# OPTIMIZE Your O&M Reimbursement: Understanding The UCA

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The Operations and Maintenance (O&M) cost pool is the largest uncapped cost pool included in the Facilities and Administrative (F&A) cost rate. Utilities (electricity, steam, natural gas, fuel oil and domestic water) are a major component, and often the largest expense, of the O&M cost pool. That's why understanding the Utility Cost Adjustment (UCA) and its implications are as important as ever when it comes to optimizing your O&M reimbursement and overall F&A recovery.

## UNIFORM GUIDANCE ESTABLISHES NEW UCA CALCULATION

With the implementation of *OMB Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards 2 CFR Part 200*, or Uniform Guidance (UG), all Institutions of Higher Education (IHE) are now eligible to receive the UCA rate. While the UG does not change the methodology used to allocate O&M costs—utilities included—to Organized Research (OR), the UG now requires all IHE's on the long form to calculate and justify the UCA up to a cap of 1.3 points.

Reaction to the new calculation of the UCA rate in the UG is varied. The Council on Government Relations (COGR) indicated in their response to OMB-2015-0001, that the section in the UG related to calculating the UCA "*… may be the single most confusing section of Uniform Guidance…*". So let's clear things up. First, it's important to understand where the UCA came from and why it's used at all. Then we'll examine the calculation and show you how it's applied through two example cases.

## THE PAST – FROM UCAS TO UCA

Starting in the 1980's colleges and universities performed Utility Cost Allocation Studies (UCAS) that distributed utility costs on a room by room basis using the results of energy audits. The Utility Cost Adjustment (UCA) was then introduced in 1998 under OMB Circular A-21 to replace the complex UCAS. The UCAS served as the basis for 65 universities included in OMB Circular A-21 Exhibit B to earn the eligibility to claim a flat 1.3 additional points in their F&A cost rate proposal; the 1.3 was added to their calculated F&A rate.

But why have a UCA at all? Within a building there are many different room types, including research labs and office spaces. A typical research lab requires 100% outside air and has four or more times the number of air changes per hour compared to an office. And, since a large percentage of energy goes in to conditioning air, you start to see that there are very large differences in energy density within a building – and that is only one of many variables. The UCA is, in simplest terms, a means of addressing such energy differences without conducting detailed, room level energy audits.

Thus, with the disallowance of the UCAS in OMB Circular A-21, it became more important to identify opportunities to improve the allocation of cost by using existing utility meters, and to further optimize cost recovery with additional strategically placed meters. Building level utility meters became the tool to identify and allocate utility costs to a building.

## CALCULATING UCA – WHAT IS THE REUI?

In a multifunction space where metering can't isolate utility cost to a single function (which is most common) the UCA justification begins with the calculation of an "effective square footage". All research laboratory space is multiplied by a Research Energy Use Index (REUI). The REUI established in the UG is 2.0, and the regulations stipulate that the REUI will be adjusted not less often than every five years, nor more frequently than every year.

The REUI weighting factor defined in the UG 2 CFR Appendix III, section B.4.c (2) (ii) B was calculated as follows:

**REUI NUMERATOR:** The average energy usage of buildings with Laboratories – taken from the Lawrence Berkeley Laboratory (LBL) benchmarking tool (http://labs21benchmarking.lbl.gov)

**REUI DENOMINATOR:** The US Department of Energy "Buildings Energy Data Book", which provides an Energy Index for Commercial Buildings (http://buildingsdatabook.eren.doe.gov/CBECS.aspx)

$$= \frac{310 \text{ kBTU/SF/YR}}{155.37 \text{ kBTU/GSF/YR}} = 2.0$$

Effective square footage is calculated by multiplying the actual research laboratory space by the REUI; utility costs are then reallocated in the same manner, but with the new proportion of areas. The overall result is more utility costs allocated to Organizational Research (OR) within the F&A rate calculation. The difference between the F&A rate calculation with the weighting factor applied and without it (all else being equal) reflects the percentage increase in the F&A rate, or the UCA. The UCA is currently capped at 1.3%.

