



Q&A Webinar

Answering user questions

Introduction



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The webinar slides will be posted on
<https://unhsimap.org/cmap/resources/training>

Agenda

1. Background

History and goals

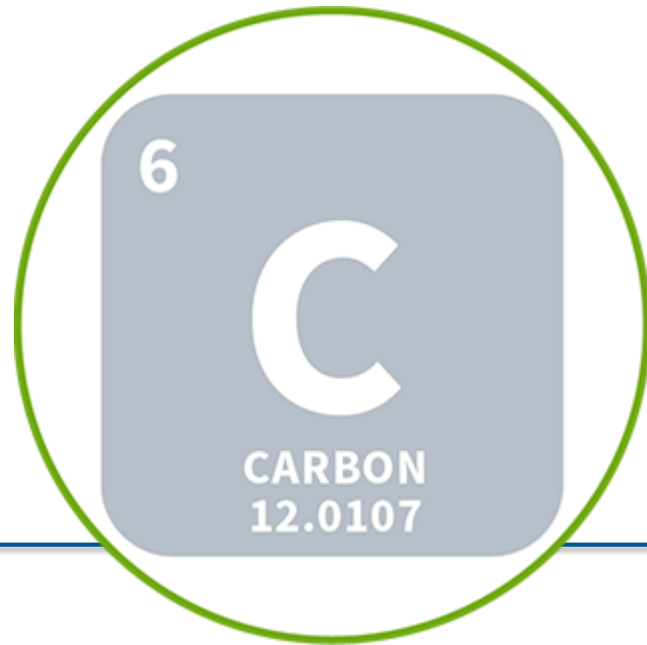
2. Answer submitted user questions

Getting started, data entry, emissions factors, results

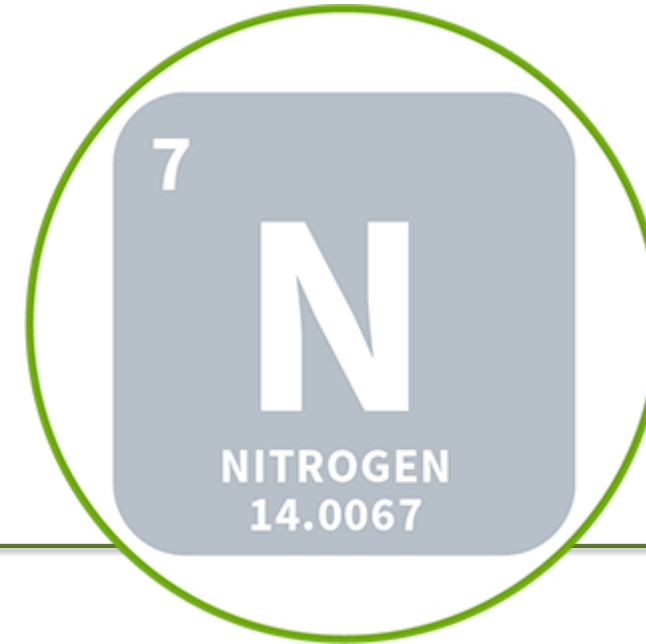
3. General Q&A

Answer live user questions

What is SIMAP?

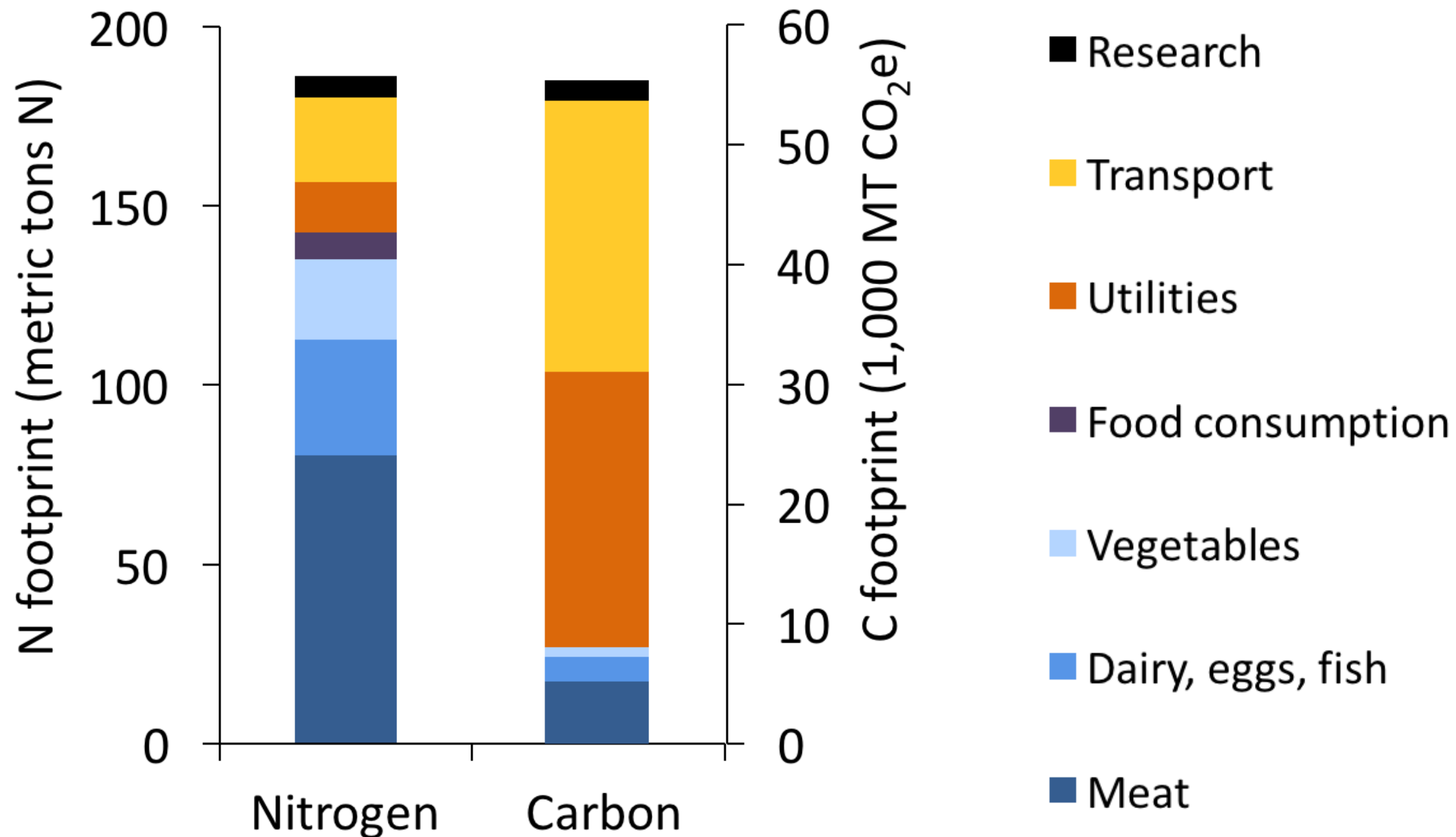


- Developed in 2001 at UNH
- Excel and web version
- Used by **thousands** of institutions



- Developed in 2009 at UVA
- Excel-based
- Used by 20 institutions
- **Completed pilot testing**

What is a nitrogen footprint?

