

2016-2017 Results for APPA/NACUBO Key Facilities Metrics Survey

By Sally Grans Korsh, FAIA, LEED AP

The 2016-17 Key Facilities Metrics (KFM) survey individual results for the 329 campuses are now available on the APPA website. Institutions can mix and match their data by ratios of student count, square footage, region, or institutional classification. This is the fourth year of the joint APPA/NACUBO survey.

To view the report, visit www.appa.org/nacubokeyfacilitiesmetrics18/. This will take you to a description of the survey and then you can “Launch Dashboards” in a variety of reports. If you did not participate, you can still review general region and institutional type ranges.

The premise of this survey is to increase leadership’s knowledge to understand their own consump-

tion facts—just as they know the number of their students or academic programs. It is crucial to know basic facilities data in order to improve strategic planning. The KFM survey captures BTU (energy), electrical, water, waste (recycle and garbage), and carbon data.

Each consumption factor is unique, and evaluation of data should be done with the ratios that best fit the campus mission and analysis; whether ratio by region, square footage, or student count. Not all consumption is bad—but it should be measured and evaluated to improve overall operations. For example, it is better to increase the amount of recycle waste and decrease the amount of garbage. Increasing BTU (energy) per square foot might be good if

2016-17 KFM MEDIAN BY INSTITUTIONS TYPE

KEY FACILITIES METRIC	Community	Small Institutions	Comprehensive	Research
Energy Use Intensity —KBTU per square foot	70	87	116	146 and 149
Electrical —kW per square foot	9.5	9.6	13.7	13.6 and 17
Water daily average gallons per FTE student enrolled	4.3	36	25	22.6 and 28
Recycled waste in pounds annually per FTE student enrolled	47	192	96	80 and 140
Garbage waste in pounds annually per FTE student enrolled	88	511	187	213 and 260
Carbon footprint in metric tons CO ₂ per FTE student enrolled	1.9	6	3.7	6.3

the overall student count has increased and the campus is open longer hours for learning.

The fifth year of the survey starts in August 2018—campuses will then be able to enter data from the 2017-18 academic year—and closes December 17, 2018. The survey is open to any college or university regardless of membership in APPA or NACUBO (National Association of College and University Business Officers).

INFORMATION REGARDING THE FOLLOWING MEDIAN GRAPHS

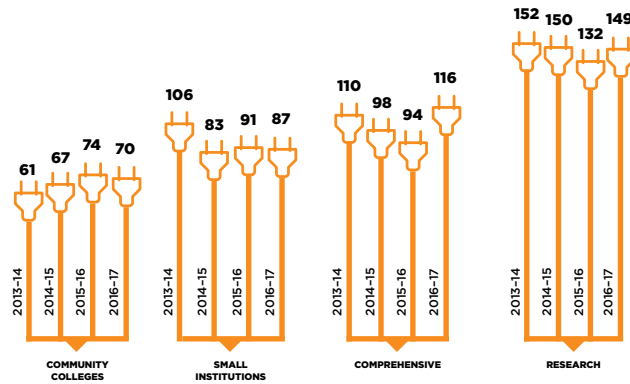
The medians are given here as a general indicator. The number of campuses participating in the survey is too low to be statistically relevant. Additionally, since the campuses entering the data have not been consistent for each cycle, there cannot be a fully accurate comparison. Regional and geographic issues would also alter the results and yield them noncomparable.

Our goal is for campuses to review their own data annually to verify trends and execute projects/policies that reduce consumption.

