STATE OF CALIFORNIA
ETP
EMPLOYMENT TRAINING PANEL

AB118
Training Proposal for:

Applied Materials, Inc.

Agreement Number: ET15-0802

Panel Meeting of: November 14, 2014

ETP Regional Office: San Francisco Bay Area **Analyst:** L. Lai

PROJECT PROFILE

Contract Attributes:	Retrainee Priority Rate AB118 (Alt Funds)	Industry Sector(s):	Green Technology Manufacturing Nanotechnology Priority Industry: ☒ Yes ☐ No
Counties Served:	Santa Clara	Repeat Contractor:	☒ Yes ☐ No
Union(s):	☐ Yes ☒ No		

Number of Employees in:	CA: 3,381	U.S.: 8,394	Worldwide: 14,500
Turnover Rate:	9%		
Managers/Supervisors: (% of total trainees)	8%		

FUNDING DETAIL

All funding will be under the Alternative and Renewable Fuel and Vehicle Technology Program created under AB118.

Program Costs	-	(Substantial Contribution)	(High Earner Reduction)	=	**Total ETP Funding**
$598,500		$0	$0		$598,500

In-Kind Contribution:	100% of Total ETP Funding Required	$1,246,875

TRAINING PLAN TABLE

Job No.	Job Description	Type of Training	Estimated No. of Trainees	Range of Hours		Average Cost per Trainee	Post-Retention Wage
				Class / Lab	CBT		
1	Retrainee Priority Rate	Adv. Technology, Business Skills, Computer Skills, Continuous Impr	350	8-200 Weighted Avg: 95	0-26	$1,710	$26.25

Minimum Wage by County: $16.25 per hour Santa Clara County.
Health Benefits: ☒ Yes ☐ No This is employer share of cost for healthcare premiums – medical, dental, vision.
Used to meet the Post-Retention Wage?: ☐ Yes ☒ No ☐ Maybe
Although employer provides health benefits, they are not being used to meet Post-Retention Wage.

Wage Range by Occupation		
Occupation Titles	Wage Range	Estimated # of Trainees
Technician		30
Engineer		300
IT Staff		10
Manager		10

INTRODUCTION

Founded in 1967 and based in Santa Clara, Applied Materials, Inc. (Applied) builds equipment, machines, and tools using nano-technology (the production of ultra-small structures). Customers include manufacturers of semiconductor wafers and chips (Intel), flat panel displays (Samsung), solar photovoltaic cells and modules (Yingli), and lithium-ion cell batteries (Panasonic).

This proposal, under Alternative and Renewable Fuel and Vehicle Technology Program (AB118), is designed to allow Applied to focus on job skills to design, construct, install, operate, service and maintain new fueling infrastructure for electric vehicles in support of the long-term reduction of carbon emissions.

PROJECT DETAILS

AB118

This proposal will be funded under the AB 118 Pilot Program created in FY 2009-10. The AB 118 Program is administered by ETP in partnership with the California Energy Commission (CEC).

The overall goal of the AB 118 Program is to support a transition from petroleum-based transportation to alternative and renewable fuels and clean, low carbon vehicle technologies. There is no expenditure of Employment Training Tax funds for the AB 118 Program. Public entity employers are eligible to participate, such as city and county regional transit authorities.

Alternative Fuel is defined as any fuel other than the traditional selections, gasoline and diesel from petroleum sources, used to produce energy or power. Examples of alternative fuels are: bio-diesel, ethanol, methanol, electricity, propane, compressed or liquid natural gas, and hydrogen.

Training is focused on job skills for a skilled workforce to produce and distribute new alternative fuels and designs and to construct, install, operate, service and maintain new fueling infrastructure and vehicles.

Most of today's electric vehicles (EVs) are powered by lithium-ion (Li-Ion) batteries—the same kind of batteries used in cell phones and laptop computers. Most Li-Ion battery packs have a driving range limited to 100 miles on a single charge and account for nearly 65% of the total cost of EVs. To compete in the market with gasoline-based vehicles, EV's must have a battery with twice the energy storage of today's Li-Ion battery at 30% of the cost. Applied Materials is developing tools for manufacturing Li-Ion batteries that could dramatically increase performance. Traditionally, the positive and negative terminals of Li-Ion batteries are mixed with glue-like materials called binders, pressed onto electrodes, and then physically kept apart by winding a polymer mesh material between them called a separator. With the Applied Materials system, many of these manually intensive processes will be replaced by next generation coating technology to apply each component. This process will improve product reliability and performance of fuel cells at a fraction of the current cost. These novel manufacturing techniques will also increase the energy density of the battery and reduce the size of several of the battery's components to free up more space within the cell for storage.

The proposed training supports the development and deployment of technologies within the AB118 investment plan and the potential impact on the State economy. Increased use of EVs would decrease U.S. dependence on foreign oil and reduce greenhouse gas emissions, 28% of which come from the transportation sector.

The proposed training is intended to foster a high level of innovation, product development, and manufacturing to fuel the next generation of low cost, high energy density batteries that improve the driving range and lifespan of EVs.

Training Plan

Applied proposes to train 350 employees in a curriculum consisting of Advanced Technology, Business Skills, Computer Skills, and Continuous Improvement. Applied has a concurrent training proposal (core funds) for Job Creation trainees only (ET15-0306). The training plan consists of Class/Lab training and Computer-based training (CBT).

