**Sustainability 2028 Planning Workshop: Energy & Water**

September 23, 2019, 9:30am-11:30am

**Meeting Notes**

Recorded by Elias Platte-Bermeo

## Meeting Attendees

Mark Ewalt, Ellen Dux, Farris Sukkar, Elias Platte-Bermeo, Martin Howell, Seth Strongin, Vanessa Thompson, Tara Davis, Paul Adler, Dan Mazmanian, Tianna Shaw-Wakeman, Zelinda Welch, Karen Reed, Nichelle Mitchell-Huizar, Kyle Konis, Peniel Park, Naomi Martinez, Rebecca Lonergan, Isabella Caltabiano, Jeremy Kagan, Ann Close, Jessica Dutton, Sri Sankarapu, Ana Orvieto, Shawn Chavira, Bryce Tappan, Hilda Blanco

## Meeting Agenda

1. Introduction and goals of this meeting
    a. SMEs and Arup recently met to discuss Tier 1 goals and projects currently underway.
    b. This full SSC meeting will be used to discuss potential goals, interim targets, and speak broadly about initiatives
2. Overview of 2028 Sustainability Plan process, including responsibilities
    a. Tier 1 goals: “Finish what we’ve started” - complete or expand existing projects and programs on campus.
        i. Example: LED lighting installation that has been started but not completed. This will allow us to determine how much more work is left to reach ambitious goals once we tackle the low-hanging fruit
    b. Tier 2 goals: “2028 Plan Interim Targets” - additional initiatives focused mainly on campus that will help achieve interim goals of the 2028 plan. These will be discussed today, along with a very broad discussion of projects and costing
    c. Tier 3 goals: “Final Targets” - additional initiatives, some that may include financing mechanisms and off site projects that will help achieve the final targets. All projects that make up the final targets may not be known for the 2028 Plan
    d. All campuses are included in the scope of the 2028 Plan (hospitals TBD).
    e. Jeremy Kagan asked if the university is looking at resilience
        i. Fire Safety, Emergency Planning, and Facilities Management departments have plans that don’t explicitly deal with climate change but inherently touch on disaster planning. These can be developed to integrate climate-related disasters in the future.

f. All verticals will have a smaller SME/Arup workshop followed by a full SSC Goal-Setting meeting
g. Mark will submit a rough outline of the Plan to cabinet by the end of 2019, then submit a full Plan Proposal to cabinet in March, 2020 then launch the full Plan in January, 2021
h. For now, goals, potential projects, and costing should be kept within the SSC and respective constituencies (supervisors, etc). They should not yet be made fully public because they will go through many iterations
i. Rebecca asked if plans are passed through faculty SMEs at each stage of the process. Rebecca believes this will be crucial to identify the most impactful projects as opposed to projects that may simply look good to the public
    i. There is currently not an outlet separate from the SSC to consult with faculty, However, Mark will coordinate a presentation with Rebecca to the full Academic Senate later in the semester
    ii. All plans will be thoroughly vetted through faculty and Dan Mazmanian's group
j. Key SSC meeting dates are included in the SSC meeting OneDrive
    i. Next full SSC meeting is on October 14th for Transportation and Water Goal-Setting

3. Strategic drivers and ROI
    a. Arup will filter initiatives by strategic drivers to help us sort and prioritize
    b. Among the 20 SSC members who have responded to Arup's Strategic Drivers survey, Carbon Reduction was by far the highest priority strategic driver
        i. Paul Adler believes equity will become a large strategic driver, with the USC Village development exemplifying this. Paul Adler and Kyle Konis asked how equity, and other added strategic drivers, will be ranked.
    c. Distinction between Tier 2 and Tier 3 goals:
        i. Tier 2 - everything we can do to existing programs and campus infrastructure
            1. Example: can't hit "Net Zero" simply by changing USC's current infrastructure - this would require outside partnerships
        ii. Tier 3 - not limited to physical scope of the campus
            1. Example: carbon offsets, working with LADWP to develop off-site renewables, transformational projects that go beyond current infrastructure and involve strategic partnerships (Public-Private Partnerships, etc.)

