

Energy & Sustainability Manager Guide

Rev. 1-16-2018

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Sustainability

1. Resilient CSUSB Plan
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2. Critical Success Factors/Drivers
3. Funding

1. Resilient CSUSB – Two Plans (SB and PD)

Deadlines – April 2018 drafts and September 2018 final plans.

- Draft to have 1st tier strategies, actions, and timelines with some sort of indication of potential impact. This is for 5 of the 6 roadmaps. Buildings and Land Use will likely have a narrative about the approach to the master plan and how the other roadmaps will weave in....for example a Net Zero Energy Campus requires all new buildings to be Net Zero Energy.
- Over the summer was designated as the time for getting the plan through Administration and making sure you are tying all the strategies and actions back to the Big Goals (1.1 below).

Two plans in the end – one for each campus

The Sustainability Plan for the Campus into the far-reaching future.

1.1 Goals

BIG Carbon Neutrality – Resiliency Platform 2nd Nature

- Net Zero Energy
- Net Positive Water
- Reduced AVR 1.5
- Net Zero Water

Education & Community and Buildings & Land Use make the above happen too.

1.2 Groups

- **Integrated process** – basic approach to all groups. Simply put: being **inclusive across disciplines** and getting everyone involved as early as possible. Also key looking at the building, process, program, etc. as a **whole system**.
- Along with the specific membership of direct plan groups being integrated, **it is vital to a sustainable planning process to know what the campus at large wants** and have that directly feed the group's work. With the triple bottom line framework as a primary lens.

1st Cohort of Interns

- The two undergrads are 350 hours total. The grad student is 300 hours. They must save time for Meeting of the Minds and participation at the Earth Week Event in April.
- 2 paid thru the WRPI grant, 1 paid by us (utility account) and HR related management thru WRPI (10% adm fee paid).

- **Interns – Basic program established.** Three main objectives – include students directly thru paid position, have them gain professional skills, inform the roadmap groups thru their research and recommendations (specifically baseline/historical information, research of other effective programs, program/project development, some policy development, research funding sources). Requirements as per their individual work plans.
 - Related docs in three places. Shared Intern folder and Personnel files.
 - O:\Sustainability\Intern Shared Folder. O:\Sustainability\Kristine\Personnel files.
 - O:\Sustainability\Kristine\Personnel files
 - O:\Sustainability\Intern Shared Folder
- **Roadmap Groups** – Tactical level. Main initial purpose is to create by topic - strategies, actions, timelines, and resources to get the larger goals accomplished. Ongoing refinement and reporting to Taskforce. Each group has a Lead and a Representative.
 - General description and format - O:\Sustainability\Cross-campus\Plan_development\Taskforce&Roadmaps\Roadmaps\ Resilient CSUSB_Roadmap Working Group_Description
- It has been our practice for the Roadmap groups and both Taskforce groups to get all meeting materials published 2 weeks prior to meetings but no later than a week before.
- Education and Community – Group and first meeting set. Co-leads in place. Packet made. O:\Sustainability\Cross-campus\Plan_development\Taskforce&Roadmaps\Roadmaps\Education_Community

Group	Meeting 1 – Intro and first pass at strategies	Meeting 2 – Strategies finalized	Presentation #1 to Taskforce	Meeting 3 – Actions, resources, and timelines created	Presentation #2 to Taskforce	Meeting 4 – draft plan insert
Energy	Done	Done	Done	1/25	2/20	2/28
Water	Done	Done	Done	1/24	2/20	3/7
Food & Waste	Done	Done	2/20	2/22	3/21	3/22
Transportation & Mobility	Done	1/19	2/20	2/28	3/21	3/29
Education & Community	2/7	3/14	2/20	Need to set meeting		
Buildings & Land Use	Meeting needed					

Palm Desert Taskforce – 2.1.17 – need to set the rest with Michael Salvador
 San Bernardino Taskforce – 2.20.17 + 3/21 + 4/4

- SB and PD Taskforce – cross disciplinary and cross-campus/community.
 - Ensure the Plan is serving the campus at large.
 - Look for synergies across roadmaps
 - Provide guidance for metrics and reporting Ensure

- Resilient CSUSB does not die on the vine.
 - General Description and Format - O:\Sustainability\Cross-campus\Plan_development\Taskforce&Roadmaps\Taskforce
 - Resilient CSUSB Taskforce Description Palm Desert
 - Resilient CSUSB Taskforce Description San Bernardino

> Strategy Tracker – Used to keep comprehensive picture by goal and have has reference point for both Taskforce groups as the volume of information increases.