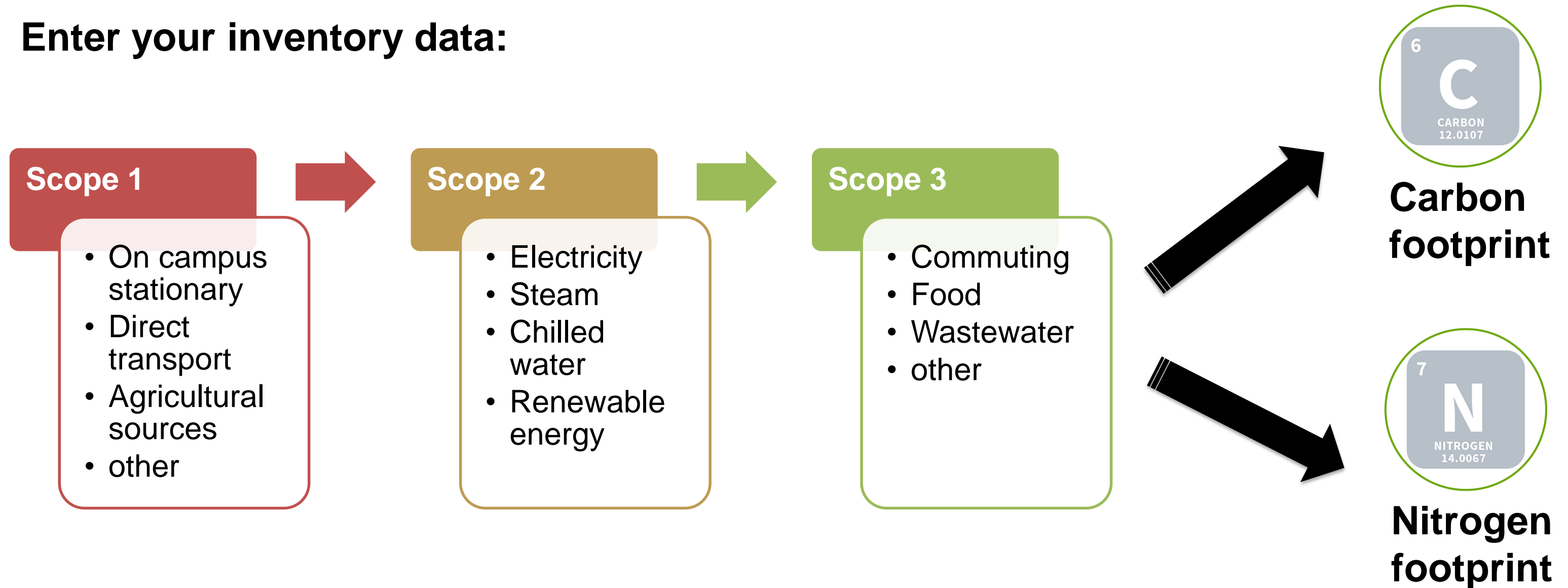


Food is key sector for nitrogen

Energy sectors are key sector for carbon

How does SIMAP work?

Enter your inventory data:



Protocols, Standards and Partners

Scientific Modeling

Intergovernmental Panel on Climate Change (IPCC)

Nitrogen Footprint Network



Accounting and Standards

GHG Protocol, ISO



Reporting

Second Nature, STARS



Functionality

Feature /Level	Basic	Tier 1
Cost	Free	\$350 per year
Data access	2 months	One Year
Data import/export	N/A	Available from 3 formats
Sectors	Existing scopes 1-3	Existing scopes 1-3
Support level	Basic technical	Advanced
Emission factors	Basic	Customized
Report template	N/A	Two report formats
Data review	N/A	Data review by UNHHSI

Outline of submitted questions

1. Getting started
2. Data entry: Scope 1, Scope 2, Scope 3
3. Emissions factors
4. Results and reports
5. Future development

1. Getting started

Questions submitted:

- Where can I find the complete list of data needed before I begin entering data?
- How do I use SIMAP if I have never done a GHG inventory?

Resources for data collection



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SUSTAINABILITY INDICATOR MANAGEMENT & ANALYSIS PLATFORM

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RESOURCES

[Tools](#)

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[Our Team](#)

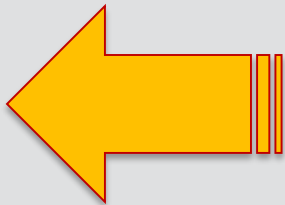
[Glossary](#)

[Links](#)

[Carbon References](#)

[Nitrogen References](#)

[Graphs Instructions](#)



Tools

Tools for collecting data for SIMAP

These tools can be downloaded and used to assist with data collection and data entry to SIMAP.

[Food Data Collection Template](#)

Please use this spreadsheet to collect the food data. You can then upload this file in the Import tab to populate the food data input.

[Collecting and Analyzing Your Food Data](#)

This document has helpful tips for how to collect and analyze your food data.

[Campus Data Collection Template](#)

The Campus Data Collection spreadsheet is a tool to help organizations collect their data day to day in one spreadsheet to help keep track of which input you have for the year. Once this is completed for the entire year, you can import all your data from this spreadsheet. This spreadsheet does not have any emission factors or calculations, all those take place in SIMAP. This is just to help you gather the numbers in one place. Do not forget to check the institutional data like budgets, population, and square footage and to update any changes in those year over year. Also, please, check your goals and any other notes or changes you should track for your data collection. Use notebook and notes fields in the data entry tab to track your assumptions.



User's guide: Appendix 1



Appendix 1: Data Collection Outline

This outline summarizes the data you will need to collect to complete an emissions inventory and offers suggestions of people to contact to find this information. This information may also be useful when collecting data for project ideas, so be sure to stay in touch with these key individuals.

Note: equations will be incorporated in a future version of this guide.

Institutional Data

It may seem odd to start a greenhouse gas emissions and nitrogen inventory by collecting data on your institution's budget, population, and physical size, but this data is important to normalize your emissions for a comparison with other institutions and for projecting future emissions trends. This data should be easy to find. That said, the number of full-time equivalent students, staff and faculty, and the number of gross square feet, are the most important pieces of information in this section—the rest is nice to know, but not worth spending a lot of time or effort on if not readily available.

a. Budget

Contact: Controller Office

Data: Annual operating, research, and/or energy budget

Definitions or parameters: The Operating Budget consists of all sources of funding the University has financial control of and is plainly considered as *the cost to operate* the institution. Research Dollars includes all sources of financial funding the institution *receives* for its

User's guide: Appendix 2



Appendix 2: Data checklist

This appendix provides a comprehensive list of all data inputs in SIMAP. You can use this list to prepare for your campus data collection and as a checklist to confirm that you have entered all of your data sets into SIMAP. The data sets are organized into these parts:

Account:

- Institution data

Data Entry

- Campus activity data (scope 1, scope 2, scope 3)
- Sinks
- Calculation Factors

Please note that this section is in development.

1. Institution data

Account

- Institution
 - Name of institution [select from drop down menu if higher education]
 - Type of institution: education/municipality/healthcare/lodging/other - demographic info
 - Location [country; enter zip code for US; select province for Canada; enter country if

Campus Data Collection Template

	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	
1																								
2	On this Worksheet: Enter data related to emissions. If a column does not apply or the data is unavailable, leave it blank.																							
3	MODULE	Input																						
4	WORKSHEET	Input: Enter emissions source activity and institutional data																						
5	UNIVERSITY																							
6												--- Scope 1 Emissions Sources ---												
7	Fiscal Year	Institutional Data																						
8		Budget			Population					Physical Size		On-Campus Cogeneration Plant(s)												
9		Operating Budget	Research Budget	Energy Budget	Full Time Students	Part-Time Students	Summer School Students	Faculty	Staff	Total Building Space	Total Research Building Space	Residual Oil (#5-6)	Distillate Oil (#1-4)	Natural Gas	LPG (Propane)	Coal (Steam Coal)	Incinerated Waste	Wood Chips	Wood Pellets	Grass Pellets	Residual BioHeat	Distillate BioHeat	Attributable Solar - Electric	
10		UNITS	\$	\$	\$	#	#	#	#	#	Square feet	Square feet	Gallons	Gallons	MMBtu	Gallons	Short Tons	Short Tons	Short Tons	Short Tons	Short Tons	Gallons	Gallons	kWh
11	1990																							
12	1991																							
13	1992																							
14	1993																							
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30	2009																							
31	2010																							
32	2011																							
33	2012																							
34	2013																							
35	2014																							
36	2015																							

Account: Institution information



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ACCOUNT MANAGEMENT

[Institution](#)

[Manage Users](#)

[Notebook](#)

NORMALIZATIONS

[Budgets](#)

[Physical Spaces](#)

[Populations](#)

PROGRAMMATIC

[Goals](#)

[Initiatives](#)

Account Information

On the 'Account' tab, you can enter required information about your institution, manage users, track information in the notebook, and enter additional optional information for normalizations and goal tracking.

Account Management

The 'Institution' page has important and required data entry fields, such as your institution name, zip code, and system boundaries. Many of these data points are used to calculate your footprints. If your account is the official tracking account for your institution, then be sure to select 'Yes' for this final question on the 'Institution' page.

The 'Manage Users' page allows you to add new users, view current users, and change user roles (if you are the account owner). See the [FAQ page](#) for more information on user roles.

The 'Notebook' is a central location for you to track overarching notes about your campus' footprints.

Normalizations

The optional normalization data sets (budgets, physical spaces, and populations) must be entered to view normalized results on the ['Results' page](#). Normalizing your emissions can help with projecting your future emissions and comparing to other campuses. The most commonly used normalization data sets are the number of full-time equivalent students, staff and faculty; and the number of gross square feet.