## OPTIMIZING UTILITY COST ALLOCATION

Since the Uniform Guidance went into effect, we've repeatedly heard two very important questions from two predominant groups of institutions. The first group represents institutions eligible for the UCA for the first time asking, "*Any UCA is a windfall compared to before so I am done, right?*" Whereas the second group is comprised of institutions that previously received the UCA of 1.3 points asking, "*How do I maintain my UCA of 1.3 points?*"

As consultants and engineers by trade, we have worked closely with the allocation of utility costs since the 1990's, and we welcome the renewed interest in all things utility related. Keeping in mind that every IHE has its own unique blend of challenges related to the extent and types of utility metering, space assignment, and service agreements, we present two case studies that emphasize the implementation of the new UCA calculation—for institutions applying the UCA for the first time and those trying to maintain their 1.3 points—and the overall importance of utility metering and cost identification.

## CASE STUDY NO. 1 – I FINALLY GET THE UCA, I'VE CALCULATED IT, SO NOW I AM DONE

IHE No. 1 was not previously eligible for the UCA. The IHE allocated all of the O&M costs equitably at the same cost density across the entire campus. Being new to the UCA, and uncertain as to the calculation, Attain was engaged to calculate the UCA (Column C) and identify utility costs to OR (Line 1 Column A). The IHE was delighted that the UCA was calculated at 1.65 points, though disappointed to learn that there would have to be an adjustment down to the 1.3 point cap. The net result was $832,000 identified to OR using the campus wide allocation, which was based on a claim there were no meters.

Because we speak *"Facilities,"* we were skeptical about the claims of no building meters. Not surprisingly, there were meters, but they were only being used to track energy usage for operational purposes (internal benchmarking, energy conservation tracking, etc.) rather than to track energy cost by building. So, we rolled up our sleeves, jumped into a few steam tunnels, and closely examined the distribution systems and meter data. A revised cost allocation and UCA calculation was then developed that incorporated the metered data (Line 2).

Although using the metered data resulted in a lower UCA and net loss of $29,000 (Line 3 E) related to the UCA, the combined impact was substantially offset by the gain from using the metered data to allocate utility costs to OR. This resulted in a total of $1.26M identified to OR, which represented a $426,000, or 2.1 point increase (Line 3 F) above the default methodology that the IHE was previously using.

### CASE STUDY 1: DID NOT RECEIVE UCA PRIOR TO UG

Comparison of Allocation Models with the UCA
(MTDC = $20 mil)

| Reference Line | Allocation Bases | Allocation to OR of Utility (& Related) Cost | UCA impact on $ to OR | | | | Total $ to OR (points) |
|---|---|---|---|---|---|---|---|
| | | (A) Allocate based on Sq. Ft. of Assignable Area | (B) Allocation to OR applying REUI 2.0 | (C) UCA Calculated (B - A) MTDC | (D) UCA Capped at 1.3 | (E) Cost to OR | (F) Combined Impact (A + E) |
| Line 1 | Default - Campus Wide | $565,000 | $902,000 | 1.65 (over cap) | 1.30 | $267,000 | $832,000 (4.1) |
| Line 2 | Recommended Allocation based on Meters | $1,020,000 | $1,258,000 | 1.16 | 1.16 | $238,000 | $1,258,000 (6.1) |
| Line 3 | Impact (Line 2 - 1) | $455,000 | | | | ($29,000) | **$426,000** (2.1) |

### CASE STUDY NO. 2 - WE USED TO GET 1.3 UCA POINTS. HOW DO WE MAINTAIN IT?

IHE No. 2 was one of the 65 schools permitted to add the UCA of 1.3 percentage points under OMB A-21. The default allocation (Line 1) included some metered data, and the UCA was calculated at 0.84 points, with a cost to OR of $2.2M (Line 1 F). Pulling all of the meter data out of the allocation and resorting to a uniform cost density similar to Case Study No. 1 did result in meeting the 1.3 UCA rate, but it provided the worst combined cost to OR (Line 2 F) of $1.9M. After an analysis of the IHE's utility distribution systems, it was determined that additional building level meters would improve the overall identification of utility costs to OR (Line 3 A). Similar to Case Study No. 1, the UCA did decrease further, but the overall cost identified to OR increased an additional $351,000, or almost a point a year (Line 3 F). The added metering cost met with the institution's requirement of a simple payback of approximately one year.