O:\Sustainability\Cross-campus\Plan_development\Taskforce&Roadmaps

Short term specific Roadmap: To see the actual membership I recommend going into the current meeting notice as they have been changing. It should settle down now. You do need members for the Building and Land Use Working Group when you are ready. Currently should be the Director of Capital Planning, Jenny Sorenson, and Teresa Fricke EH&S. It probably also should include Jeff McClintock.

Taskforce: I would keep an eye on the membership. Also for key meetings remember to invite Robert Whitehead to take photos.

1.3 Events

- Launch was October 2nd and 3rd 2017.
- I recommend **project planners** are important as they allow for schedule tracking, organization, and a list of resources to use for future events. O:\Sustainability\Office\Forms\Planner
- Big Event – Earth Week 2018. First meeting scheduled with ASI January 17th 2018. Some event work up for a Winter Quarter event (cancelled) may be useful.

These events are important to serve as general campus outreach to both educate the campus, promote Resilient CSUSB, and ensure we know what the campus wants...a KEY element of the planning process (see Integration under 1.2 Groups).

1.4 Website/Outreach

Under development. Anitra working on it. Initially it needs to fill the large gap campus wide regarding basic sustainability education.

See Anitra for outline.

1.5 GE Sustainability Pathway

The faculty is developing a GE Sustainability Pathway. I attended a few meetings. The key contacts are Brett Goforth, Jennifer Alford, and Davina Warden. This is important not only as a key aspect to advance sustainability on campus, this type of program raises your AASHE Stars rating.

Path to associated documents.

<https://drive.google.com/drive/folders/1taP6D-A0eB7ByWEC03ch0HsGg3RTj8u?usp=sharing>

Campus of a Living Lab – a formal program to be developed...can definitely integrate here. June funding cycle...start to draft pilot Lab with Dr. Alford.

2. Critical Success factors/drivers:

- Interns driving creditable research for the Roadmap groups. Work plans important. Important to keep them going.

Plus...

- 2nd Nature Commitment/ Resiliency Index – President signing
- CAP – Draft of CO outline
- CSUSB Master Plan
- CO Sustainability Policy – currently under revision
- CSUSB Strategic Plan
- AASHE Stars

I would suggest getting very familiar with the 2nd Nature Commitment (Claudia, Intern, is doing a work up) and AASHE Stars. I would also get familiar with Cool Planet (now [SIMAP](#)) for your GHG calculator as that's what the campus used in the past. You may want to use something different but it is a starting place. Files can be found:

O:\Sustainability\San Bernardino\Archive pre 2017

3. Funding

- IMPORTANT: The best source is Elke Schreiner's shared google excel doc. She is a part time person working at the Chancellor's Office (under Aaron Klemm) and her main job is to source different funding opportunities and administer CO calls for proposals (like Campus as a Living Lab). <https://docs.google.com/spreadsheets/d/1NNx67InJ3lpK-vs8XtSefBx8O11GZWngLMjISolAfgU/edit#gid=488517463>

- The interns are scheduled to each look for funding sources that may support the individual RMWG strategies. This is something to follow up on with them. IMPORTANT the interns need resources (training) on how to search and get grants and alternative funding. They are scheduled to take a 2hour basic training off Lynda (you will have to set up). They need to know if others come up, especially those offered by Sponsored Programs. This may also be a good question for WRPI who's currently helping with the intern program.