Data entry: landing page



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SUSTAINABILITY INDICATOR MANAGEMENT & ANALYSIS PLATFORM

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SCOPE 1

[Stationary Fuels](#) ▾

[Cogen Efficiencies and Outputs](#)

[Transport Fuels](#)

[Fertilizer](#)

[Animals](#)

[Refrigerants & Chemicals](#)

SCOPE 2

[Utility Consumption](#)

[Renewable Energy](#)

SCOPE 3

[Commuting](#)

Data Entry

On the 'Data entry' tab, you can enter your campus inventory data, view emissions factors, and customize emissions factors.

There are two options for entering your campus' inventory data:

- Enter data by category using the links on the left panel of this page.
- [Import](#) your data from several sources: Campus Carbon Calculator v7.0 - 9.1, Food Template, CarbonMAP zip file.

Scope 1

Scope 1 includes sources of direct campus emissions from:

- Stationary and mobile sources (e.g., energy used in buildings and fleets)
- Fugitive emissions (e.g., fertilizer application, animal husbandry, the use of chemicals or refrigerants that are also GHGs)

You can enter additional chemicals and refrigerants by selecting 'Other' on the [refrigerants and chemicals data entry page](#), which will make a second drop-down appear. If you need to add a custom chemical or refrigerant, you can do so by selecting the [Add Chemical](#) button on the [Global Warming Potential](#) page.

Scope 2

Data management tab

HOME	1. ACCOUNT	2. DATA ENTRY	3. RESULTS	REPORTS	DATA MGMT	ABOUT	RESOURCES
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DATA MANAGEMENT
[Calculation Sources and Methods](#)
[Status](#)
[Import Data](#)
[Import Log](#)
[Export Data](#)
[Delete Data](#)

Calculation Sources and Methods

eGrid for data prior to 2007 ⁱ *

NEWE: NPCC New England

[eGrid map for years < 2007](#)

eGrid for data in 2007 and beyond ⁱ *

NEWE: NPCC New England

[eGrid map for years >= 2007](#)

Emission Factors Version ⁱ

2017

Global Warming Potential Version

AR5

Scope 2 Method ⁱ *

☒ Market-Based ☐ Location-Based ☐ Custom Fuel Mix

✓ SAVE

Important method selections in Data Mgmt include:

- Select your eGrid region
- Emissions factors version
- Purchased electricity method
- Global warming potential version

Resources

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RESOURCES

[Tools](#)[Users' Guide](#)[Training](#)[Changes in SIMAP](#)[FAQ](#)[Support](#)[Glossary](#)[Links](#)[Carbon References](#)[Nitrogen References](#)[Graphs Instructions](#)

Tools

Tools for collecting data for SIMAP

These tools can be downloaded and used to assist with data collection.

[Food Data Collection Template](#)

Please use this spreadsheet to collect the food data. You can then upload the data to the system for input.

[Collecting and Analyzing Your Food Data](#)

This document has helpful tips for how to collect and analyze your food data.

[Campus Data Collection Template](#)

Resources tab includes:

- **Tools, user guidance, and training to assist with collecting inventory.**
- **Documentation and references on the methods and references (in progress).**

2. Data entry: Scope 1

Questions submitted:

- What scope are emissions from campus owned vehicles used for business travel (e.g., travel off-campus for conferences)?
 - → **Scope 1**
- Cogen Efficiencies and outputs. How does a plant determine the Steam Efficiency? Is it a percentage of Utility factor?

2. Data entry: Scope 1

- Cogen efficiencies are the % output from a cogen plant that go towards electricity and heat generation
 - Important note: The efficiencies do NOT affect your total footprint results; they just allocate emissions across electricity and steam
- Two options for cogen efficiency data collection:
 1. Request custom efficiencies from plant
 2. Use default [cogen efficiencies from US EPA](#):
 1. Electricity (35%) and thermal efficiency (80%)

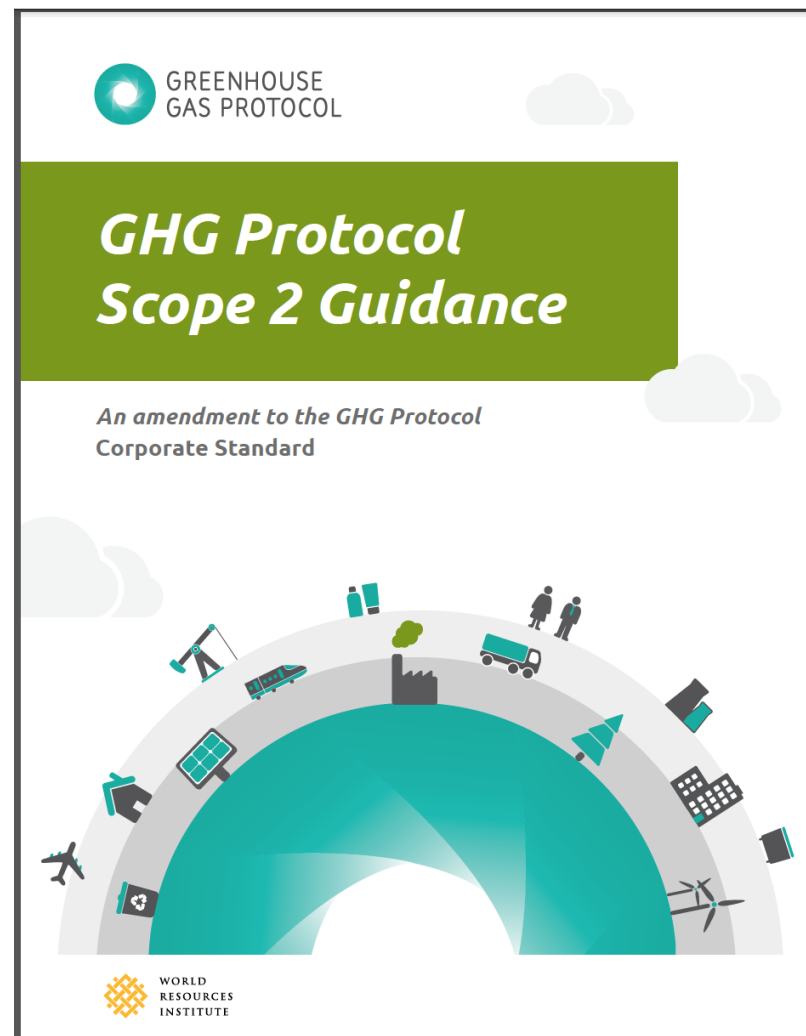
2. Data entry: Scope 2

Questions submitted:

- Is SIMAP working on a way to account for virtual PPA REC purchases from grids with different carbon intensities than ours?
 - → **New methods are based on net kwh and are not affected by carbon intensities from RECs**

Methodology Change: Scope 2

Organizations are now required to do two approaches to calculation and reporting, then select one for use in CAP:



Location Based

- Shows the actual emissions of electricity consumption from a specific grid region

