

# STUDENT SUMMER INTERNSHIP TECHNICAL REPORT

## **Contributing to the DOE EM-3.2, Office of Technology Development: Dashboard Enhancements**

### DOE-FIU SCIENCE & TECHNOLOGY WORKFORCE DEVELOPMENT PROGRAM

**Date submitted:**

December 16, 2022

**Principal Investigators:**

David Mareno (DOE Fellow Student)  
Florida International University

Jean P Pabon (Mentor)  
DOE HQ/Germantown

Ravi Gudavalli Ph.D. (Program Manager)  
Florida International University

Leonel Lagos Ph.D., PMP® (Program Director)  
Florida International University

**Submitted to:**

U.S. Department of Energy  
Office of Environmental Management  
Under Cooperative Agreement # DE-EM0005213



**Applied Research Center**  
FLORIDA INTERNATIONAL UNIVERSITY

### **DISCLAIMER**

This report was prepared as an account of work sponsored by an agency of the United States government. Neither the United States government nor any agency thereof, nor any of their employees, nor any of its contractors, subcontractors, nor their employees makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe upon privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States government or any other agency thereof. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States government or any agency thereof.

## **LIST OF ACRONYMS**

---

AANAPISI: Asian American and Native American Pacific Islander-Serving Institutions

DOE: Department of Energy

DOE-HQ: Department of Energy Headquarters

EM: Environmental Management

FIU: Florida International University

HBCU: Historical Black College and Universities

HIS: Hispanic-serving Institution

MSI: Minority Serving Institution

ODCs: Other Direct Costs

PEP: Project Execution Plan

POC: Point of Contact

TDO: Office of Technology Development

## EXECUTIVE SUMMARY

---

This research work has been supported by the Department of Energy-Florida International University Science & Technology Workforce Development Initiative, an innovative program developed by the U.S. Department of Energy's Office of Environmental Management and Florida International University's Applied Research Center. During the summer of 2022, a Department of Energy Fellow intern, David Mareno, spent 10 weeks performing a summer internship at Department of Energy Headquarters in the office of technology and development at Germantown, Maryland. During the summer internship I was under the supervision and guidance of Jean P Pabon (Program Manager). The intern's project was initiated on June 6, 2022 and continued through August 19, 2022.

## TABLE OF CONTENTS

---

LIST OF ACRONYMNS .....	iii
EXECUTIVE SUMMARY .....	4
TABLE OF CONTENTS.....	5
LIST OF FIGURES .....	6
INTRODUCTION .....	7
1. RESEARCH DESCRIPTION.....	8
2. RESULTS AND ANALYSIS.....	13
3. CONCLUSION.....	14

## **LIST OF FIGURES**

---

Figure 1. First half of feedback review.....	9
Figure 2. Second half of feedback review. ....	10
Figure 3. College connection spreadsheet. ....	11
Figure 4. Example of underdeveloped budget page and fully developed budget page. ....	12

## INTRODUCTION

---

On June 6<sup>th</sup>, 2022, I went in person to the Department of Energy Headquarters for my summer internship for the Florida International University Department of Energy Fellows summer internship program in Germantown, Maryland. This internship would last until the 19<sup>th</sup> of August, and during my time in Germantown, I would be involved in many tasks to assist the Environmental Management office in Technology Development office. Of these projects and tasks, I had given the opportunity to review project execution plans for MSI ongoing activities for Department of Energy and minority students, managing travel logs and the point of contacts for set visits, and enhance the Environmental Management Technology Development dashboard and its monitoring of program fund spending. In this paper, I will further explain and breakdown my roles in aiding in each project and task that I worked with.

## 1. RESEARCH DESCRIPTION

---

### **First Task:**

Involved reviewing a project execution plan (PEP) The PEP was drafted for FY22 and I was given the chance to review and give input on if the plan followed protocol and if it was both adequate, satisfactory, and overall done well. Under most circumstances, review 413.3-15 DOE G would be used to look over the plans. But my mentor created a checklist based off of the 413.3-15 DOE Guidelines and DOE 413.3 O. Thought this didn't lead to an immediate approval process for the project execution plan, my input will be considered for when the FY23 is developed.