While the medians are not statistically relevant, there are fascinating trends occurring. Electrical consumption is most notice-

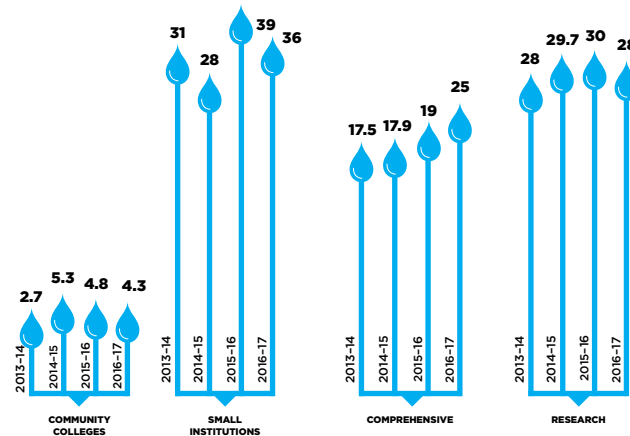
ENERGY BTU/EUI

MEDIAN KBTU/PER SQUARE FOOT ANNUALLY
EUI = ENERGY USE INTENSITY



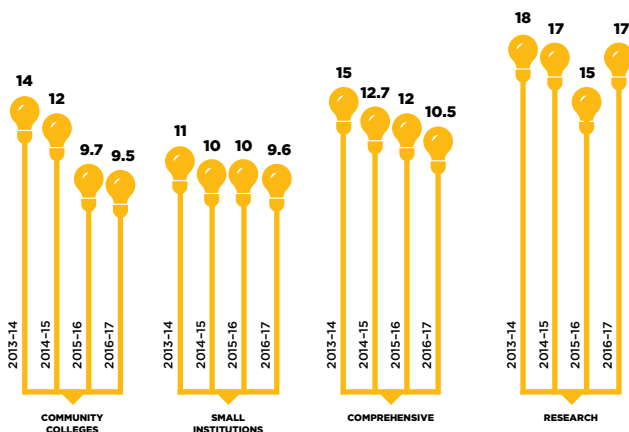
WATER

MEDIAN GALLONS OF USE ON A DAILY BASIS
ESTIMATED ANNUALLY PER FTE STUDENT ENROLLED



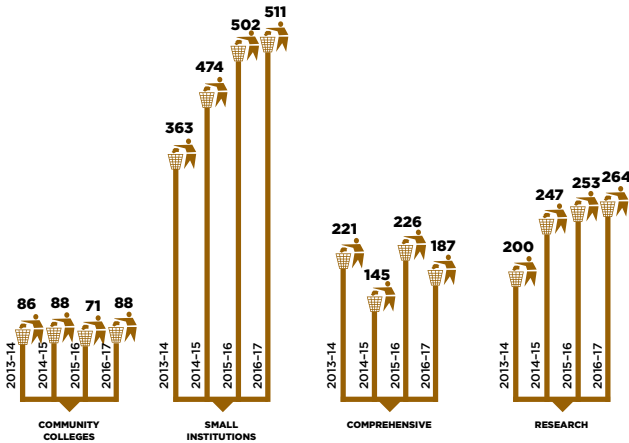
ELECTRICAL

MEDIAN KILOWATT-HOUR
ANNUALLY PER SQUARE FOOT



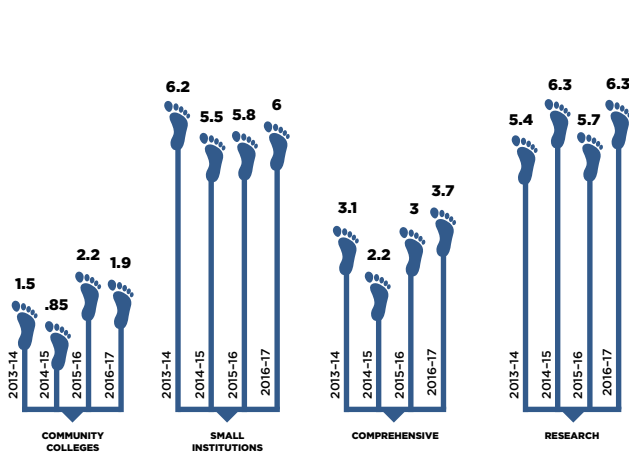
GARBAGE

MEDIAN WASTE IN POUND ANNUALLY PER FTE STUDENT ENROLLED



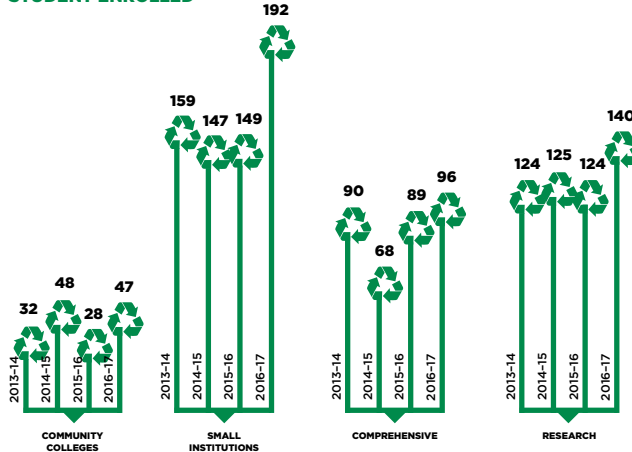
CARBON FOOTPRINT

MEDIAN IN METRIC TON CO₂ ANNUALLY PER FTE STUDENT ENROLLED



RECYCLED WASTE

MEDIAN IN POUNDS ANNUALLY PER FTE STUDENT ENROLLED



able because it is trending downward, most likely because campuses are replacing most lighting with more efficient LED lighting (a simple payback). Water consumption per student is increasing slightly, but the overall range remains constant regardless of the number of institutions. Both waste (garbage) and recycling totals appear to be increasing. Recycling could be increasing because the survey does not monitor “compostables,” and more campuses are estimating that component. The critical Energy Use Intensity indicator (KBTU/sq. ft.) hovers closely around each institutional type with increases in community college and comprehensive/doctoral-level research institutions, which may reflect increased student hours at those campuses.

KBTU/sq. ft. stands for energy used per square foot. This quantity is also expressed as the EUI (Energy Use Intensity). British thermal units (BTUs) are usually shown as MBTUs. An example is 7,400/sq. ft., but we have chosen to reduce to a more easily remembered number and call it KBTU/sq. ft. = 74/sq. ft. for the Energy Use Intensity indicator. It is important to note that the APPA website allows campuses to review by square foot or by full-time equivalent (FTE) (student count). A campus might have very high energy usage if it operates on nights and weekends, but a low usage if divided by student. Each campus should review its data by square foot, student count, or region to fully