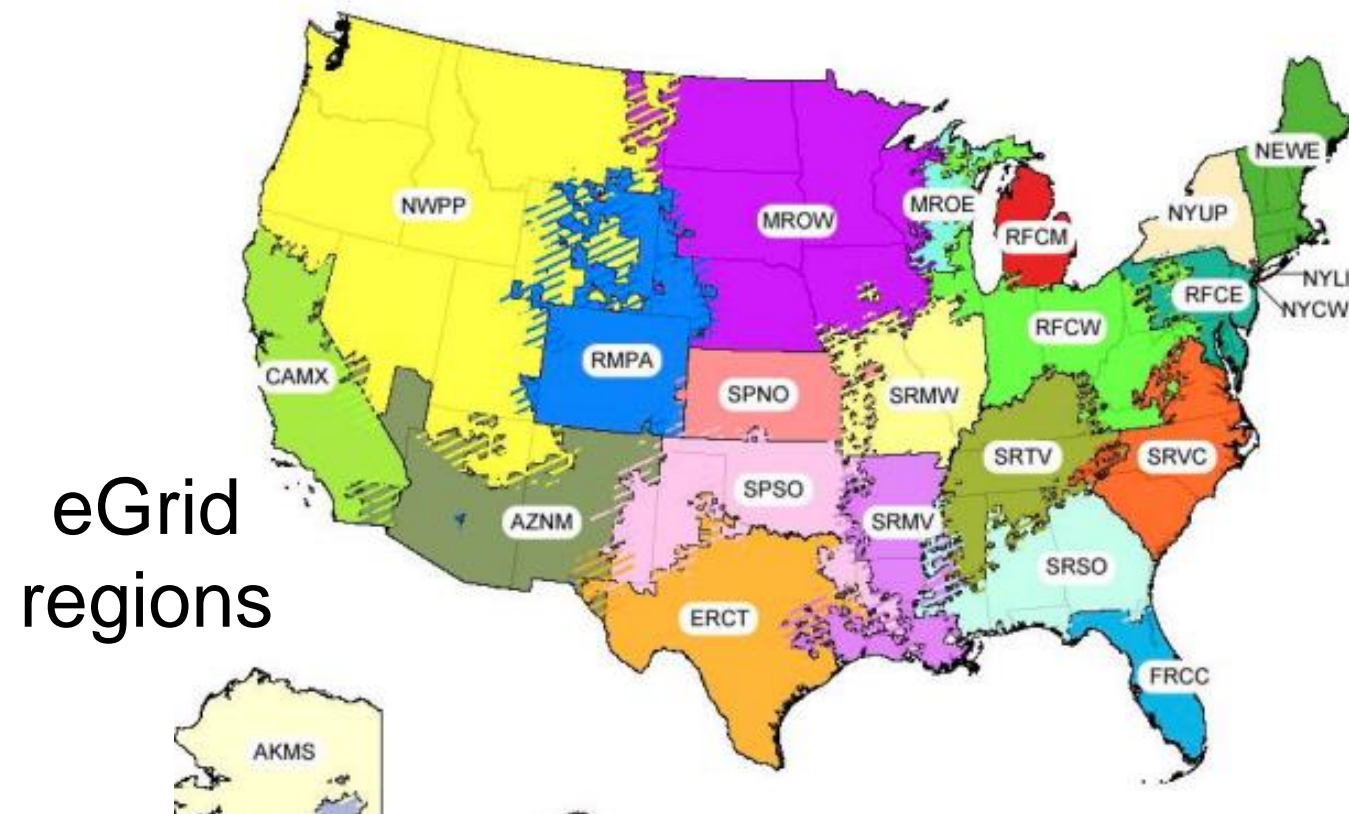
Market Based

- Captures the impact of specific supplier relationships and voluntary participation in renewable energy markets and programs

Methodology Change: Scope 2

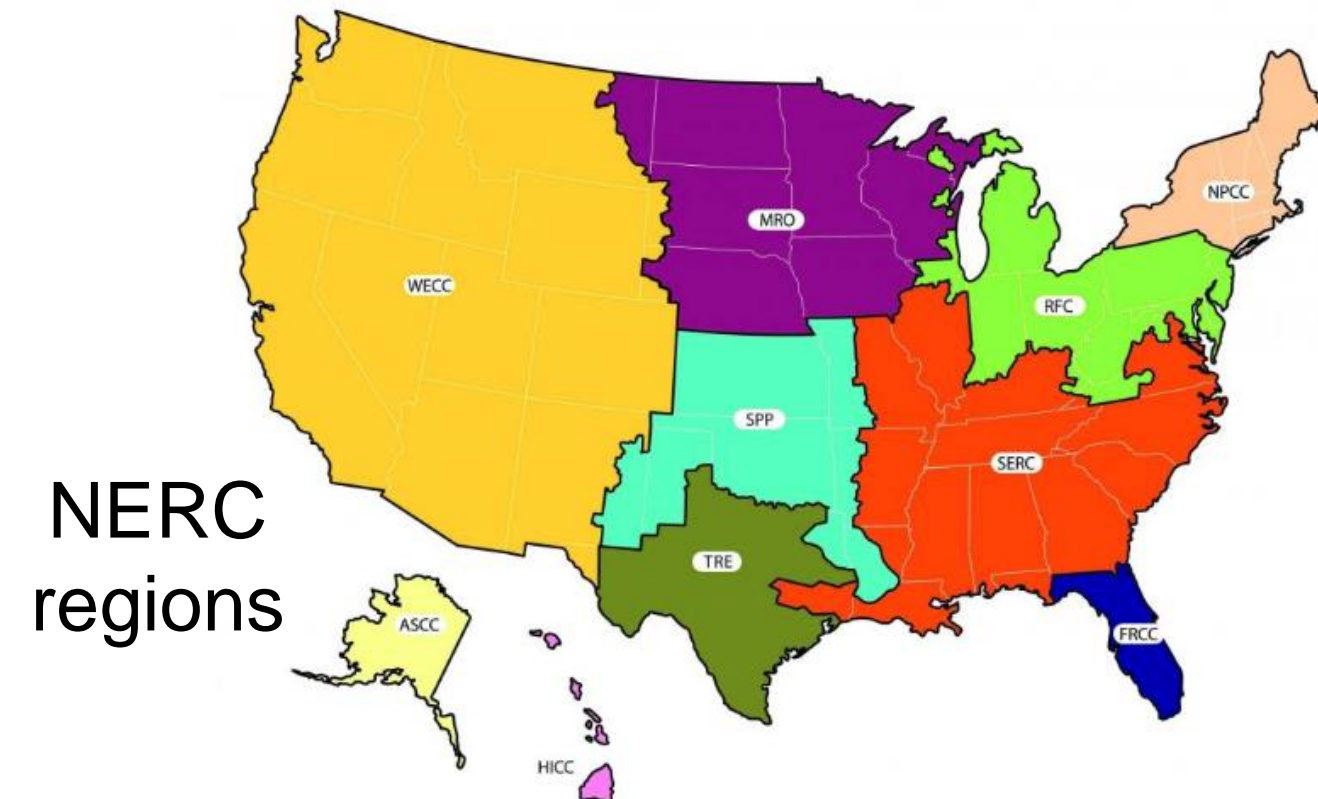
Location-based:

- Does NOT account for RECs
- eGrid emissions factors



Market-based:

- Accounts for RECs
- Supplier-specific OR residual emissions factors

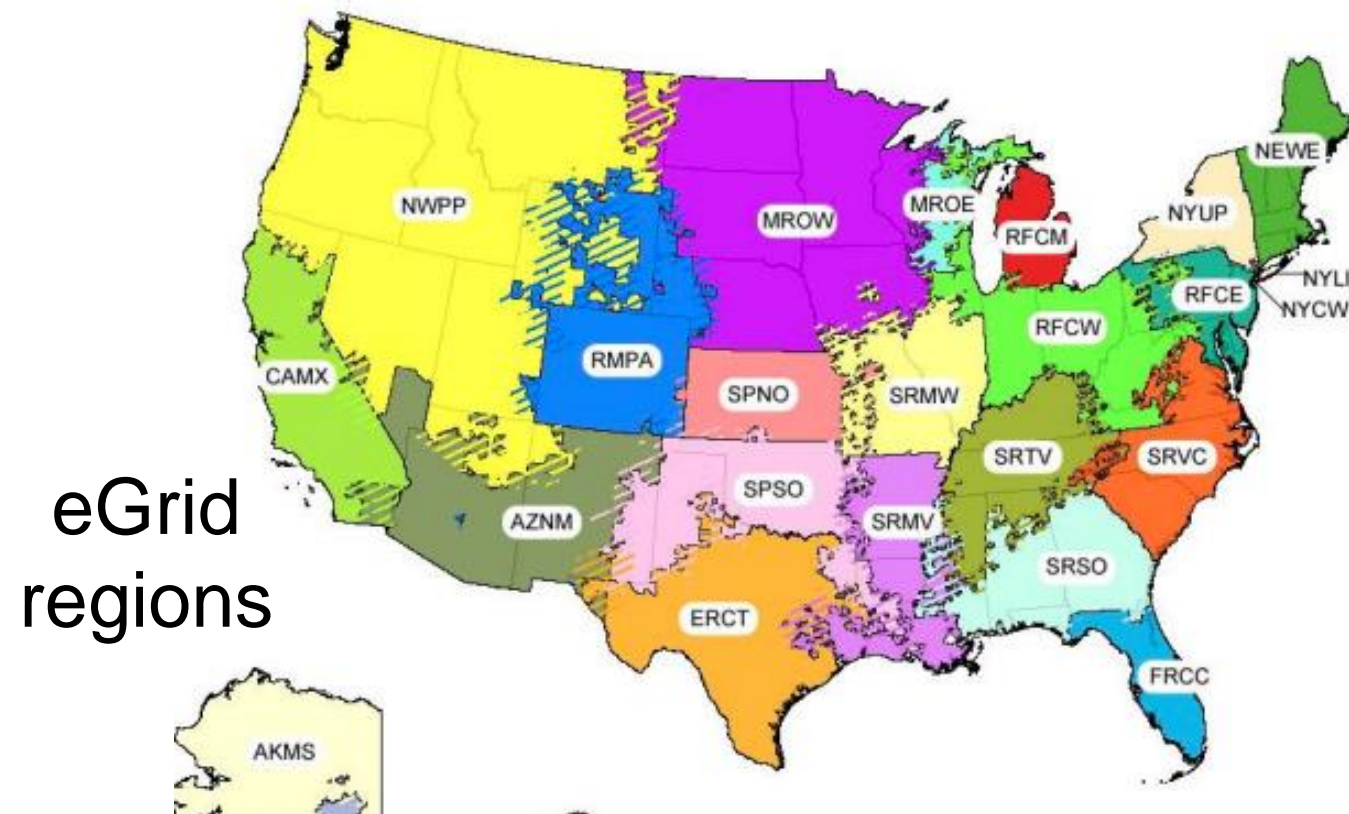


Methodology Change: Scope 2

Location-based:

= kWh consumed * EF

EF: eGrid



Market-based:

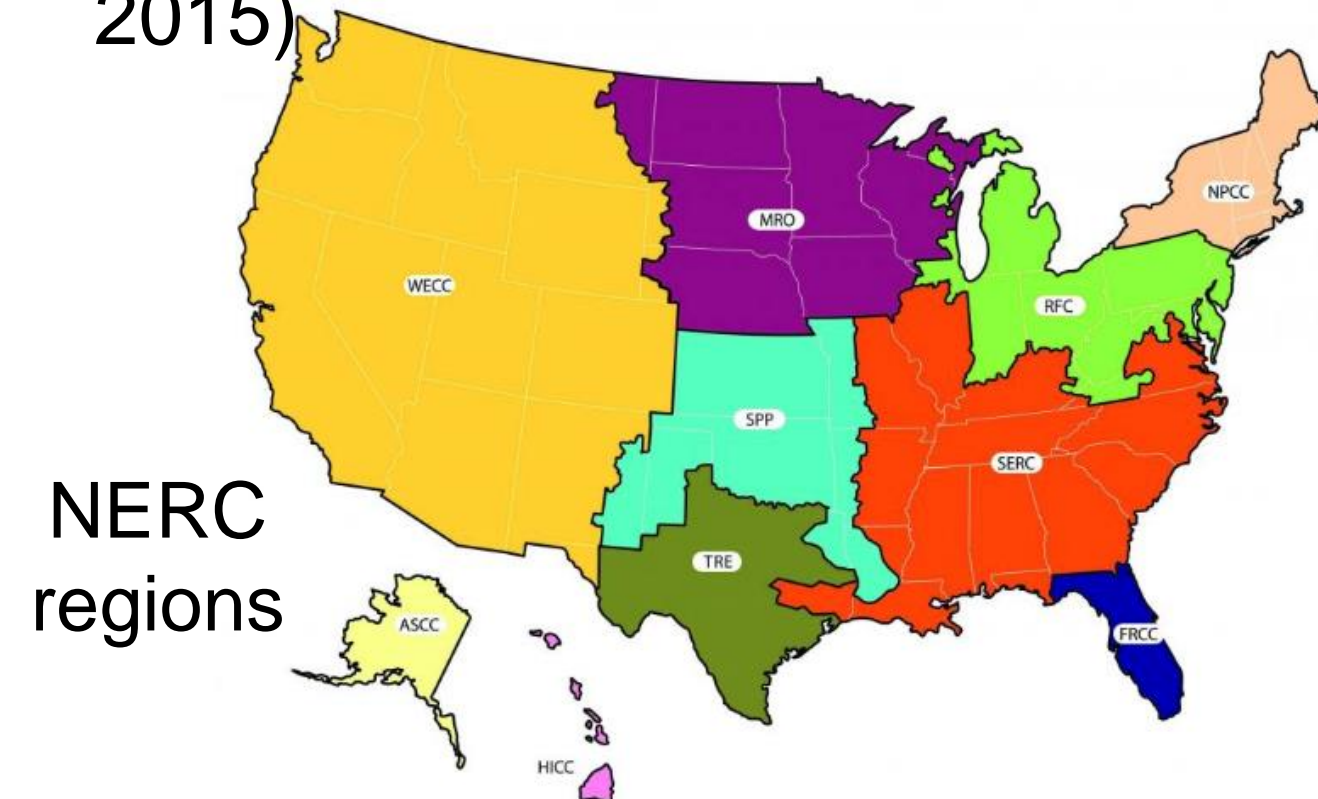
= (kWh consumed - RECs) * EF

EF: Supplier-specific OR default

eGrid (before 2015)

Residual emission factors (after

2015)



2. Data entry: Scope 3

Questions submitted:

- Scope 3 input
- Why is scope 3 not required in GHG reporting by ACUPCC schools?

2. Data entry: Scope 3

SCOPE 3

[Commuting](#)

[Business Travel & Study
Abroad](#)

[Student Travel to/from
Home](#)

[Food](#)

[Paper](#)

[Waste & Wastewater](#)

Most common scope 3 categories:

- Commuting
- Business travel

Add other categories if they are significant sources on your campus and as data collection and time allow.

2. Data entry: Scope 3

From the [Second Nature Annual Progress Evaluation: Greenhouse Gas Inventory Guidance](#):

What GHG emissions are signatories required to track and report?

The Carbon and Climate Commitment requires signatories to report on the following outputs of GHG emissions, towards the goal of carbon neutrality. Together these emissions account for a signatory’s gross greenhouse gas emission footprint.

Scope 1 Emissions	Scope 2 Emissions	Scope 3 Emissions
Stationary Combustion Mobile Combustion Process Emissions Fugitive Emissions	Purchased Electricity Purchased Heating Purchased Cooling Purchased Steam	Commuting Air Travel



Other categories are encouraged but optional

For example: Refrigerants, directly financed air travel, study abroad, waste, wastewater, T&D losses, and more.

3. Emissions factors

Questions submitted:

- Setting custom emission factors
- I have a few questions about what emission types to use for airplane and bus travel.
- Our EF for some animals are not lining up – can you discuss sources/methods

3. Emissions factors

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SCOPE 1

[Stationary Fuels](#) -

[Cogen Efficiencies and Outputs](#)

[Transport Fuels](#)

[Fertilizer](#)

[Animals](#)

[Refrigerants & Chemicals](#)

SCOPE 2

[Utility Consumption](#)

[Renewable Energy](#)

SCOPE 3

[Commuting](#)

[Business Travel & Study Abroad](#)

[Student Travel to/from Home](#)

[Food](#)

[Paper](#)

Emission Factors

[Home](#) / Emission Factors

A unique value for scaling emissions to activity data in terms of a standard rate of emissions per unit of activity (e.g., grams of carbon dioxide emitted per barrel of fossil fuel consumed).

Scope *

1

Source *

Agriculture Sources: Animal Husbandry: Beef Cows

Emission Type *

CH4

Enter custom emissions factors here and click 'save' at bottom of screen.

Note: Customizations are to this EF version only.

Version: 2018			
Year	Default	Unit	Custom
1990	53.984958960000	kilogram CH4 / head	
1991	53.984958960000	kilogram CH4 / head	

3. Emissions factors

Airplane and bus travel emissions factors

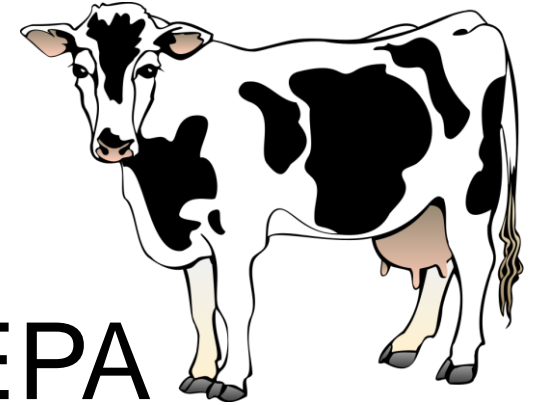


- EF types: CO₂, CH₄, N₂O, NO_x (nitrogen footprint only)
- Radiative forcing and air travel:
 - Passenger miles * air travel CO₂ EF * 2.7 radiative forcing factor
 - Due increased radiative forcing from emissions at higher altitude

3. Emissions factors

Animal emissions factors:

- Data source = US Greenhouse Gas Inventory from EPA
- Sources of animal emissions:
 - CH_4 from enteric fermentation for cows and other ruminants
 - N_2O and CH_4 from waste management



