

DELEGATION ORDER



**RETRAINEE - JOB CREATION
Critical Proposal Proposal for:**

**Rolls-Royce High Temperature Composites, Inc.
Agreement Number: ET16-0208**

Approval Date: September 29, 2015

ETP Regional Office: San Diego

Analyst: J. Davey

PROJECT PROFILE

| | | | |
|---|--|---------------------|---|
| Contract Attributes: | Critical Proposal Job Creation Initiative Priority Rate Retrainee | Industry Sector(s): | Manufacturing Green Technology Priority Industry: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| Counties Served: | Orange | Repeat Contractor: | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| Union(s): | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | | |
| Number of Employees in: | CA: 400 | U.S.: 7,700 | Worldwide: 54,100 |
| <u>Turnover Rate:</u> | 4% | | |
| <u>Managers/Supervisors:</u> (% of total trainees) | 6% | | |

FUNDING DETAIL

| | | | | | |
|---------------|---|----------------------------|-------------------------|---|--------------------------|
| Program Costs | - | (Substantial Contribution) | (High Earner Reduction) | = | Total ETP Funding |
| \$99,516 | | \$0 | \$0 | | \$99,516 |

| | | |
|------------------------------|------------------------------------|-----------|
| In-Kind Contribution: | 100% of Total ETP Funding Required | \$142,570 |
|------------------------------|------------------------------------|-----------|

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 Critical Proposal Priority Rate | Business Skills, Computer Skills, Continuous Impr, HazMat, Mgmt Skills, Mfg Skills, PL-Mfg Skills | 38 | 8-200 | 0-40 | \$882 | \$19.75 |
| | | | | Weighted Avg: 49 | | | |
| 2 | Retrainee Critical Proposal Job Creation Initiative Priority Rate | Business Skills, Computer Skills, Continuous Impr, HazMat, Mgmt Skills, Mfg Skills, PL-Mfg Skills | 55 | 8-200 | 0-40 | \$1,080 | \$19.75 |
| | | | | Weighted Avg: 60 | | | |

Minimum Wage by County: Job Number 1: \$16.02 per hour for Retrainees in Orange County;
Job Number 2: \$13.35 per hour for Newly-Hired Retrainees in Orange 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 | |
|-----------------------------------|------------|-------------------------|----------------------|
| | | Job 1 | Job 2 (Job Creation) |
| Managers | | 4 | 2 |
| Manufacturing Engineers I | | 8 | 13 |
| Manufacturing Engineers II | | 5 | 6 |
| Manufacturing Engineer Specialist | | 5 | 7 |
| Manufacturing Services | | 3 | 0 |
| Process Technicians | | 13 | 27 |

CRITICAL PROPOSAL

This proposal has been designated as a “Critical Proposal” by the Governor’s Office of Business and Economic Development also known as GO-Biz. In this proposal, Rolls-Royce High Temperature Composites, Inc. (Rolls-Royce HTC) seeks ETP funding to train 38 incumbent and 55 new employees.

INTRODUCTION

Rolls-Royce HTC (rolls-royce.com), headquartered in Huntington Beach, is a producer of state-of-the-art composite materials including ceramic matrix composites, engineered coatings and thermal-structural components (used as components for jet engines, rocket thrusters, high temperature structural materials, and nuclear reactor components). The High Temperature Composites unit was purchased by Rolls-Royce North America from Hyper-Therm HTC, Inc. in 2013. Rolls-Royce North America, headquartered in Reston, VA, is a wholly-owned subsidiary of Rolls-Royce (Derby, UK), a leading provider of power systems and services for use on land, at sea and in the air.

Green/Clean Operations

Rolls-Royce is developing and producing state-of-the-art composite materials, including Ceramic Matrix Composites (CMC), engineered coatings and thermal-structural components for gas turbine engines. The benefits of using these new materials in gas turbine engine components include greater strength at higher temperatures and reduced cooling requirements. CMCs are also typically one-third the density of nickel super alloys, which significantly reduces the weight of components. This means more environmentally friendly engines with improved efficiency and reduced emissions and a .2% fuel efficiency savings. In the long term, the Company expects at least 10-fold increase in fuel efficiency savings as it applies CMC technology to more components. Besides the savings in fuel costs, there are additional savings in reduced emissions.

PROJECT DETAILS

As a recently acquired company, the Rolls-Royce HTC unit is transitioning from an entrepreneurial organization to the next level of organizational maturity. The workforce has grown from 18 to 42 employees over the last 2 years, and is expected to continue growing to 64 employees by the end of 2015, and to 93 employees in 2016. The Company will move to a new manufacturing facility in Cypress in March 2016. As part of the expansion, the Company will purchase new manufacturing equipment.