CASE STUDY 2: FORMERLY RECEIVED UCA OF 1.3 UNDER OMB A-21
Comparison of Allocation Models with the UCA
(MTDC = $50 mil)

| Reference Line | Allocation Bases | Allocation to OR of Utility (& Related) Cost | UCA Impact on Cost to OR | | | | Total $ to OR (POINTS) |
|---|---|---|---|---|---|---|---|
| | | (A) Allocate based on Sq. Ft. of Assignable Area | (B) Allocation to OR applying REUI 2.0 | (C) UCA Calculated (B - A) MTDC | (D) UCA Capped at 1.3 | (E) Cost to OR | (F) Combined Impact (A + E) |
| 1 | Default - Some meters | $1,783,000 | $2,226,000 | 0.84 | 0.84 | $443,000 | $2,226,000 (4.2) |
| 2 | Maximize UCA - no metering | $1,198,000 | $2,464,000 | 2.39 | 1.3 | $689,000 | $1,887,000 |
| 3 | Recommended Allocation using Enhanced Meters | $2,192,000 | $2,577,000 | 0.73 | 0.73 | $385,000 | $2,577,000 (4.9) |
| 4 | Impact (Line 3 - 1) | $409,000 | | | | ($58,000) | **$351,000** (0.7) |

## IMPROVING COST ALLOCATION AND RECOVERY

There are a number of metrics that can be defensibly utilized to improve cost allocation and subsequent recovery through the F&A cost rate. For the typical multifunction building, utility costs should be apportioned to function in the same manner as depreciation: identified at the building level (or for groups of buildings), and then allocated by functional activity within the building(s) based on the assignable square footage. Meters are used to track utility consumption to a building or group of buildings. Although the number of buildings that are individually metered have increased significantly over the years to track and manage energy costs and to identify opportunities to reduce energy and water waste, it is not uncommon to find additional opportunities, through additional metering or corrective action, to increase F&A recovery.

While improving cost allocation through use of metered data can improve overall cost recovery, it's important to understand that it doesn't always lead to the highest UCA rate. Understanding the interaction between the cost allocation methodology and UCA calculation is key.

## CONCLUSIONS

It should be understood that each institution is unique, and there is not a one size fits all approach to improve the identification and recovery of utility costs to Organized Research. The calculation of the UCA presents some challenges in and of itself, and the focus should be to understand the interaction of the UCA and an institution's allocation of utility costs. The objective should be to **maximize** the recovery of utility costs from the cumulative results of the prescribed allocation methodology **plus** the additive UCA.

When it comes to allocation methodology, utility metering is an equally important component of the evaluation because the cost of utilities (as well as costs that are related to utilities such as mechanical maintenance) normally comprise the largest component of the O&M cost pool. Therefore, it is critically important to understand the institution's utility metering and distribution systems.

Some of the issues that should be examined might include:

- How are utility costs allocated to buildings?
- How are the utility related costs (i.e. operator costs, equipment maintenance and repair costs) tracked and assigned to utilities?
- How are line losses tracked and assigned to utilities?
- What initiatives (new buildings, new plants, or other modifications) are underway that will impact the allocation of costs?
- Is metered data defensible?

The appropriate use of existing meters, or developing a plan to implement additional meters where necessary, should be a focus of all institutions. It should be noted that building meters themselves are expensive to install and maintain properly, and so locations that provide meaningful payback should be modeled and selected carefully – do not just put meters everywhere. Finally, always remember that although the use of building level meters may reduce the UCA, the gain by using (and possibly adding) meters will likely far outweigh the benefit of a UCA, even one at the cap of 1.3 percentage points.


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