2. Tier 3 goals may be things that we undertake in the short term, but they would require partnerships with entities beyond USC employees.

iii. Arup has begun creating a matrix to indicate desired timeline of a goal and how ambitious and feasible the goal may be.

iv. Tiered goals are simply a tool for presentation to senior administration; they are not a tool for presenting the 2028 Plan process to the general public

v. Rebecca brought up that Tier 3 goals may not always cost more and should not be talked about this way.

4. High level targets - Discussion
    a. Carbon
        i. City of Los Angeles goal: Carbon Neutral by 2050
        ii. County of Los Angeles goal: Carbon Neutral by 2050
        iii. UC System: Carbon Neutral by 2025, carbon neutral including scope 3 emissions by 2050
        **iv. Carbon Goal #1: Achieve 50% reduction in GHG emissions by 2028 and a 100% reduction by 2040**
            1. Key Performance Indicator: percentage reduction in carbon
            2. Baseline date may be dependent on data availability from FMS over periods of time
                a. 2014 was when data began to be collected by FMS
                b. Zelinda believes it's good to have a consistent baseline, ie stick to 2014 which was the baseline date in the 2020 Plan
            3. This will be complicated by the fact that we don't know what buildings and capital projects may be undertaken between now and 2028 or 2040.
                a. Arup has worked through this issue with other institutions and can provide guidance
            4. Peer institutions have strong commitments to carbon neutrality. Arup believes most aggressive commitment should be achieved by 2030 and the minimum commitment should be by 2050. Arup believes 2040 is a stable date to strive for, with the interim goal of 50% GHG reduction by 2028.
            5. UC System was able to set aggressive goals because it benefits from scale through several campuses and a large, diverse portfolio. It is also a public agency which offers specific benefits. For example, UCLA has negotiated an

agreement with LADWP to develop off site solar and buy the energy
    a. Zelinda has talked with LADWP and there may be opportunities to partner with LADWP and UCLA down the road
6. Stanford is developing an off site solar farm which can get the campus to 100% renewable energy by 2021
    a. Dan believes that in our plan we need to explain how other institutions have set their goals - there's a value in creating some competition between our most similar universities (Stanford)
    b. Arup could do a case study of how other institutions plan to achieve their goals
    c. Kyle believes that universities should function as collaborative units; plans and ideas should be shared across campuses. He wonders if a dialogue can be started between USC and Stanford to inquire on how Stanford plans to achieve their carbon neutrality target.
7. Paul believes the 2040 Neutrality goal is underwhelming, especially compared to Stanford--since they're the most relevant point of comparison--and to a lesser extent UCLA
8. Rebecca reiterated that it's important to not set a goal that is too high and then have USC not come close
9. Kyle believes it's valuable to split targets into existing buildings and future developments
10. Paul believes it's difficult to judge the feasibility of targets without knowing the investments required to hit them; however we cannot determine the financial investments required until we know how ambitious the targets are.
    a. Mark: ROM costing of the project portfolios needed to achieve the proposed goals will be conducted and communicated out and up sometime after each full SSC meeting.
11. Dan believes we should display a range of dates to senior administration and then provide informed scenarios of how and why we could get to each date.
    a. Arup believes this will start to come together this year as true project ideas get built out.