Additionally, Rolls-Royce HTC will need to standardize its processes and procedures and transfer the technology and skills to new employees. Most of the skills needed to bring about the changes are focused on Manufacturing Skills and Continuous Improvement. Training in these areas, as well as Business Skills, Computer Skills, Management and other skills will enhance the Company's ability to develop new products and processes in less time and at reduced costs.

Retrainee - Job Creation

In support of Job Creation, the Panel is offering incentives to companies that commit to hiring new employees. Training for newly-hired employees will be reimbursed at a higher rate and trainees will be subject to a lower post-retention wage.

Rolls-Royce HTC is building a new facility in Cypress and will invest more than \$8 million in new equipment. The new facility will be three times the size of the current facility. To fully operate the new facility, the Company has committed to hiring 55 new employees as shown in Job Number 2. The Company represents that the date-of-hire for all trainees in the Job Creation program will be within the three-month period before contract approval or within the term-of-contract. The Company also represents that these trainees will be hired into "net new jobs" as a condition of contract.

Training Plan

Business Skills (2%): Training will be offered to all occupations. Training is needed to improve customer satisfaction and project effectiveness and help the Company maintain competitiveness.

Computer Skills (2%): Training will be offered to all occupations. Training will concentrate on the implementation of a new SAP, ERP, and Shop Floor Management system. These systems will improve efficiency.

Continuous Improvement (20%): Training will be offered to all occupations. Training will help improve quality, and productivity and allow the Company to maintain competitiveness and build a high performance culture.

Hazardous Materials (2%): Training will be offered to all occupations. Training will provide skills to properly handle, ship, and dispose hazardous materials. It will also contribute to improved health, safety and the environment.

Management Skills (1%): Training will be offered to Managers only. Training will give Managers the necessary skills to lead and direct employees.

Manufacturing Skills (30%): Training will be offered to all occupations. This training is required in order to increase skills to improve quality and productivity.

Productive Laboratory (30%)

Productive Laboratory (PL) trainees may produce goods for profit as part of the training in the courses identified under the Curriculum. The instructor must be dedicated to training delivery during all hours of training, and special attendance rosters will be used to assist in monitoring.

Most of Rolls-Royce HTC's equipment is entirely new. Its purchase of new manufacturing equipment is integral to the production of new composite materials. The new equipment includes Fiber processing, infiltration process equipment, parts washers, microscopes, computing tomography for part scanning, infiltration furnaces, ultrasonic machining center, and Coordinate Measuring Machine.

Rolls-Royce HTC is requesting the maximum 60 hours of PL training. The trainer-to-trainee ratio will be 1:1. The most effective way to train employees on how to use this equipment is in a structured, on-the-job training environment. These complex machines require direct observation followed by detailed, hands-on training and evaluation by an instructor.

New employees will be taught using a structured on-the-job training process by an experienced and qualified trainer. The trainer will use a 4-step training process during PL training:

1. The trainer will evaluate the trainee's prior experience with equipment operation;
2. The trainer will describe the steps to operate the equipment and then demonstrate the steps;
3. Trainees will describe the steps and practice several times under the supervision of the trainer.
4. The trainer will continue observing the trainee and offer feedback as the trainee continues operating the equipment, gradually reducing instruction time as a trainee's

experience grows. Trainers will assess trainees' performance using a performance checklist and certify competence when a trainee demonstrates proficiency in operating the equipment.

Productive Lab Training will ensure effective learning and quality of products. Rolls-Royce HTC projects that 40 Process Technicians, Manufacturing Engineers, Manufacturing Services, Manager will receive training using the Productive Lab methodology.

Computer-Based Training

Rolls-Royce HTC will also provide up to 40 hours of ancillary Computer-Based Training (CBT) in Business and Computer Skills to reinforce some of the Class/Lab training. CBT is capped at no more than 50 percent of a trainees total training hours.

Out-of-State Vendors

Per ETP's out-of-state vendor regulations, ETP may waive the requirement that training be conducted only by California based vendors, provided the training is unique to the Company's needs and unavailable in California. Rolls-Royce HTC has identified seven training vendors, located outside of California, who will provide training on the new equipment that will be installed at its new Cypress manufacturing facility. The equipment training is specialized and can only be provided by the equipment vendors who are located outside of California. Training is not included in the purchase price of the equipment.

Training by out-of-state vendors will only be for train-the-trainer sessions. 2 or 3 key trainees will receive the training to become experts on the new equipment operation. They will then train the rest of the trainees.

