents to effectuate the Agreement is now sought;

NOW, THEREFORE, BE IT RESOLVED by the California Alternative Energy and Advanced Transportation Financing Authority, as follows:

Section 1. The Project constitutes a “project” within the meaning of Public Resources Code Section 26003(a)(8)(B).

Section 2. The requested master regulatory agreement constitutes “financial assistance” within the meaning of Public Resources Code Section 26003(a)(6).

Section 3. The Applicant is a “participating party” within the meaning of Public Resources Code Section 26003(a)(7).

Section 4. The Executive Director, Deputy Executive Director, or Chair of the Authority (the “Authorized Signatories”) are hereby authorized for and on behalf of the Authority to approve any changes to the Project as the Executive Director shall deem appropriate, provided that the amount of the Qualified Property to be purchased may not be increased above the amount approved by the Authority.

Section 5. The proposed form of the Agreement between the Applicant and the Authority, as filed with the Authority prior to this meeting, is hereby approved. The Authorized Signatories

are hereby authorized and directed, for and on behalf and in the name of the Authority, to execute, acknowledge and deliver to the Applicant the Agreement in substantially the form filed with or approved by the Authority, with such insertions, deletions or changes therein as the Authorized Signatory executing the same may require or approve, and with particular information inserted therein in substantial conformance with the staff summary and in the Applicant's Application to the Authority, such approval to be conclusively evidenced by the execution and delivery thereof. The Authority understands and agrees that pursuant to the terms of the Agreement, the obligations of the Applicant may, under some circumstances, be carried out or assumed by a successor or assignee entity, or by an affiliate of the Applicant.

Section 6. Each of the Authorized Signatories, acting alone, is hereby authorized and directed to do any and all ministerial acts, including (without limitation) the execution and delivery of any and all documents and certificates they may deem necessary or advisable in order to consummate the Agreement and otherwise effectuate the purposes of this Resolution.

Section 7. The Applicant shall assure CAEATFA that all Qualified Property listed in the semi-annual reports pursuant to the Agreement shall be installed, maintained and operated in compliance with all applicable local, state and federal laws.

Section 8. The Agreement shall only apply to Qualified Property that the Applicant certifies will be installed, maintained and operated at facilities within the State of California.

Section 9. The adoption by the Authority of this Resolution for the Applicant shall not be referred to in any application before any governmental agency as evidence of the feasibility, practicality or suitability of the Project or in any application for any required permission or authority to acquire, construct or operate the Project.

Section 10. This Resolution is effective immediately and will remain in full force and effect unless the Regulatory Agreement, as defined in CAEATFA Regulations Section 10035(a), is not executed within thirty (30) days of the date of this Resolution. The Executive Director may extend the thirty days if necessary.