Chartfield	Account Description	Budget
604001 S8001 G0111 10076	Telephone	700.00
605001 S8001 G0111 10076	Electric	2,500,000.00
605002 S8001 G0111 10076	Natural Gas	180,000.00
605004 S8001 G0111 10076	Water	205,000.00
605005 S8001 G0111 10076	Sewer	105,000.00
605810 S8001 G0111 10076	Refuse	130,000.00
613001 S8001 G0111 10076	Contract Services	
616002 S8001 G0111 10076	Info Tech Hardware	
619001 S8001 G0111 10076	Equipment	
660003 S8001 G0111 10076	Supplies and Services	149,259.26
660835 S8001 G0111 10076	Training	
660897 S8001 G0111 10076	Energy Loan	904,753.74
	TOTAL ALL UTILITY ACCTS	4,174,713.00
RT049 D0700	Balance Forward	110,986.14
580090 RT049 D0700	Non Cost Recovery Related Revenue	
580854 RT049 D0700	Non Cost Recovery from 3rd Party	
660003 RT049 D0700	Supplies and Services	
	TOTAL UTILITY TRUST	110,986.14
	GRAND TOTAL	4,285,699.14

Funds in the Utilities account as of 1.11.18.

- We dug for a rebate for the boiler install – that should be \$211,000 to the utilities account.
- Two of the interns are paid under a Grant from the WRPI - \$4500 each. They also are funding two Dell computers (currently on order). You must submit the receipt for reimbursement. Jenny approved funding Maulik for Energy out of the Utilities budget – this is \$4950 as we paid a 10% fee to WRPI for helping us get the program off the ground and doing the basic administration for Maulik.
- Should have around \$60,000 also added from the canopy lighting rebate information Juan submitted late 2017.
- We were allowed to add on to funding via the CO for water related projects. Erin Brewster is administering. We won't likely get the whole ask – here's the path to the submission. O:\Sustainability\San Bernardino\Funding&Resources\CO_addtl water grant
- There is a CalFire Investment Grants that I've gone over with Jeff and Jenny that is relatively easy to get, high \$, and low administration post award. I also contacted Rachel Weiss in Sponsored programs to give her the heads up. It should be released any time. https://docs.google.com/presentation/d/1HtKh43BKcf9bO1IbPSBMJTIFuc00_oqdSL5HHEKBTK/edit#slide=id.p3

Energy

1. Electric

1.1. General Notes

1.2. EIS implementation (Efficiency) – Cross Energy Management System – i.e. Mechanical, Lighting, etc.

- SkySpark/Ecovox

- Lighting Management System
 - Metering – Ion conversion
 - ALC Conversion
- 1.3. NREL Strategy (Production + NZE)
 - 1.4. SCE Audits and Incentives (Efficiency)
 - 1.5. Conservation Research (Conservation)
 - 1.6. Strategic Energy Plan (as required by CSU Sustainability Policy)

1.1 General notes

- Energy Roadmap group key strategies (1st tier determined and approved by both taskforce groups). Energy Roadmap Group
 - Focused on Conservation, Efficiency, Production.
 - 1st Tier Strategies outlined per 1.1 above. Also SEE Strategy Tracker.
 - Jenny Sorenson is the first group Lead, Juan Macias is Representative
- Expansion of the Analyst to go beyond the basics of MERs and Chargebacks is very important to the Energy program. This person should be able to set graphs and trends to show areas of improvement even now before the EIS goes in.

1.2 EIS

- Sky Spark/ Ecovox
 - Call with M. Clemson (CO Energy Manager) on 8/9/17 and Fall energy manager's meeting - MBCx work up by CO has been going on since 2014. We can go out to the market however we would be hard pressed to source, scope, and contract with the same due diligence. Metering –May have \$100 to 150 K for us. This is out of the \$3.2 million. They are using some for their administrative costs to set up the system wide reporting, set up the 3rd category of campuses, and their own adm costs. His advice was to start with any auxiliary locations that don't have metering or need replacement. List of meters sent in by R Siegal. Will eventually go to a virtual server.
 - 3 phases campuses are in.
 - A few campuses selected to lead the way. Had an energy manager in place. Systems in place.
 - Many campuses are eminent. Will use the Edison \$ and employ one of the four MEA's. Have or are stacking up their campuses to be all DDC and metered as much as possible.
 - A few campuses are behind. No energy manager. The CO will take over and contract for a system. The campus will still be responsible for administering the Incentive \$ or finding the funding. Not SB....we must drive locally.
 - Ecovox is where most CSU's are going. Least cost with most service. They are doing a great job for the \$ up to this point. Many of the campuses will go this route.
 - Kenny Seeton at Dominguez Hills first campus to institute system and good partner.
 - Key Strategy - Ion/ALC migration – Miguel took over – scope and quote need to be put through contacting ASAP. Important not only to get metered energy usage data at every building but also because Ion is **out of date and server is volatile**.
 - Key Strategy – use \$211,000 boiler rebate to fund SkySpark/Ecovox implementation.