### **Second task:**

I was task to review a Grant application for one of nine colleges. EM is expanding and enhancing the Minority Serving Institutions Partnership Program (MSIPP) to add a post-doctrinal program, a technology curriculum and professional development program long with a shared interest research program, and a graduate fellowship program. The EM MSIPP will address DOE-EM's need for building and maintaining a well-trained, technically skilled, and diverse workforce by promoting the education and development of the next generation workforce in critical science, engineering, technology, and math, cybersecurity and additive manufacturing disciplines. With supervision assistance, I used evaluation a form to leave feedback on the Minority Serving Institutions Partnership Program. This evaluation allowed me the ability to research some area of requirements the proposal needed to have in order to be approved on my end.

The colleges grant application needed to present a plan that if completed, would contribute to the field of interest that DOE is working with. Not only this, but the college needed to have a technical and financial plan that was well put together and could logically work with the budget they were requesting. To do this, the college had to have budget breakdowns for areas like equipment, travel, employment, supplies, student scholarship and employment funding, and other direct costs needed to supply a fully functioning and realistic use of allocated funds. All in all, seeing if the scope of what is laid out, meets the vision the government requires in order for it to be approved.



**1) Significance:** The extent to which the project, if successfully carried out, will make an original and/or important contribution to the field of endeavor.

**2) Approach:** The extent to which the concept, design, methods, analyses, and technologies are properly developed, well-integrated, and appropriate to the aims of the project.

**3) Feasibility:** The likelihood that the proposed work can be accomplished within the time and budget proposed by the investigators or the technical staff, given their experience and expertise, past progress, available resources, institutional/organizational commitment, and (if appropriate) access to technologies. Note any unusually high or low cost-effectiveness.

**4) Overall Adequacy:** Do the Grant objectives/scope of work included in the application fulfill the Government requirement? Is the application reasonable and appropriate?

Yes \_\_\_\_\_ No \_\_\_\_\_

**1) Direct Labor/Personnel:** Do the proposed labor mix/personnel appear appropriate and necessary for the scope/objectives of the Grant? Do the proposed quantity of labor hours, and labor rates appear reasonable?

Yes \_\_\_ No \_\_\_\_\_

**3) Travel:** Are proposed destinations, length of stay, number of persons per trip, mode of conveyance, use of rental cars, etc. appropriate and reasonable? Are the number of per diem days proposed reasonable? If specific trips are not identified, does the projected travel cost appear to be reasonable given the total scope of the effort?

Yes \_\_ No \_\_\_\_\_

**Figure 1. First half of feedback review.**

**Significance:** The extent to which the project, if successfully carried out, will make an original and/or important contribution to the field of endeavor.

**Approach:** The extent to which the concept, design, methods, analyses, and technologies are properly developed, well-integrated, and appropriate to the aims of the project.

**Feasibility:** The likelihood that the proposed work can be accomplished within the time and budget proposed by the investigators or the technical staff, given their experience and expertise, past progress, available resources, institutional/organizational commitment, and (if appropriate) access to technologies. Note any unusually high or low cost-effectiveness.

**Overall Adequacy:** Do the Grant objectives/scope of work included in the application fulfill the Government requirement? Is the application reasonable and appropriate?

**Direct Labor/Personnel:** Do the proposed labor mix/personnel appear appropriate and necessary for the scope/objectives of the Grant? Do the proposed quantity of labor hours, and labor rates appear reasonable?

**Travel:** Are proposed destinations, length of stay, number of persons per trip, mode of conveyance, use of rental cars, etc. appropriate and reasonable? Are the number of per diem days proposed reasonable? If specific trips are not identified, does the projected travel cost appear to be reasonable given the total scope of the effort?