12. The 2028 Plan process has built in time for engagement with students as the student body becomes more interested in sustainability
    a. Tianna believes that students are predominantly interested in knowing about what is possible vs. what is impossible as opposed to trade-offs in the form of dollars spent by the university; if something is possible, students will push for it, but if something is impossible and they are made aware of why it is not possible, they will understand.
13. **Group In Agreement: USC to achieve Carbon Neutrality by 2030-2040, but include scenarios w/trade offs**
    a. Tradeoffs and costs will materialize in coming months

b. Energy
    i. **Energy Goal #2**: Reduce university-wide EUI (energy usage intensity, standardized to sqft of space) by 20% by 2028.
        1. Key Performance Indicator: Reduction in EUI
        2. City of LA goal: 22% reduction in EUI by 2025, 41% by 2045
            a. EBEWE: 15% historical reduction every 5 years beginning 2020 - creates a minimum for all entities within the City of LA
        3. County of LA goal: 15% reduction in EUI  by 2025
        4. UC System: 2% annual reduction in EUI beginning 2018. Would lead to ~13% reduction in EUI by 2025
        5. Stanford: hasn't made explicit goals by the university has reduced EUI by 50% since 1998 through a diversity of projects
        6. Arup pointed out that climate change impacts are generally broken out into mitigation and adaptation. These sustainability goals are primarily focused on mitigation
            a. Kyle believes that a good exercise would be an audit of campus square footage that could still operate if USC lost power
            b. When we account for the costs associated with initiatives, Kyle believes this should incorporate the dollars that would be lost if the action is not taken
            c. Arup believes that USC should invest in understanding campus resilience but not necessarily keep resilience and sustainability under the same binding

7. Zelinda believes 20% reduction in EUI is very aggressive and would need to be a true campus-wide effort because FMS does not have the full jurisdiction to change departments and business units, like labs.
    a. Dan believes campus case studies help influence senior administration on why changes that are more complex or costly are necessary.
        i. Mark: Complete case studies and costing will be completed for each of the final project and initiatives once they have been finalized and selected.
    b. Kyle believes having something like Energy Ambassadors in departments and business units would reduce campus backlash to things energy reduction in cooling and heating of buildings.

ii. **Energy Goal #3**: All newly constructed buildings will exceed the applicable version of Title 2024 (CA Building Energy Code) by a minimum of 15%
    1. KPI: percentage improvement over the baseline case
    2. UC has pledged to 20% reduction
    3. ARUP recommended goal: CAL Green Tier 1 of 15% reduction
    4. Kyle believes it may be unnecessary to create a goal that is benchmarked against Title 24
        a. Arup believes these goals do lead to substantive improvements in buildings, but this requires monitoring building energy usage
        b. Title 24 is specific to new construction so does not apply to older buildings,
        c. Kyle brought up “performance-based procurement” as a potential tactic - in the bidding process of new developments, design firms use pre-modeling to create plans for hitting certain EUI reduction goals which USC can use to influence whether their bid is accepted.
            i. Mark believes we need to leverage back-end initiatives like BOD and the 100 year building standard that may impact front-end projects

iii. **Energy Goal #4**: Permanently shift peak energy demand by 10% by 2035

1. Key Performance Indicator: Megawatts enrolled in Demand Response
2. Stanford's central energy facility software allows for demand response and load shifting
3. There are financial and equity/climate justice concerns in demand response, as dirtiest power generation plants may be turned on during peak demand periods, which disproportionately impacts low-income people of color
4. FMS tracks energy demand and drops in energy usage during peak periods. This is documented on green.usc.edu
5. Dan pointed out that Time of Use pricing is already mandated by the state of California and believes are goal could be more aggressive than 10%
6. Kyle believes we may need to create a "doomsday" scenario number as well as a more realistic demand event scenario number.
7. Arup reiterated that it's important to consider building types. Certain buildings can go far beyond 10% while others cannot hit this number
8. Note: these goals do not take into account temperature rises and how this impacts microclimates because of the deep uncertainties this poses
    a. There are tools to forecast warming and water temperatures, but most institutions Arup has worked with do not integrate this into campus sustainability plans

iv. **Energy Goal #5**: 50% of electricity consumed on Campus will be from renewable sources by 2028. 100% of electricity will be from renewable sources by 2035

1. Key Performance Indicator: percentage of total energy consumption
2. City of LA: 1950 MW by 2050
3. County of LA: 10 GW by 2045
4. Stanford: 100% renewable electricity by 2021
5. UC System: 100% clean electricity by 2025
6. State of California has a requirement that 60% of all electricity will be renewable by 2030
    a. Dan pointed out that we need to rephrase the discussion regarding solar farms away from USC

