

# THE ABCS OF GHGS: STREAMLINING THE GREENHOUSE GAS INVENTORY PROCESS AT CAL STATE UNIVERSITY NORTHRIDGE

## FOCUS ON EFFICIENCY

*In an effort to make the process of reducing greenhouse gas emissions more simple, efficient and replicable, California State University Northridge developed a specialized greenhouse gas inventory tool.*

Several departments within California State Northridge are working with the university’s Energy Information System (EIS) service provider – a web-based platform that collects, stores, analyzes and displays energy data – to measure, or inventory, the university’s greenhouse gas (GHG) emissions.

Because CSU campuses are required to submit monthly energy reports to the CSU Chancellor’s Office, regular records of utility consumption, fleet fuel usage, refrigerant purchases and more are already present within CSUN’s EIS database.

The university’s new greenhouse gas inventory tool uses the existing data to automatically create a complete and accurate inventory of scope 1 emissions (emitted onsite at the university) and scope 2 emissions (emitted off-site by a supplier to the university).

Before the development of this automatic data transfer, information was manually downloaded and copied from CSUN’s EIS database or pulled from campus utility bills and meters and entered into a spreadsheet to calculate scope 1 and 2 emissions. The new greenhouse gas inventory method also has less room for errors and is significantly less time consuming.

While CSUN’s entire greenhouse gas inventory process has been streamlined, indirect scope 3 emissions (from commuting, university-funded travel and other activities) still require an organized effort to quantify. Collaboration between the Institute for Sustainability, Facilities Planning, Associated Students, Parking and Transportation Services, and Accounts Payable has greatly increased the quantity and quality of commuting and travel data available.

An employee survey required by the South Coast Air Quality Management District provides most of the data needed to calculate employee commuting emissions, and the addition of vehicle make and model fields into the university’s parking permit purchase process increases the accuracy of vehicle emissions factors.

To obtain data on student commuting behavior, the Institute for Sustainability and CSUN’s Associated Students surveyed more than 1,500 students. The results provided statistics on student and employee population sizes, commuting habits and distances, the percentage of travelers using a certain type of transportation, vehicle efficiency and more. This information was used to build a representative snapshot of student and employee commuting habits, establishing the bulk of CSUN’s scope 3 emissions.

### MILESTONES

Jan  
2018

- Program kicks off.

July  
2018

- Creation of data fields and upload of historical data is complete.

Aug  
2018

- Application is refined for ease of use.
- Users learn the “ins and outs” of utilizing the app.
- Data for emissions related to commuting and university-funded travel is collected and analyzed.

Apr  
2019

- The first new complete greenhouse gas inventory is run.

Financial Accounting and Reporting staff provided data on flights, vehicle rentals and mileage reimbursement; sustainability staff within Facilities Planning used the information to calculate vehicle miles funded by the university. These values were then entered into the greenhouse gas inventory tool to calculate the total scope 3 emissions. In the coming years the campus hopes to include data on rideshares and taxis, athletic team travel and more.

## QUANTIFICATION AND RESULTS

The most significant savings achieved by this new tool is employee time. The process of downloading, filtering, reorganizing and inputting utility data has been automated. This means that the process no longer takes any employee time whatsoever.

Employees may instantly access emissions data associated with utility consumption. Previously, reports needed to be generated for custom time periods or specific emissions sources.

CSUN paid its contractor approximately \$1,150 to develop this tool, and ongoing maintenance to the program is rolled in with regular EIS support provided through the university's overall contract. The cost of an employee's time to create CSUN's annual greenhouse gas inventory is assumed to be \$25 per hour; therefore, this tool will have returned its initial investment after saving 46 hours of employee time and will likely pay for itself within two rounds of greenhouse gas reporting, if not sooner.

## IMPACT AND BENEFITS

While the university's process is not yet complete, the methods described have greatly increased the accuracy and ease of the reporting process. The new tool saves significant staff time each year, and has also allowed for more granular breakdowns of greenhouse gas data, making it easier to identify the most impactful strategies to target for emissions reductions.

Data now flows directly from CSUN's utility meters and bills into the greenhouse gas inventory tool, which has reduced data errors.

The new inventory presents the data in an interactive format so that it may be filtered by source, scope or timeframe. This allows for more customizable data viewing, including partial reports.

Sustainability staff can now quickly pinpoint the direct impacts of specific activities and communicate climate-related issues with other campus stakeholders.

## PROJECT TEAM

**Austin Eriksson**  
CSUN Director of Energy & Sustainability

**Nikhil Schneider**  
Energy & Sustainability Coordinator

**Lauren Rueda**  
Ecovox Energy Analytics Senior Energy Engineer

**Robert Valley**  
Ecovox Energy Analytics Energy Engineer

## LESSONS LEARNED

1

Streamlining the data-entry and analysis process has improved data collection methodology and revealed numerous best practices, which may be shared with other universities. Among these is the use of an electronic travel reporting system and a streamlined commuter survey for scope 3 emissions.

2

Additional research on emission inventories highlighted other emissions sources that will be included in future inventories, such as student travel for athletics, study-abroad activities and solid-waste disposal.

3

A significant takeaway was the adaptability of CSUN's EIS service provider and the software they utilize; the sustainability personnel learned a great deal about the capabilities of the system. This has led to the integration of more data, such as solid-waste disposal statistics and the creation of interactive data dashboards.

## FURTHER REFERENCES

### **CSUN Sustainability Plan Annual Update 2019**

<https://www.csun.edu/sites/default/files/Sustainability%20Plan%20Update%202018-2019%20Reduced%20Size.pdf>