- Key Strategy – need to develop one for ALC cross campus conversion.
- Lighting Management also falls under the EIS work. This has not been specifically researched for our campus but the CO has looked at Enlighten. It is an important aspect and is recommended to be thought of as a complete strategy...not piecemeal if possible. Related to this, the Exergy exterior lighting system for SB is currently being dismantled as they are out of business and parts will soon not be available. They are going to simple time clocks for now.

1.3 NREL Strategy

NREL scope: O:\Sustainability\Cross-campus\Plan_development\Taskforce&Roadmaps\Roadmaps\Energy\Renewable\NREL_assessment

1.4 Southern California Edison (SCE) Audits and Incentives

SCE Audits – 4 audits performed to date: O:\Sustainability\Cross-campus\Funding & Resources\Edison\2017 Audits .

Active/Upcoming

BRO (Behavioral Retro Cx and Add-On)	251 measures out of AB802 – 2 years to implement.	On-going
Audit Services	Building (ASHRAE 2.0) or Campus level (ASHRAE 1.0)	On-going and free to partnership. ASHRAE Level II audits. 1 week to schedule and 2 to 3 weeks to get results. With ISES could be good at least for first level. No limit on number but must see some projects and progress. kW Engineering assigned firm. Good relationship essential. 4 buildings performed in August 2017 – library and all 3 PD buildings. Initial measures list reviewed with Facilities and Palm Desert campus and final reports pending as of 1/19/18.
MBCx Incentive	24 cents per kWh saved based on annual savings. Also 80% of cost of HVAC and related controls, 50% of lighting and lighting controls on DLC list.	Set to release in September. We need to have our overall plan outlined and solicitation(s) (4 qualified vendors?) or at least drafted by then so we can put in the application or placeholder. Skyspark, EcoVox or Melrock, Altura. Also Enlightened for lighting which can tie into HVAC. Can visit Dominigo Hills.
HOPPS (High Opportunity Projects and Programs)	MBCx tied with retrofits pilot. MBCx on steroids. Can include improvements across the system. Prefer 1970's	NOT doing. All the measures found in the 4 building audits fit in the regular incentive program.

	vintage with not a lot done. Above 50,000 sq ft. Classrooms and labs.	
General technical support	Will support Energy Roadmap working group and overall Sustainability Plan efforts. Have SMEs to tap to give advising. Also provided reference documents to review for outlining planning.	On-going

Completing

Canopy lighting – need to turn in final paperwork for \$ back by 8/15/2017

In process

ASHRAE Level 2 audits – SB Pfau Library, all 3 Palm Desert buildings. Free through Edison. KW Engineering performing. If affective, will establish an audit schedule with the upcoming Energy Roadmap team.

1.5 Conservation Research

- Our 1st Cohort intern, Maulik, is research other higher ed conservation programs.
- NREL is also providing a high level target for conservation goal to get to a Net Zero Campus.

1.6 Strategic Energy Plan

- Required by the CO – CSU Sustainability Policy. Just general....no guidelines given. Recommend using the Energy Roadmap once in draft in April to submit to the CO.
- All of the above should layer in nicely as the Roadmap Group strategies align with overall plan.

2. Gas

Gas – Gas is purchased from DGS (buying consortium) and So Cal Gas. . There is a new energy commodity manager, Sean Highbee. He should provide good pricing and services.

Gas: The plant is on DGS and this is a fixed rate that you will get scary emails periodically to adjust your purchase. This has been impossible to adjust during the infrastructure project. My understanding is in June you will be off this plan

Utilities

1. MERs

- Most important reference – How To. O:\Utilities\How To\MERs How To_2017_10_20
- Can only be done 3 months in arears because of SENA reporting.
- Send to Amy Lui at the Chancellor’s Office

2. Chargebacks

- Anitra developing reference – O:\Utilities\How To\Chargeback_How_to
- These should go out by the 25th of the next month. Sometimes San Bernardino City Water is late and delays this billing to the non-state entities.