"buying" the farm and instead say that USC will sign a contract in purchasing the energy from a solar farm

7. Kyle brought up that by 2028 we will likely hit the interim goals based on state and local regulations
    a. Arup brought up that electrification of the campus will greatly help reduce carbon emissions because of the fact that electricity will continue to come from cleaner sources.
    b. Kyle believes that campus seismic retrofitting projects present opportunities to convert remaining gas sources to electric.
8. Zelinda believes there's a strong likelihood that we will need to look to offsite projects to reach Arup's proposed goal
9. Paul believes that the heuristic Arup has used of offering a goal between the most aggressive (Stanford, etc) and least aggressive (dictated by state or local regulation) is a good place to start
    a. Arup clarified that the recommended targets may fall in the middle on some and the min/aggressive targets on others, but they are based on several considerations such as: what peer universities are doing, the "political" environment and perceived stakeholder reactions, how long we think it might take USC to be able to react to the target, what mandates are in place that influence the goals, and what City/County goals there are.
10. Kyle thinks faculty and students will almost always want to go with most aggressive goals
    a. Bryce Tappan from Graduate Student Government believes that it's less consequential to set ambitious goals and fail them than it is to set lackluster goals from the outset and achieve them
11. The Office of Sustainability is hosting a Campus Sustainability Forum on October 9th from 12-2 PM in the TCC ballroom. More information about the agenda and programming to come, but this may be a place to continue discussing goals and/or initiatives.

v. **Energy Goal #6**: Complete a solar energy masterplan
    1. KPI: masterplan completion

2. Could be conducted by USC or an outside organization. The project scope and geographic scope will need to be defined.
3. Kyle Konis asked if it USC could look into installing solar on the rooftops of the surrounding community (which USC can then claim the carbon credits) to allow for community benefits. It was agreed that this would be added to the initiative list.
4. **Group in Agreement: will complete a solar energy masterplan**

vi. **Energy Efficiency Goal #7**: Look for opportunities to implement additional energy storage on campus when of strategic value and when cost effective

1. KPI: Megawatts of energy storage installed
2. City of LA: increase energy storage capacity to
    a. 1750 MW by 2025 (30% of peak demand)
    b. 3000 MW by 2035 (50% of peak demand)
    c. 4000 MW by 2050 (66% of peak demand)
3. LA County: “maximize energy storage when cost effective”
4. UCLA: existing thermal storage. No immediate plans for electrical storage
5. Stanford: existing thermal storage. No immediate plans for electrical storage
6. Rebecca believes it may be worth considering rolling this goal into the solar energy masterplan target
    a. Zelinda believes that they may need to be kept separate because the solar energy storage arena is rapidly changing, whereas solar PV production is relatively stable and predictable
    b. Arup adds that the solar masterplan will be a snapshot analysis of solar potential at the site, while the storage goal implies an ongoing intent to identify storage opportunities.
    c. It was agreed that the two goals should not be rolled into one masterplan, but they should complement one another. Rebecca notes that doing so may identify opportunities for work-arounds, like if the 2 MW solar limit that LADWP enforces can be mitigated by behind-the-meter storage.
7. Storage will be necessary to reduce the burden of excess energy on the grid.

8. Kyle and Rebecca believe that Professor Viktor Prasanna should become more involved in this process as he has studied renewables and specifically storage

c. Water
    i. Not discussed. Water Goal-Setting Meeting will be rolled into October 14 SSC Transportation Goal-Setting Meeting

5. Open discussion focused on initiatives
6. Wrap up and close
    a. Mark will work with Zelinda to create Rough Order of Magnitude costing for the goals and initiatives discussed
    b. Dave Wright will ultimately share our progress with President Folt and her team
    c. Arup is open to continued feedback throughout the process