Commitment to Training

Rolls-Royce HTC reports that it provides training in Health, Safety and Environment to all employees and on-the-job training for all new Process Technicians and Manufacturing Engineers. In addition, the Company has also provided Continuous Improvement training, Export control, regulatory (anti-harassment/discrimination, anti-corruption), ethics and product integrity training.

Rolls-Royce HTC represents that ETP funds will not displace the existing financial commitment to training. Safety training is, and will continue to be, provided in accordance with all pertinent requirements under state and federal law.

➤ Training Infrastructure

Training administration will be provided by internal company administrators.

RECOMMENDATION

Staff recommends approval of this proposal and out-of-state vendor waiver request.

DEVELOPMENT SERVICES

N/A

ADMINISTRATIVE SERVICES

N/A

TRAINING VENDORS

| Training Vendor: | Location: | Cost of Training: |
|------------------------------------|---------------------|--------------------------|
| AVS, Inc. | Ayer, MA | \$25,000 (est.) |
| Nikon Metrology, Inc. | Brighton, MI | \$3,312 |
| Mitutoyo America Corp. | Aurora, IL | \$2,160 |
| MTS Systems Corp. | Lake Elsinore, CA | \$2,070 |
| Expert Systems Solutions, Srl | Modena, Italy | \$6,210 |
| Setaram, Inc. | Hillsborough, NJ | \$8,406 |
| Struers, Inc. | Cleveland, OH | \$3,404 |
| Thermo Electron North America, LLC | West Palm Beach, FL | \$12,875 |

Exhibit B: Menu Curriculum

Class/Lab Hours

8-200

Trainees may receive any of the following:

BUSINESS SKILLS

- Technical Report Writing
- Project Management
- Export Point of Contact Training
- Export Training for Purchasing
- Regulatory Compliance
- Building Codes
- Dealing Effectively With Conflict
- Giving Feedback

COMPUTER SKILLS

- SAP
- Shop Floor Management software
- Programmable Logic Controller (PLC) Programming

CONTINUOUS IMPROVEMENT

- Passport - Trusted to Deliver Excellence
- Six Sigma Green Belt
- Six Sigma Black Belt
- Yellow Belt
- Lean Manufacturing
- Problem Solving / Root Cause Analysis
- 8d Problem Solving (Ford Motor Company's 8 Dimensions of Problem Solving)
- Risk Assessments
- Failure Modes and Effects Analysis
- High Performance Culture
- Quality Management Systems
- Role of the Project Sponsor
- Process Excellence Leadership Academy (PELA) - Part 1
- Process Excellence Leadership Academy (PELA) - Part 2
- Rolls-Royce Production System (RRPS) Rollout Package for PC
- Lean Real Time Workshop
- Lean Sigma Green Belt
- Root Cause Analysis

HAZARDOUS MATERIALS

- Hazardous Materials
- Material Safety Data Sheets
- Environmental/Air Quality Management District (AQMD)/Air Permits

MANAGEMENT SKILLS (For Managers only)

- Team Leader Essentials
- Management Essentials
- Crucial Conversation Mastery
- Health, Safety & Environment (HS&E) Responsibilities

MANUFACTURING SKILLS

- Statistical Process Control
- Instrumentation and Controls
- Manufacturing Engineering Foundation Course
- Cost Management for Manufacturing Engineers
- Using Measurement Tools
- Interpreting Drawings
- Process Operations Standardization
- Process Operations Learning
- Precision Measurement Instruments
- Tube Fitting
- National Physical Laboratory (NPL) - Level 1
- Manual Machining and Computer Numerical Control (CNC) Machining
- Welding Overview
- Electrical
- Electronics and Instrumentation
- Hand and Power Tools
- Train the Workplace Trainer
- Train the Workplace Assessor
- Gage R and R
- Load and Capacity Planning and Control Level 1
- Production Leader Load and Capacity
- New Equipment Training – AVS (furnaces)
- MTS – MTS Systems Corporation
- New Equipment Training – Nikon Metrology
- New Equipment Training – Mitutoyo
- New Equipment Training – MTS Systems
- New Equipment Training – Expert System Solutions
- New Equipment Training – Setaram
- New Equipment Training – Struers
- New Equipment Training – ThermoElectron

TECHNICAL PROCESSES AND MATERIALS

- Advanced Composite Materials
- Engineered Coatings
- Ceramic Matrix Composites
- Thermal Structural Composites

PL Hours

0-60

MANUFACTURING SKILLS (ratio 1:1)