3. General Billing and Maintenance

- Important that Anitra keep up with entering the billing in all the proper places (currently many).
- Waiting for the Analyst to start to clean up how this is all organized and administered.
- One general reference came from Rhonda Siegal, prior Analyst. O:\Utilities\How To\AAS POSITION MANUAL (in progress 2017)
- Expansion of the Analyst to go beyond the basics of MERs and Chargebacks is very important to the Energy program. This person should be able to set graphs and trends to show areas of improvement even now before the EIS goes in.
- Douglas Environmental does a nice job of meter maintenance and calibration. Currently the infrastructure project has submitted a req to get their SOW approved for payment to calibrate. Basically the infrastructure project debris caused a meter to be off doubling our usage and reporting to San Bernardino Water. It is important to continue to watch this as the project proceeds. Jenny approved the project to fund periodic calibrations until they are finished.

General Office

- Intern Orientation – Start packet O:\Sustainability\Office\Intern Program\Intern Start
- Project Planner - O:\Sustainability\Office\Forms\Planner
- Useful Listservs/Subscriptions:
 - CalRecycle
 - SARC
 - Brown listserv
 - EPA - Green Power Partnership
 - Chancellor's Office for Energy (contact Amy Lui) and Sustainability (Contact Erin Brewster)
- Personnel files are in Kristine folder – only accessible by E&S Manager and Jenny S.

Key Contacts

All outlook contacts for below forwarded to Miguel 1/16 and 1/17/18.

On campus

- Interns: Christina Rodriguez – WRPI. Mainly support for developing intern program. Her colleague Nicole Barnhart takes care of the administration of the intern WRPI grant award.
- General and Plan: Dr. Jennifer Alford – SB Taskforce Co-Lead with E&S Manager and Intern support. Social and Behavioral Sciences – but really environmental studies.
- General and Plan: Dr. Breana Coates – Maulik's advisor and running the sustainability hour on Coyote Radio. School of Business.
- Dorothy Chen-Maynard – Faculty – food mainly. Tree Campus USA.

- Surveys: Muriel Lopez-Wagner. Director of Institutional Research.
- General PD: Francisco and Jorge have been key at Palm Desert. You actually have a desk and phone set up in their office.
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Resilient CSUSB Plan

- Dr. Brett Goforth – Co-Lead of E&C Roadmap, Faculty Senate SB Taskforce member, and driver on the GE Sustainability Education Pathway work currently under way.
- See individual taskforce groups and roadmap groups for membership. The Co-lead for PD Taskforce is Michael Salvador. Jenny S. is lead for Water and Energy. Thomas Gaffery is lead for Transportation & Mobility. John Yaun is lead for Food & Waste. Aaron Burgess and Brett Goforth are Co-leads for Education and Community. Buildings and Land Use lead will likely be the new Director of Capital Planning.
- Also important to Palm Desert Taskforce are Dean Welty-Brown and Kathryn Robinson (for scheduling – typically done through Michael Salvador).
- Thomas Seyakan - UEC

Off Campus

- Chancellor's office
 - Aaron Klemm – Chief of Sustainability
 - Sean Higbee (new January 2018) – Energy Procurement Manager
 - Michael Clemson – Energy Manager
 - Erin Brewster – Sustainability Manager
 - Amy Lui – MERs and other energy related matters
 - Elke Schreiner – Pat time Alternative Funding Researcher
- SCE: Lisa Hanaman
- SoCalGas: Michael Kung and ? Castillo (I have not met)
- Burrtec: Jose Covarrubias and (Boss) Steve Bradshaw sbradshaw@burrtec.com
- Energy – SCE audits: Laura Galvin kW Engineering (they are not a guarantee but Lisa H said she will try to keep them as our firm as they have access to our records and remote read only BMS)
- Craig Nagengast – Sunbelt
- Christine Clinton – consultant for Chancellor's Office on SkySpark implementation and grants for things like CEM (BOC I think).
- NREL – Otto Van Geet and Jenny Heeter
- Travis Taylor – general past campus technical workups. Also sponsor for October 2017 launch giveaway.
- Doug Iwanga – Douglas Environmental – meter maintenance and calibration
- CalRecycle – BIG for funding – Ben Johnson

Other CSU's

- Kenny Seeton – Dominguez Hills Energy Manager