Emission/Calculation Factors Updates

2017 Version

- eGrid 2014
- Residual factors 2015 - 17

2018 Version

- eGrid 2016
- Residual factors for 2018

Substance	AR1 (1990)	AR2 (1995)	AR3 (2001)	AR4 (2007)	AR5 (2013)
Carbon dioxide, fossil (CO ₂)	1	1	1	1	1
Methane, fossil (CH ₄)	21	21	23	25	28
Methane, biogenic (CH ₄)	18.25	18.25	20.25	22.25	25.25
Dinitrogen monoxide (N ₂ O)	290	310	296	298	265
HCFC-141b	440	-	700	725	782
HFC-134a	1200	1300	1300	1430	1300
HCFC-22	1500	-	1700	1810	1760
HCFC-142b	1600	-	2400	2310	1980
CFC-11	3500	-	4600	4750	4660
CFC-12	7300	-	10600	10900	10200
Sulfur hexafluoride	-	23900	22200	22800	23500

*Went live
this week!*

3. Results and reports

Questions submitted:

- How to manage reports

Results: select parameters

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3. Results

Footprints *

☒ Carbon ☒ Nitrogen

Report Type *

☐ Total footprint ☐ Scopes ☒ Categories ☐ Sources ☐ Gas/pollutant

Scope 2 Method ⓘ *

☒ Market-Based ☐ Location-Based ☐ Custom Fuel Mix

Graph Type *

☐ Line ☒ Bar

Fiscal Year Range *

Normalization

CALCULATE

Results: scopes selection

HOME

1. ACCOUNT

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REPORTS

DATA MGMT

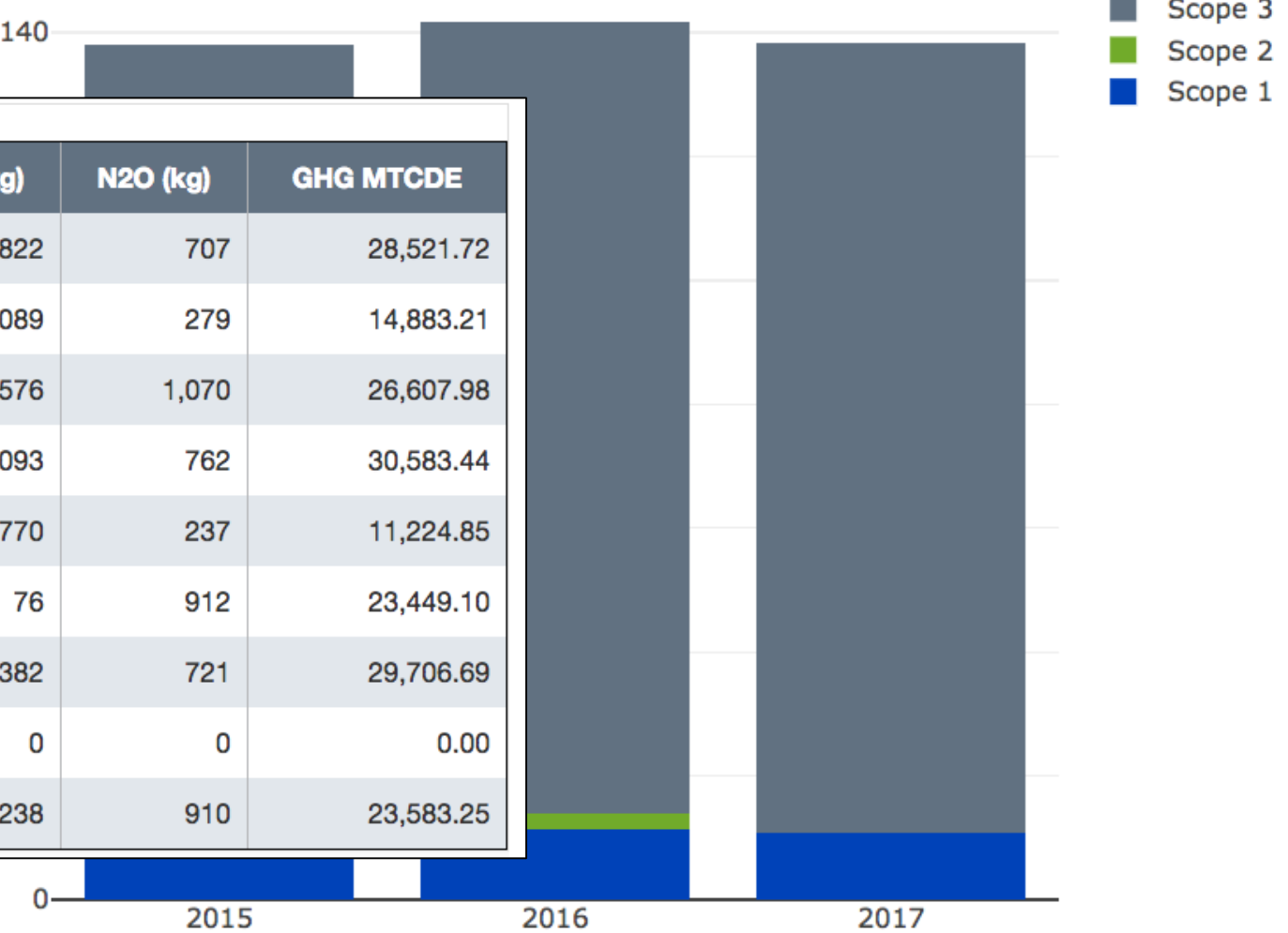
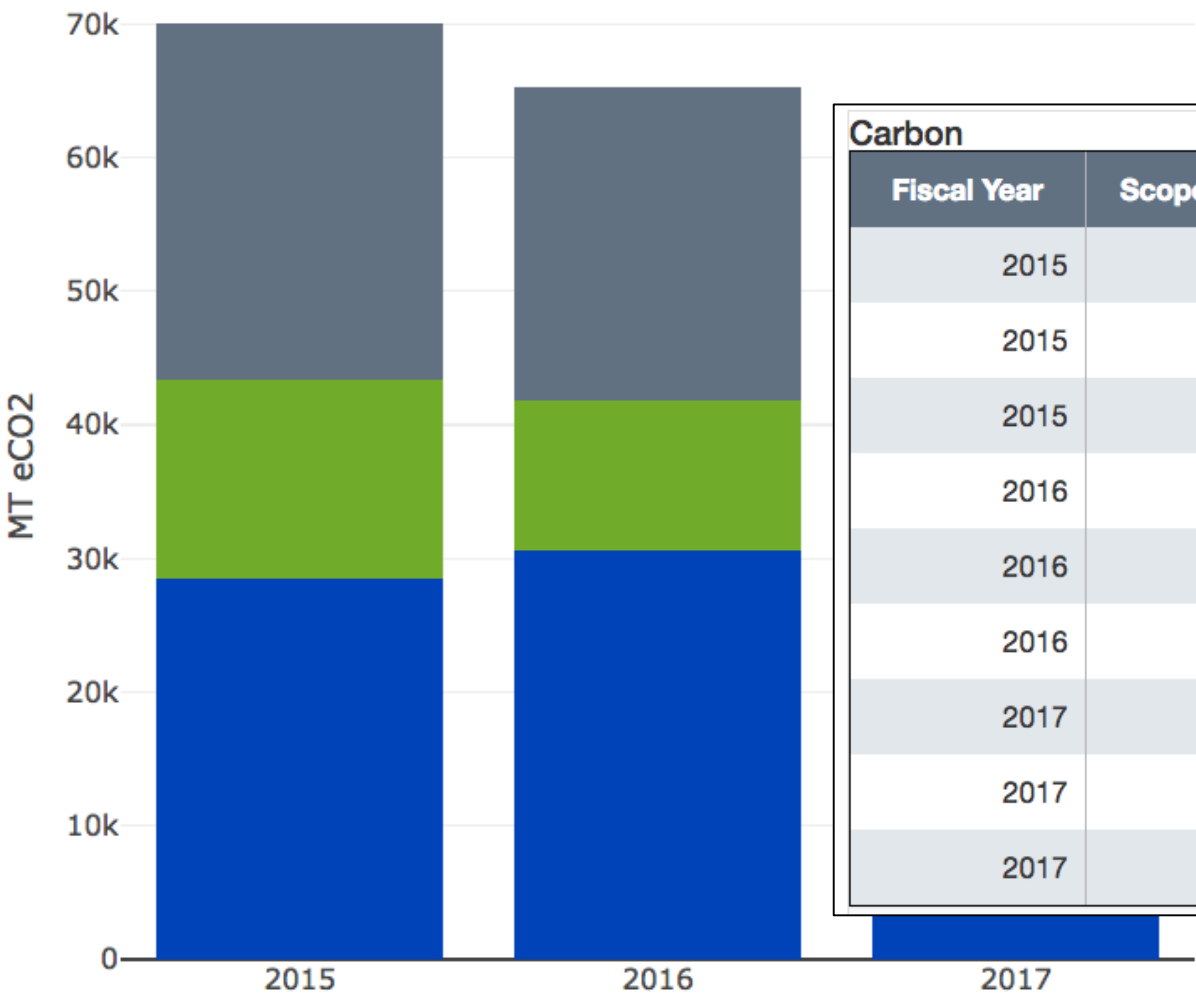
ABOUT

RESOURCES

Carbon



Nitrogen



The results display in a graph and a table below.

