Green Lab Certification

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COLLEGE OF ENGINEERING
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VIRGINIA TECH.

Company Description

The Virginia Tech Energy and Sustainability Committee is 1 of 14 committees part of the University Council

Aims to implement green initiatives on campus and to sponsor proposals led by student organizations to promote sustainability

Creates annual sustainability reports that addresses the University's progress with green initiatives

Reviews and advises University policy to the university's pursuit of environmental quality through action, education, and engagement

Opportunity Statement

Currently, Virginia Tech does not have any infrastructure or system in place that supports sustainability in research labs. This limits their ability to reduce energy consumption, water waste, and unnecessary consumption of resources.

There are **over 1200 research labs** at Virginia Tech and there is no way to ensure that each and every lab is standardized practices to reduce waste, energy, or water.

These labs do not take up a lot of physical space on campus, but they do account for a lot of the school's energy and waste consumption. The University of Virginia found that their labs only take up 9% of the physical footprint of the school, yet those same labs consume 25% of the schools energy use. Harvard had similar findings that labs took up 20% of the physical space, and 44% of the schools total energy consumption.

The problem is beyond labs are using a lot of energy or depleting resources, **the problem is whether they are aware of just how much they are consuming** and that there are ways to minimize that waste.

Objectives

Develop Automated Green Lab Certification Tool by end of March
The tool would be hosted on the Virginia Tech Environmental Health and Safety Website and will be accessible to all labs

Implement Beta Testing in 5% of labs by April
Accounts for 60 labs on Virginia Tech's campus, spanning across various colleges

Establish a strategy to increase the longevity of the project
This project has the potential to save thousands of dollars for the University over a few years

Impact

Continuous improvement of sustainability on Virginia Tech campus through testing VT labs

Large savings in water and energy cost to university and reduced carbon footprint

Increased awareness of green practices across labs and across campus.

Solution Approach

Research lab statistics on their energy and resource consumption, Virginia Tech energy consumption specific data, and research other lab assessments
- Created a Green Lab factsheet that consisted of research lab information in general and specific to Virginia Tech

Compile all of positive aspects of various green lab assessments from the University of Virginia, Harvard, and MIT
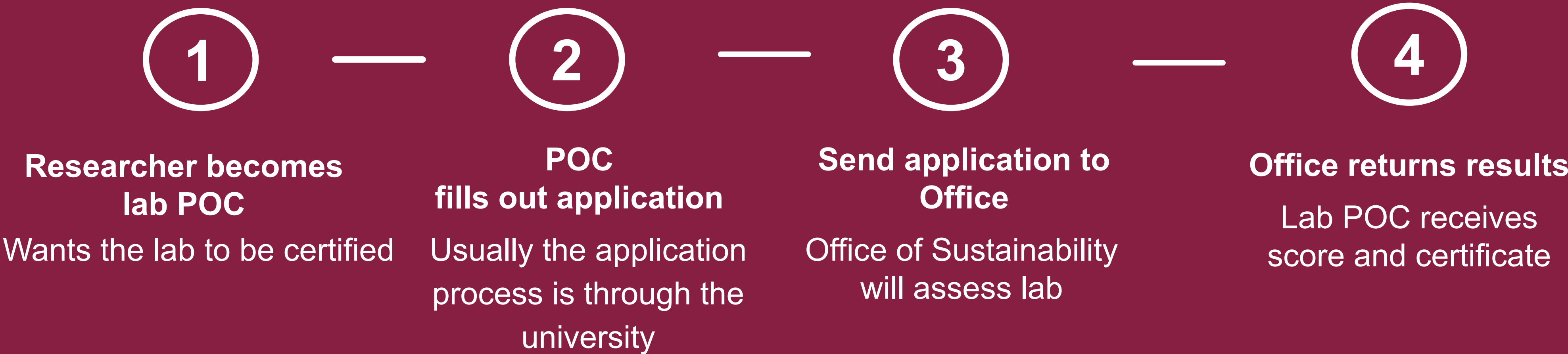- At this stage, four categories were selected and questions were developed

Formulate Virginia Tech's Green Lab Assessment to be hosted on the Environmental Health and Safety office's website.
- The assessment is in the form of an online survey that can be saved. A score and grade will be automatically calculated

Generalized Green Lab Certification Processes (as found at UVA, Harvard, and MyGreenLab):

1 — **2** — **3** — **4**

Researcher becomes lab POC
Wants the lab to be certified

POC fills out application
Usually the application process is through the university

Send application to Office
Office of Sustainability will assess lab

Office returns results
Lab POC receives score and certificate

Virginia Tech Green Lab Certification Process:

1 — **2** — **3**

Researcher becomes lab POC
Wants the lab to be certified

POC fills out application using our tool
Application is accessible via the Environmental Health and Safety Website

Application submitted, *scoring is automated*
The sustainability score will be shown immediately upon completion

Assessment Specifics

4 Main Categories

Energy Consumption
→ Preventative Maintenance
→ Equipment and Electronics

Waste Management
→ Chemicals & Hazardous Waste
→ Resource Consumption

Inventory Management

Off-Site Impact

Answer Choices

(Yes) (No) (IP) (N/A)

Scoring

$$\text{Final Score \%} = \frac{\text{\# of questions answered Yes} + (\text{\# of questions answered IP})*.5}{\text{Total number of questions} - \text{\# questions answered N/A}}$$

A **B** **IP**

Scoring an A correlates to receiving **80% or more** of possible points

Scoring a B correlates to receiving **70-79%** of possible points

Scoring an IP (in progress) correlates to receiving **below 70%** of possible points

Completed Tool

VIRGINIA TECH. | Environmental Health and Safety

Show/Hide fields from table | Return to Admin Area

Green Survey Elements

[Add New Green Lab Element] | [Reorder Green Lab Elements]
Page Size: 25 50 75 100

Id	Category	Page	Priority	Question Long	Addinfo	Weight		
2	energy_savings	1	1	We have energy-saving protocols during holidays and breaks, and reminders are sent to all lab personnel before breaks begin. This can be done through your individual lab or on a building level.	This can be done through your individual lab or on a building level.	1	[edit]	[delete]
3	energy_savings	1	2	We actively ensure equipment is turned off (or unplugged) when not in use.		1	[edit]	[delete]
4	energy_savings	1	3	Equipment is labeled with reminders to turn off after use.	Magnetic labels are provided by the Virginia Tech Office of ??? for all labs. (more info)	1	[edit]	[delete]
5	energy_savings	1	4	Lab members communicate about equipment use to avoid leaving equipment on longer than necessary.		1	[edit]	[delete]
6	energy_savings	1	5	Equipment is labeled with start-up/shut-down procedures to ensure proper function.		1	[edit]	[delete]