

**To:** Dr. Christine Grogan  
**From:** Jennifer Ferrone, Tristin Warland, Nick Matyszczak, and Mahala Meinen  
**Date:** October 30, 2017  
**Subject:** Progress Report for Business Proposal: Implementing Solar Panel Carports

The purpose of this memo is to provide an update regarding our progress on the Business Report. Since 1929, Penn State's University Park campus has met a share of its energy needs internally. Coal served as the university's primary energy source for many years but has since been replaced by more sustainable alternatives such as natural gas and hydropower. However, we are missing out on the opportunity to harness solar power. Our report, prepared for The Sustainability Institute, will propose that solar panel carports be constructed in the OPP service lot. Solar panel carports will help the university further reduce greenhouse gas emissions and decrease energy costs while providing OPP personnel with an amenity to protect their vehicles. This memo will detail the research we have completed, the research we still need to complete, the problems we have encountered, an updated schedule, and an outline of the Business Report.

## **Research Completed**

1. Assessed feasibility by speaking with Stephen Oskin, an energy engineer at Penn State's OPP, via email on October 6, 2017
  - He informed us that he proposed a similar project in the past but the university did not pursue it because of more student-centric projects
  - He recommended that we install the carports in the OPP service lot as there is a functional need for them (service vehicle protection) as well as a need for lot resurfacing and improved site lighting
2. Researched Penn State's Sustainability Strategic Plan; goal is to reduce GHG emission by 85% by the year 2050
3. Gathered information regarding Michigan State's solar panel carport initiative (size of lot, energy produced, and cost savings)
4. Researched annual sunshine received by Lansing (home of Michigan State's solar panel carport initiative) and State College; on average, State College has two more sunny days than Lansing
5. Located the four existing solar arrays on Penn State's University Park campus
6. Determined location and dimensions of the OPP service lot
7. Researched future of the solar energy market; growing and expect costs to continue to drop
8. Met with Stephen Oskin for one hour in person on October 27, 2017, to determine approximate installation cost

## **Research to be Completed**

1. Contact Ann Erhardt to obtain proposal for Michigan State's solar panel carport initiative
2. Research the Sustainability Accounting Standards Board (SASB) to see if/how adopting their accounting standards would affect the feasibility of sustainability projects at Penn State
3. Work through costing and meet with Stephen Oskin for clarification on this subject as necessary; stated he would be available to meet with us again up until November 18

## Problems

While completing our research, we encountered the following minor problems:

1. Lack of information on industrial-size solar panel carports: the majority of the information published concerns individual carports. To address this problem, we spoke with Stephen Oskin who proposed the installation of solar panel carports on Penn State's University Park campus several years back. Furthermore, we plan to contact Ann Erhardt, the Assistant Director of Sustainability at Michigan State, to gain access to their solar panel carport proposal.
2. Delayed responses: we experienced inefficient communication between our group and the experts from whom we wished to gain insight. To mitigate this problem, we visited Penn State's Office of Physical Plant in person. By doing so, we were able to have many of our remaining questions answered quickly and in detail.

## Changes in Work Schedule

For project one, our group members' topics were as follows:

- Jennifer and Tristin: install solar panel carports on Penn State's University Park campus
- Nick: improve campus infrastructure
- Mahala: improve Counseling and Psychological Services (CAPS)

We chose to adopt Jennifer and Tristin's topic because sustainability has become an increasingly important topic at Penn State and in the business world. Since writing our topic proposals, we have made the following changes to Jennifer's work schedule:

### **Week 1: September 18 – September 24**

- Assigned group for business report
- Sent topic proposals to Nick and Mahala

### **Week 2: September 25 – October 1**

- Made a list of questions to ask Stephen Oskin

### **Week 3: October 2 – October 8**

- Contacted Stephen Oskin to access feasibility

### **Week 4: October 9 – October 15**

- Met with group to assign secondary research topics

### **Week 5: October 16 – October 22**

- Conducted secondary research

### **Week 6: October 23 – October 29**

- Met with group to compile secondary research

- Determined research that still needs to be conducted
- Visited OPP and met with Stephen Oskin
- Took pictures of solar array on campus for cover page

### **Week 7: October 30 – November 5**

- Complete remaining research
- Design cover page, title page, and table of contents
- Draft and revise memo of transmittal and executive summary
- Draft report

### **Week 8: November 6 – November 12**

- Complete report
- Peer review report
- Revise report

### **Week 9: November 13 – November 17**

- Turn in report
- Prepare presentation slide-deck
- Rehearse presentation

## **Conclusion**

Through this memo, we have demonstrated the significant progress we have made toward completing the Business Report. At this point, we have completed the majority of our research and have determined any research that remains. In addition, we have provided an updated work schedule that details the adjustments that have been made since we wrote our topic proposals. Given the work we have completed thus far, we are confident in our ability to finish a complete draft for November 10's peer review and the final submission by November 15.

## **Outline**

### **Page 1: Cover Page**

Image: Solar array on Penn State's University Park campus

Main title: Installing Solar Panel Carports

### **Page 2: Title Page**

Subtitle: Decreasing GHG Emissions One Sunny Day at a Time

Prepared for: The Sustainability Institute

Prepared by: Jennifer Ferrone (SC&IS), Tristin Warland (SC&IS), Nick Matyszczyk (ACCTG), and Mahala Meinen (SC&IS)

Date of Submission: November 15, 2017

### **Page 3: Memo of Transmittal**

Scope

Methods

Limitations

Highlights of report

Acknowledgements of who helped while preparing the report: Stephen Oskin and Dr. Christine Grogan

Offer to provide follow-up information or assistance: contact Jennifer Ferrone at [jzf5378@psu.edu](mailto:jzf5378@psu.edu) with any questions

## **Page 4: Table of Contents**

First- and second-level headings and beginning page numbers of each section

List of illustrations (if 3 or more; separated into Figures and Tables)

Starts with Executive Summary

## **Page 5: Executive Summary**

Brief introduction

Opportunity

Solution

Benefits

## **Page 6: Introduction**

Opportunity

Background

Solution

Scope

Organization

## **Page X: Opportunity**

## **Page X: Solution**

## **Page X: Research**

Ends with Cost Estimate

## **Page X: Conclusion**

## **Page X: Bibliography**

Citations in APA format