Results: categories selection

HOME

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2. DATA ENTRY

3. RESULTS

REPORTS

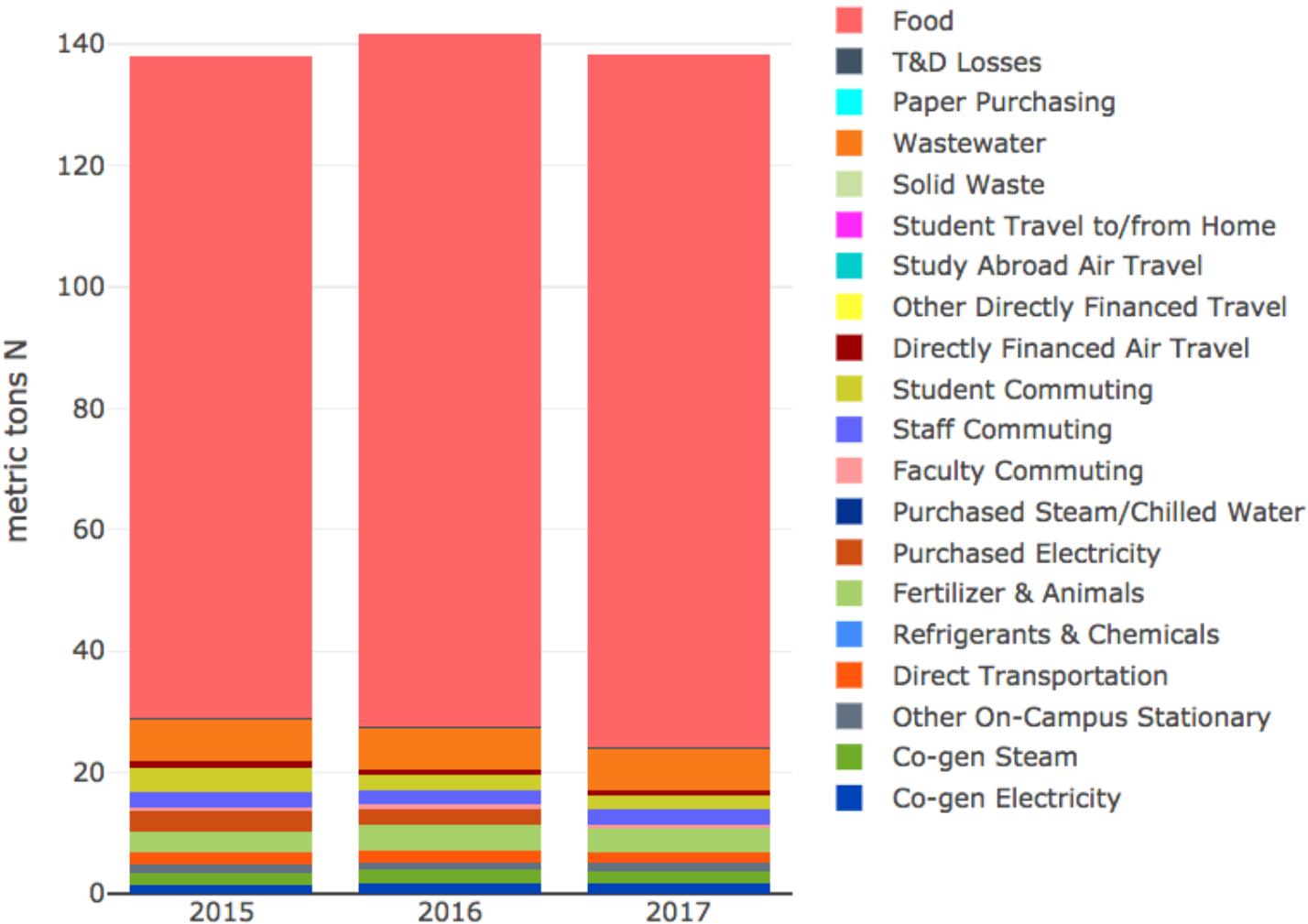
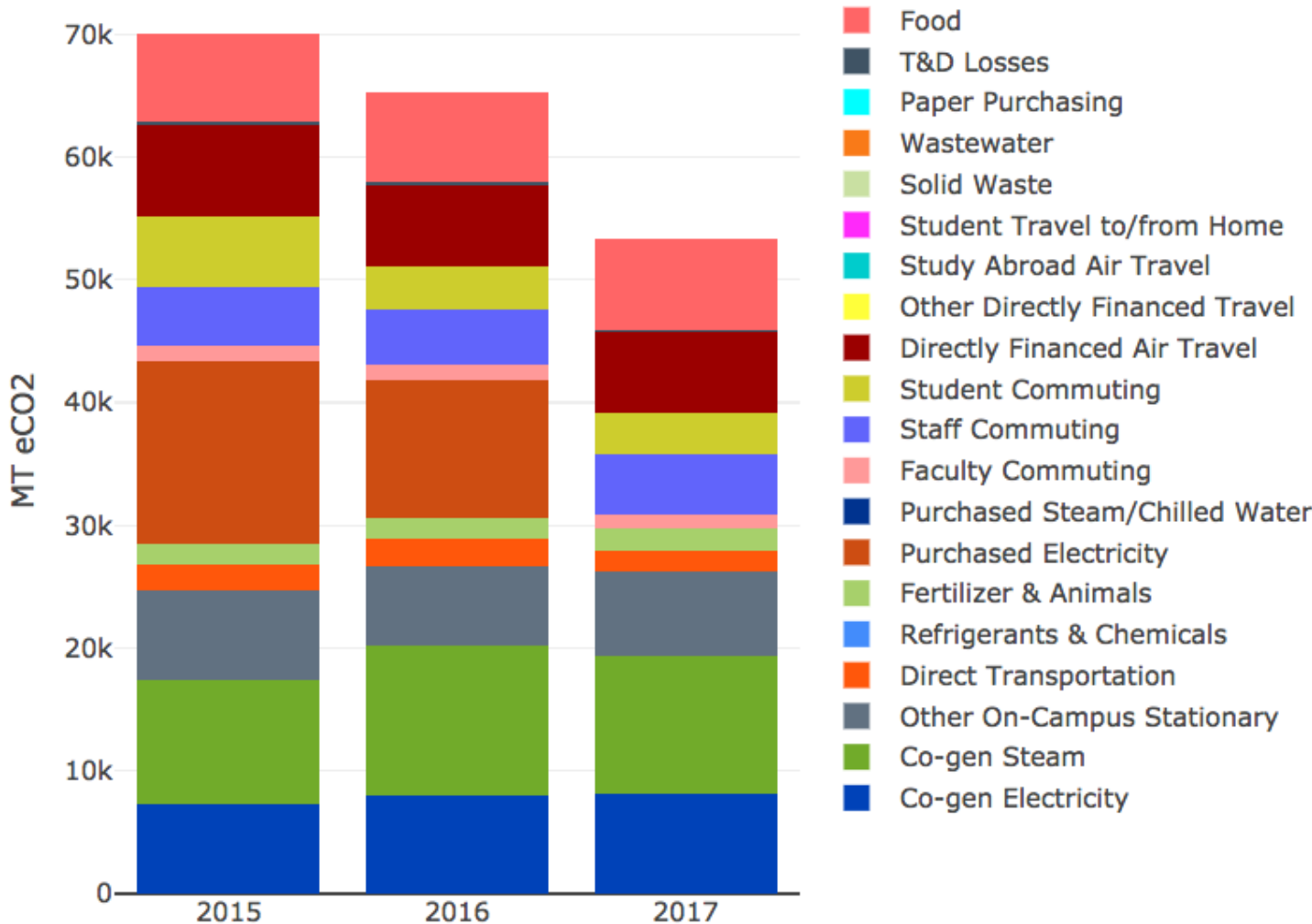
DATA MGMT

ABOUT

RESOURCES

Carbon

Nitrogen



The results display in a graph and a table below.

