### GENERAL INFORMATION

<table>
<thead>
<tr>
<th>Program sponsor:</th>
<th>Princeton Environmental Institute</th>
</tr>
</thead>
<tbody>
<tr>
<td>Position number:</td>
<td>E1LIG2</td>
</tr>
<tr>
<td>Project title:</td>
<td>Financial Modeling and Optimization for Electric Mobility Business</td>
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<tr>
<td>Organization/research group:</td>
<td>Compact Power Inc. d/b/a Lightening Energy</td>
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<tr>
<td>Primary location(s) of internship:</td>
<td>Dover, NJ (Picatinny Arsenal)</td>
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<tr>
<td>Additional cities and/or countries to be visited (if applicable):</td>
<td>Hayward, CA (possibly)</td>
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**Note:** If this internship is located in a country with an International SOS risk rating of High or Extreme, final candidates must participate in a travel review process overseen by the Travel Oversight Group (TOG), and obtain safety guidance prior to departure. The University reserves the right to revoke support and funding for travel at any time there has been a significant deterioration in the safety and security conditions surrounding travel arrangements, or in the sector of the country, or countries, where travel is to occur.

### FACULTY SPONSOR(s)/HOST INFORMATION

<table>
<thead>
<tr>
<th>Name(s):</th>
<th>Lightening Energy</th>
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<tbody>
<tr>
<td>University Department(s):</td>
<td>n/a</td>
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<tr>
<td>E-mail:</td>
<td></td>
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<tr>
<td>Phone:</td>
<td></td>
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<tr>
<td>Website:</td>
<td><a href="http://www.lighteningenergy.com">www.lighteningenergy.com</a></td>
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### INTERNSHIP/RESEARCH PROJECT INFORMATION

**Internship/project description:**

Our society is becoming increasingly automated, with robots, machines, and autonomous vehicles potentially replacing a large amount of the current workforce. All of these autonomous vehicles will require a source of portable power, which will most likely be batteries. These batteries will need fast recharging, and will pose a significant burden on the electrical grid due to their large power consumption. Lightening Energy is working on high rate recharging solutions for multiple types of electric vehicles, including industrial vehicles, aerospace vehicles, and robots. This project would involve participation in the development of networking and financial models for a key commercial development program currently underway at Lightening Energy, and gives an opportunity to work in an entrepreneurial environment. The models will allow prediction of battery and system production capabilities at a large scale, and will be used to optimize costs, benefits, and financial returns.

**Student's role and responsibilities:**

The intern would be responsible for modeling several business case scenarios related to battery and/or electric vehicle production. Key inputs for the model would include component and operating costs, asset depreciation, and throughput assumptions. Other responsibilities include thinking critically & creatively in the optimization of a manufacturing facility. The models would be used to optimize Lightening Energy's costs, benefits, and financial returns. The intern would collaborate with engineers from other disciplines during this project, and have the opportunity to review their ideas and models with top level management. A knowledge of Excel, other financial modeling or optimization software, and critical thinking skills are strongly desired. Anyone with an engineering/finance background interested in electric vehicles, automation, and entrepreneurship is encouraged to apply.
Internship/project learning objectives:

Students will learn about the product development process and the key steps a company takes to create a new product. They will gain a knowledge of business financial modeling, and learn best accounting/finance practices for large scale projects. Students will learn to collaborate on a team in an entrepreneurial environment. They will learn about how electric vehicles will change the grid of the future and the net environmental benefit electric vehicles can provide.

PROGRAM REQUIREMENTS

Academic background and any course pre-requisites:

ORFE preferably

Coursework in Optimization, Data Analysis, and Business Decision Modeling will be helpful

Technical skills:

Excel, financial modeling and optimization techniques, networking

Additional training(s):

Lab Safety Training, students will receive additional safety training upon arrival.

Equipment:

Students should bring a personal computer/laptop

Physical demands:

n/a

Language abilities/competencies (if applicable): n/a

Additional information about the internship/project:

US Citizenship required for Picatinny Arsenal site. Selected students will be required to obtain a research pass/permit and complete lab safety training prior to the start of the internship.

INTERNATIONAL TRAVEL REQUIREMENTS (if applicable)

Visa(s) required?

Yes [ ] No [ ]

Research permit/pass required?

Yes [ ] No [ ]

Immunizations required?

Yes [ ] No [ ]

INTERNSHIP/PROJECT SUPERVISOR(S)

Name and title of primary supervisor: Eric Materniak ’14, Engineering Systems Manager

Email: ermaterniak@gmail.com

Phone:

Name and title of additional supervisor, if applicable: Professor Zuleica Lozada

E-mail: zuleica.lozada@gmail.com

Phone:

PROGRAM DATES AND FUNDING INFORMATION

Weekly Stipend: $500

Number of Positions Available: 1-2

Tentative Start Date (mm/dd/yyyy): 06/03/2019

Number of Weeks: 8-10 (flexible start date +/- 1 week

Tentative End Date (mm/dd/yyyy): 08/02/2019

Note: PEI funding is for full-time work, 35 hours per week minimum, and for a period of at least 8 continuous weeks.

Application Deadline: January 11, 2019