**4) Equipment:** Are all proposed equipment items necessary for successful completion of the scope/objectives of the Grant? Do the proposed costs for the equipment appear reasonable?

Yes:  No

|

**4) Supplies:** Are all proposed supplies necessary for successful completion of the scope/objectives of the Grant? Do the proposed costs for the supplies appear reasonable?

Yes  No

**2) Subcontract/Subaward Services:** Are the proposed contracted services including Power and Energy Infrastructure necessary for successful completion of the scope/objectives of the Grant? Do the proposed costs for contracted services appear reasonable?

Yes  No

**5) Other Direct Costs (ODCs):** Are the proposed ODCs necessary for successful completion of the scope/objectives of the Grant? Do the proposed ODCs appear reasonable?

Yes  No

**6) Overall Budget Adequacy:** Do all elements of work included in the application have associated budget costs, and does the budget estimate reasonably relate to the magnitude of the work proposed?

Yes  No

Figure 2. Second half of feedback review.

**Equipment:** Are all proposed equipment items necessary for successful completion of the scope/objectives of the Grant? Do the proposed costs for the equipment appear reasonable?

**Supplies:** Are all proposed supplies necessary for successful completion of the scope/objectives of the Grant? Do the proposed costs for the supplies appear reasonable

**Subcontract/Sub-award Services:** Are the proposed contracted services including Power and Energy Infrastructure necessary for successful completion of the scope/objectives of the Grant? Do the proposed costs for contracted services appear reasonable?

**Other Direct Costs (ODCs):** Are the proposed ODCs necessary for successful completion of the scope/objectives of the Grant? Do the proposed ODCs appear reasonable?

**Overall Budget Adequacy:** Do all elements of work included in the application have associated budget costs, and does the budget estimate reasonably relate to the magnitude of the work proposed?

**Third Task:**

For this task, I was put in charge of developing a system to maintain connections with and track visits to colleges under the Minority Serving Institutions Partnership Program. Though the concept was straight forward. There was a bit of digging that was involved. This required me to work with Federal employees within the office of Technology Development (TDO) and even dig through sources online to put together information. I had to look at different school websites to find the president to contact, and with certain formatting issues and even language barriers for Hispanic universities, this was surprisingly challenging. I also had to work with the team to figure out the

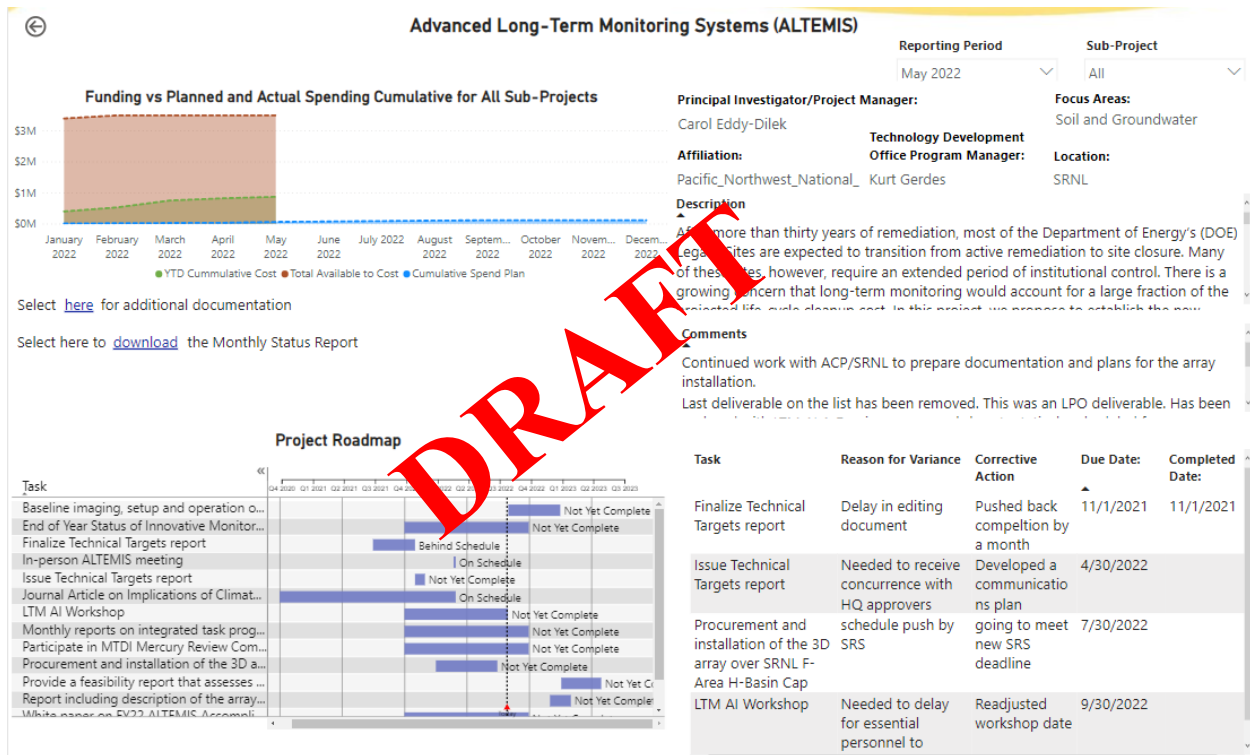
EM-3s prior visit schedule with every college and future as well. But as a finished product, one could review every college, the last visit we had with them, the next scheduled visit, the DOE cite nearest to the college, and their leading president. All in a style and format that the employees can easily keep updated for the future.