Annual Report – *Tier 1 only*

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Reports

Report

Annual Report ▾

Footprint *

☒ Carbon ☐ Nitrogen

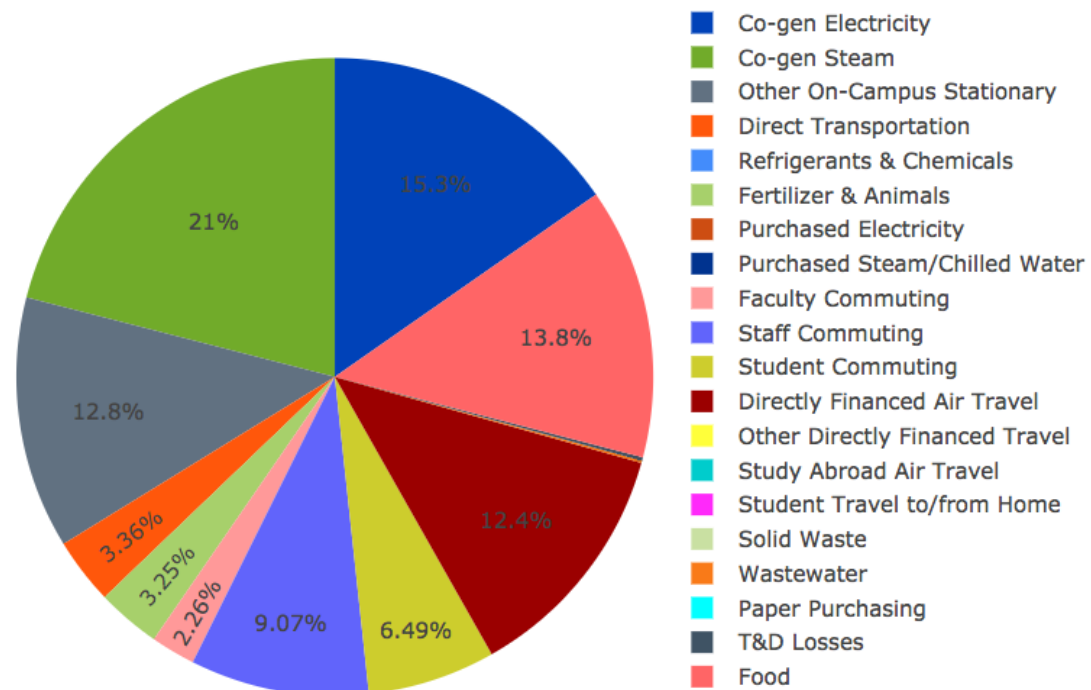
Year *

2017

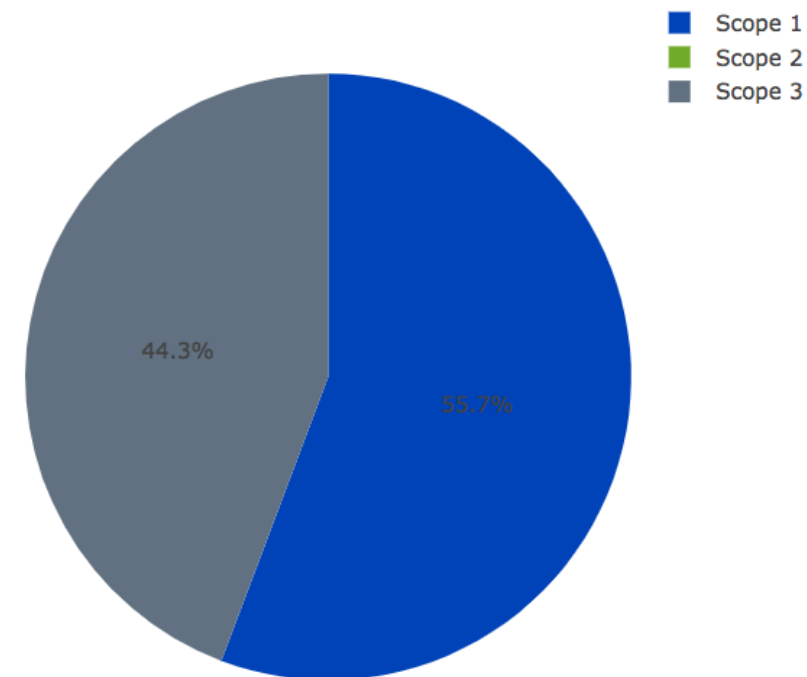
DISPLAY

EXPORT

Carbon: 2017



Carbon: 2017

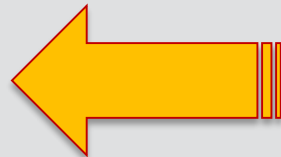


- The reports tab provides an overview for an entire year.
- You can export the tables
- This is equivalent to the S_Annual tab in CCC

3. Results and reports: Export data – *Tier 1 only*

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DATA MANAGEMENT

[Calculation Sources
and Methods](#)[Status](#)[Import Data](#)[Import Log](#)[Export Data](#)[Delete Data](#)

Export

Click the buttons below to export your inventory and emissions factors and your results. You will download a zip file that contains several spreadsheets tracking your inventory, emissions factors, and results in different formats (e.g., by gas, by source, by scope).

[EXPORT YOUR DATA AND EFS](#)[EXPORT RESULTS](#)

**On this page you can export ALL the data used to calculate your footprints,
including:**

Inventory data entered; Emissions factors used; Your results

4. Future development

Questions submitted:

- Why is "Goods & Services" not a category in scope 3 in SIMAP?
 - → Will be part of 'complete scope 3' future addition
 - → Join our purchased goods working group!
- Projecting future emissions in SIMAP

Food scenarios template

Food Projections & Solutions Template



Updated: 8 June 2018

What this template provides

You can use this template to project your SIMAP carbon and nitrogen footprint results to a projection year. You can then run the following food scenarios: vegetarian meal replacement, up to 4 food category replacements, custom food replacement, and local food replacement, and diverting food waste.

How to use this template

Enter SIMAP data tab

Copy-paste your exported data from SIMAP. This will be used for your baseline C and N footprint and food calculations. See the tab for detailed instructions.

Select projections and scenarios tab

Select how you would like to project your data. There are different selections for non-food data and food data.
Select your scenario input data (e.g., % vegetarian meals, % replacement of food categories).

View projections and scenarios tab

NEWSFEED

Just released: [2018 version of emissions factors](#) with updated eGrid and residual EFs. Select on the [Data Mgmt tab](#).

The beta testing for multiple campus functionality for Tier 2 has begun!

Upcoming webinars. Click the links to register:



[Q & A open forum: bring your questions about SIMAP and GHG reporting](#) - April 12, 1-2 pm EST

Past webinars are available on our [training page](#)

SIMAP [data review request](#) and data review documents.

[Request](#) new tools for food and energy projections and scenarios.

Energy scenarios template



Energy Projections and Solutions Template

Prepared by:
Andrew Pettit, Libby Milo, Izzy Castner, Allison Leach, Jim Galloway, and the UVA Office for Sustainability
University of Virginia

Introduction

This template is intended to help users make decisions on energy reduction strategies to minimize both GHG and N losses to the environment.

This template provides:

- 1) Inventory your organization's Utility and Transportation reduction strategies.
- 2) Calculate the Nitrogen co-benefits from these reduction strategies.

Navigation

This color scheme is used throughout the template to indicate which cells to interact with.

	Do not enter data here
	Enter copy and pasted data here
	Enter customized data here

Instructions Overview

Downloads from SIMAP:

1. Annual Report Carbon: Go to SIMAP "Reports" tab -> Chose "annual report", "carbon"-> Type in baseline year
2. Annual Report Nitrogen: Go to SIMAP "Reports" tab -> Chose "

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SIMAP [data review request](#) and data review documents.

[Request](#) new tools for food and energy projections and scenarios.

SIMAP ongoing work

New features

- Emissions factors version 2018 with new eGrid

Ongoing

- Multi-campus beta testing
- Commuter working group
- Formal user data reviews - STARS points available!

Upcoming

- References & documentation
- Launch 3 more working groups: Food, biomass, purchased goods

Future development plans

1. Tier 2

- Multi-campus accounts – beta testing is underway!
- Complete scope 3

2. Annual emission factor updates

- 2018 version just released

3. Future Possibilities

- Projections and solutions
- Additional footprint “indicators”

4. User-driven Evolution

Questions?