- Furnaces
- Computer Numerical Control (CNC) Machining
- Manual Machining
- Coordinate Measurement Machines (CMM)- Automated Part Dimensioning Verification System for Quality Control
- Tube Fitting
- Welding,
- Electrical,
- Electronics/Instrumentation/Programmable Logic Controllers (plc)
- Database
- Hand/Power Tools
- Fiber Processing Equipment
- Cleaning Tank and Fume Hoods - Neutralizing Tank and Ventilation Equipment for Equipment
- Slurry Mixing Equipment- Recipe Dispenser and Mixing Mill
- Fabric Rigidization System – Fiber processing Equipment
- Parts Washer
- Ultrasonic Cleaner for Parts
- Ultrasonic Machining Center for Parts
- Slurry Removal Equipment
- X-Ray Diffractor for Part Analysis
- Environmental Furnace Used for Fatigue Testing of Parts
- Furnace for Chemical Vapor Infiltration Process (CVI Reactor)
- Furnace for Melt Infiltration Process (MI Furnace)
- Preform Oven-Oven for Fiber Preform Process
- Residual Gas Analyzer (RGA) for Process Verification
- Auto Polish-Automated Part Polishing System
- Test Equipment for Material Characterization
- Resistance Array System for Part Analysis
- Scanning Electron Microscope (SEM) for Part Analysis
- Test Equipment for Fatigue Testing of Parts
- Automated Textile Cutter for Fiber Processing
- Test Equipment for Material Behavior
- High Temperature Microscope for Part Analysis
- Digital Imaging Camera System for Part Analysis
- Computed Tomography (CT Machine) Part Scanning System for Part Analysis
- Automated Part Marking System for Part Identification and Tracking
- Thermal Analysis System for Part Analysis

CBT Hours

0-40

COMPUTER BASED TRAINING (CBT)**BUSINESS SKILLS**

- Introduction to Strategic Export Control (1 hr.)
- How to Produce and Manage an Individual Development Plan (.5 hr.)
- Introduction to Objective Setting (1 hr.)
- Project Curriculum Earned Value (EV) Cost Planning And Control (3 hrs.)
- Project Estimating (3 hrs.)
- Project Planning and Scheduling (5 hrs.)
- Project Resource Management (3 hrs.)
- Project Risk Analysis and Management (3 hrs.)
- Protecting Trade Secrets (.3 hr.)
- Planning and Control Awareness (1 hr.)
- Introduction to the 7 step Process (.5 hr.)
- Intellectual Property and Proprietary Rights (4 hrs.)
- Risk Basics (1.4 hrs.)
- Getting Results by Building Relationships (2 hrs.)
- Customer Focused Management (2.3 hrs.)
- Interpersonal Communication: Listening Essentials (1 hr.)
- Interpersonal Communication: Communicating Assertively (1 hr.)

COMPUTER SKILLS

- ITSM (IT Service Management Tool): Service Request (3 hrs.)

CONTINUOUS IMPROVEMENT

- Introduction to Rolls-Royce Production System (1 hr.)
- Building a Quality Management System (2 hrs.)
- Process Excellence and Quality (1 hr.)
- Introduction to the Concept of Value Stream (.45 hr.)
- Introduction to Process Failure Mode and Effect Analysis (FMEA) E-Learning (1 hour)

MANUFACTURING SKILLS

- Introduction to Product Safety (1.3 hrs.)
- Component Definition (Drawing) Awareness (3.5 hrs.)
- Health Safety and Environment and Occupational Health for Managers (1 hr.)
- Foreign Object Defect (FOD) Prevention Awareness (.3 hr.)
- Product Integrity - Safety Issues within the Aerospace Sectors (1.3 hrs.)
- Manual Handling Techniques (3.5 hrs.)
- Introduction to Gas Turbine Technology (.5 hr.)
- Supply Chain Planning and Control- Technical Development Remedies (.5 hr.)

- Introduction to the Integrated Product and Production Readiness Process (.75 hr.)
- Supply Chain Planning and Control (SCPC) - Inventory Overview (.5 hr.)
- Supply Chain Planning and Control (SCPC) - Cell League Table Performance Monitoring (.5 hr.)
- Supply Chain Planning and Control (SCPC) Level 1 Customer Demand Knowledge (3 hrs.)
- Supply Chain Planning and Control (SCPC) Level 2 Customer Demand Knowledge (3.3 hrs.)
- Supply Chain Planning and Control (SCPC) Level 2 Supply Base Knowledge Training (3 hrs.)
- Production Planning Principles (.45 hr.)
- Introduction to Lead Time and Its Impact on Cell Performance (1 hr.)
- Basics of Shop Floor Control (1 hr.)
- Introduction to Manufacturing Cell Concept (1 hr.)
- Introduction to Load and Capacity (1 hr.)

Note: Reimbursement for retraining is capped at 200 hours per trainee, regardless of method of delivery. PL is capped at 60 hours per trainee. CBT is capped at 50% of total training hours, per trainee.