Location	Institution	Type of School*	Last Visit	Planned Visit	Site POC	Uni President
Alabama	Alabama State University	HBCU				
	Tuskegee University	HBCU				
Arizona	University of Arizona	HSI				
California	Berkeley?	MSI?				
	University of California, Merced	AANAPISI/ HSI				
	San Diego State University	AANAPISI/ HSI				
Florida	Bethune Cookman University	HBCU				
	Florida A&M University	HBCU				
	Florida International University	HSI				
	University of Central Florida	HSI				
Georgia	Albany State University	HBCU				
	Georgia Southern University	MSI				
	Mercer University	MSI				
	Savannah State University	HBCU				
Illinois	Chicago State University	PBI				
	Bowie State University	HBCU				
Kansas	Haskell Indian Nations University?	TCU?				
Maryland	Coppin State University	HBCU				

Figure 3. College connection spreadsheet.

**The fourth task:**

For EM dashboard task, I picked up on the groundwork that former intern Josue Nunez performed, and my role came in to review data. I was given the opportunity to improvement the visual dashboard. I make sure it was in a form easy to understand for senior management. Things from data population to description and comment improvements, to specifying description and comment section to better describe its vision were ways I assisted in improving the current dashboard.



**Figure 4. Example of the DOE EM RT&D dashboard drill down. This graphical interface collects performance and financial data.**

## 2. RESULTS AND ANALYSIS

---

The results of my work in these four tasks varied. For the first and second task, the grants are both selected and awarded. On both however, the input I presented information that is going to play a part on the decision to be approved or not. For the third task, I was able to successfully populate all the data on the colleges that were available and did so in a simple yet easily continually format. And the fourth task held a similar ~~fa~~te deposition as one and two. The information that I provided is being considered to assist and better format the Power BI as it stands.

### 3. CONCLUSION

---

It was a great opportunity for work and gave me great insight toward what a combination of administrative and technical work in the government. Using a tailored approach of DOE 413.3B, took Project Execution Plan provided by the laboratory read, reviewed and gave feedback of proposed task to be consider used in FY23 by the Laboratory. I was a Merit Reviewer with supervision assist review one of the colleges proposals. I created excel matrix that allows us to see date senior management visited last, date planned for senior management visit, University president and DOE field site. I created excel matrix that allows us to see date visited last, date planned for visit, POC for nearby site, University president and DOE field site.