understand its consumption. The goal is to continually lower consumption.

Electrical consumption is expressed in kilowatt-hours annually per square foot. The trending in the last four surveys indicates that most campuses are reducing their electrical use.

Water used per FTE student enrolled (gallons) is the way that annual consumption was measured; to get the consumption per student per day, divide the total annual water usage by 365, and then divide by the number of students. If a campus wants to evaluate use per days the campus is opened, the annual total would be divided by the number of days students are on campus—not by 365. Note that this number does not reflect the total number of occupants using the campus, as it excludes staff, faculty, and community members who also use water resources at the campus. However, it still is a good indicator for students to help them review the impact of their daily water use on campus. There are wide variations in gallons per student per day depending on institutional type; some of that variation might be reflective of the number of students at these institutions.

Recycling and garbage were measured in tons, but then converted to pounds to reflect a more relevant connection to students. This number is the annual weight in pounds divided by the number of students; i.e., each student is accountable for this much recycling or garbage on an annual basis. Significant variations in pounds per institutional type occur, and this may be reflective of some of the smaller institutions having less students, so their usage appears higher.

Carbon footprint was measured in metric tons of CO₂ divided by the number of students. This does not reflect actual usage at a campus, as it excludes staff and community members. It includes only

Scope 1 and 2 of the EPA's greenhouse gas protocols and does not include the transportation data from Scope 3. ☹

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