Advanced Technology (50%) - Training will include courses that cover leading-edge technology trends in Lithium-ion battery design, fabrication/manufacturing, modeling and integration. Lithium-ion battery manufacturing requires strict and complex manufacturing techniques that involve paste mixing, electrode coating, assembly, and formation. The focus of this training is to provide skills for innovation and product development for the Li-Ion cell battery manufacturing market. Applied will also deliver Advanced Technology training through exceedingly technical and customized courses in manufacturing architecture, systems

engineering, software design and support systems, and product quality/reliability. Courses will be taught by a combination of external vendors and highly compensated and exceedingly skilled internal engineers at an estimated cost of over $16,600 per day of training. The maximum ratio of 10 students per instructor would create the best learning environment for this training.

Business Skills (5%) - Training will be offered to all occupations. International business regulations and the complexity of the new products require product knowledge and marketing techniques training to better market the Company's green/clean energy products.

Computer Skills (15%) – Training will include courses for all occupations in topics that include advanced levels of ERP, programming languages, and project management software tools to implement inventory, account management, and manufacturing controls.

Continuous Improvement (30%) – Training will improve the Company's service, quality, reliability, delivery time, and order accuracy by providing a common language and a consistent methodology for how its employees meet customer requirements.

Commitment to Training

Applied represents that ETP funds will not displace the existing financial commitment to training. The Company's statewide training expenditures in California are in excess of $3,000,000 annually. The proposed training builds on, but does not overlap or replace, basic instruction and/or orientation type training already offered by the Company. Applied currently funds all training in OSHA-mandated safety regulations, sexual harassment, new hire orientation, rudimentary job skills, and basic desktop application training (Microsoft Word, Excel and PowerPoint), and executive development programs.

The resources provided by ETP will assist Applied to deliver better, supplemental, and higher quality training courses. Applied will fund all training over 200 hours at its own expense. Safety training is, and will continue to be, provided in accordance with all pertinent requirements under state and federal law.

Training Infrastructure and LMS

Applied utilizes a Learning Management System (LMS) to document all training. The LMS has been reviewed and approved by ETP staff for documentation purposes. Applied will designate a staff person to be the main ETP project contact and will be using an administrative subcontractor to assist with project administration.

Substantial Contribution

Because this project is being funded under AB118, substantial contribution requirement does not apply.

RECOMMENDATION

Staff recommends approval of this proposal.

ACTIVE PROJECTS

The following table summarizes performance by Applied under an active ETP Agreement:

Agreement No.	Approved Amount	Term	No. Trainees (Estimated	No. Completed Training	No. Retained
ET13-0323	$1,320,000	03/04/13-03/03/15	800	1,634	505

Applied completed all ETP training at the Santa Clara facility by the end of August 2014, six months in advance of the term date. The ETP Class/Lab Tracking shows enough hours to earn 100% of the Agreement amount for all three Job Numbers. This will be 1,452 trainees in Job Number 1 and 249 trainees in Job Numbers 2 and 3 (Job Creation).

PRIOR PROJECTS

The following table summarizes performance by Applied under an ETP Agreement that was completed within the last five years:

Agreement No.	Location (City)	Term	Approved Amount	Payment Earned $ %
ET10-0710	Santa Clara	06/28/10 – 03/31/12	$411,642	$411,642 (100%)

DEVELOPMENT SERVICES

Herrera & Company in Stockton assisted with development of this proposal at no cost to the Company.

ADMINISTRATIVE SERVICES

Herrera & Company will also perform administrative services in connection with this proposal for an amount not to exceed 13% of payment earned.

TRAINING VENDORS

To Be Determined

Exhibit B: Menu Curriculum (AB118)

Class/Lab Hours
8-200

Trainees may receive any of the following:

ADVANCED TECHNOLOGY

- Advanced programming development applications
- Application engineering services
- Casting anode and cathode plates
- Chemical-mechanical linearization technologies
- Electromagnetic properties, waves, and dielectrics
- Factory automation tools and techniques
- Instrument modeling/integration software development
- Lithium surface/interaction overview
- Manufacturability for prismatic and cylindrical cells
- Measurement sciences practice and theory
- Multipart machine automation development
- Nano-scale device physics and technology
- Particle and energy balance in global models
- Photolithography, microlithography and optical lithography
- Physics of electrode coating
- System data modeling and architecture

BUSINESS SKILLS

- Li-Ion battery customer communications and awareness
- Li-Ion battery product knowledge and market validation
- Technical presentations

COMPUTER SKILLS

- Management and manufacturing control systems (ERP and related computer systems)
- Materials and logistics software development
- Operating system programming language
- Programming languages
- Project management software tools

CONTINUOUS IMPROVEMENT

- Process improvement training
- Quality fundamentals/core skills

CBT HOURS
0-26

COMPUTER SKILLS

- Management and manufacturing control systems (4 hr.)

CONTINUOUS IMPROVEMENT

- Effective teams (4 hr.)
- Leadership and coaching (2 hr.)
- Manufacturing procedures and protocols (2 hr.)
- Manufacturing quality and reliability (4 hr.)

- Problem solving tools and techniques (4 hr.)
- Process and capability mapping (2 hr.)
- Production system procedure review (2 hr.)
- Quality management systems (QMS) procedures (2 hr.)

Note: Reimbursement for retraining is capped at 200 hours per trainee, regardless of method of delivery. CBT is capped at 50% of total training hours, per-trainee.