Academic Senate Update

Sustainability

Outline

- Drivers of Sustainability
- SCJCD Data and Baselines
- Facilities master plan Sustainability
- Sustainability Action Plan & EPP
- Final Note

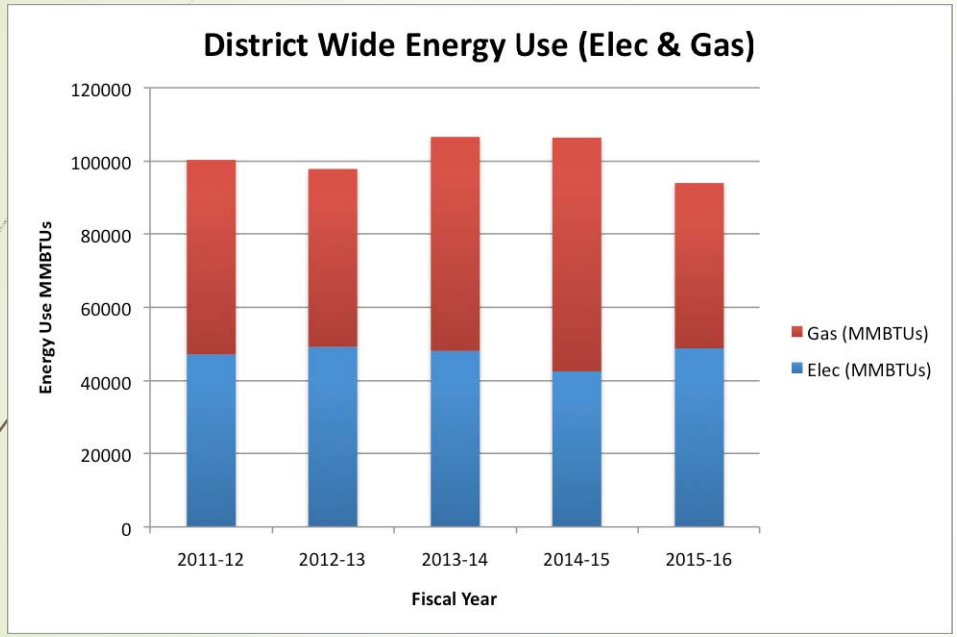
Drivers of Sustainability

- AB 32: Requires California to reduce its GHG emissions to 1990 levels by 2020. Created Cap & Trade.
- SB 350: Requires by 2030 50% of California's Energy to come from Renewable Energy, 50% increase the in the energy efficiency of buildings
- SB 32: Sets an enforceable greenhouse gas reduction target of 80 percent below 1990 levels by 2050.

Governors Brown's Executive Order

- Executive Order B-18-12
- "The order also sets a target of zero net energy consumption for 50% of the square footage of existing state-owned buildings by 2025 and zero net energy consumption from all new or renovated state buildings beginning design after 2025. (ZNE is defined as source)
- Additionally, the executive order directs state agencies and departments to:
- Reduce greenhouse gas emissions by 10% by 2015 and 20% by 2020, as measured against a 2010 baseline; (Has not been accomplished)
- Reduce overall water use by 10% by 2015 and 20% by 2020, as measured against a 2010 baseline; (This has been completed! Carl and his grounds team significantly reduced irrigation. Need to keep it up)
- Reduce grid-based energy purchases and other non-building, grid-based retail energy purchases by 20% by 2018, as compared to a 2003 baseline." (This has not been accomplished yet. State hasn't verified if this is compared to square footage.)

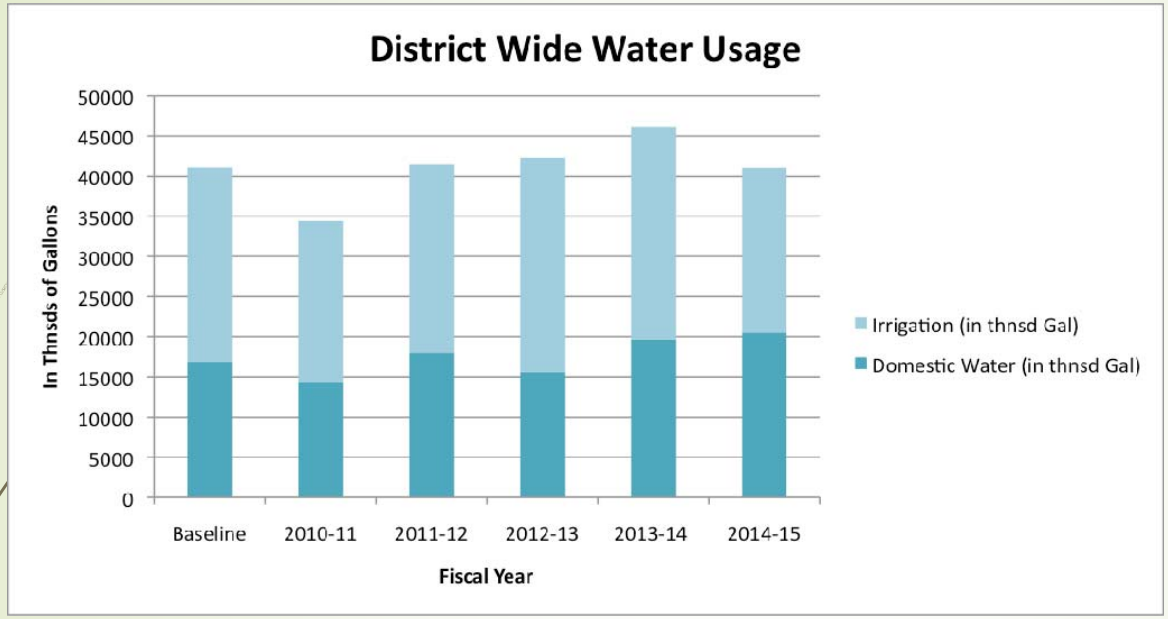
Data and Baselines
Energy



Total Energy Use has gone down because of Cogeneration plant Shutdown. Electricity has increased by 2 million kWh though.

Now is time for electrification and phasing out of natural gas for zero carbon.

Water

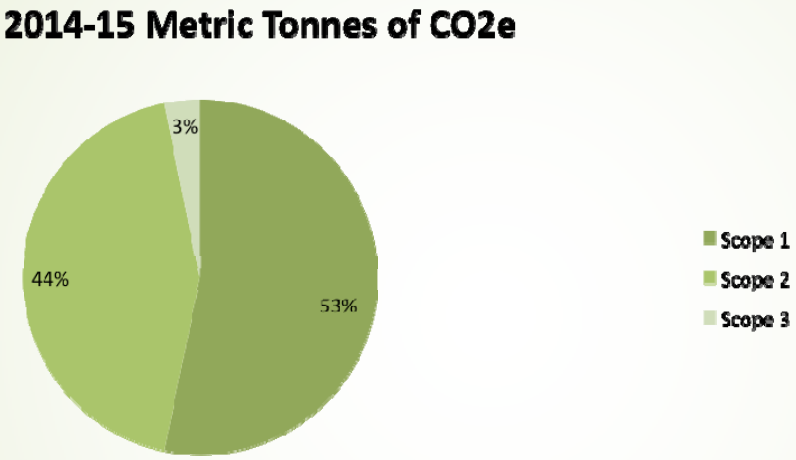


Irrigation is the largest use of water across the district.

Carl and his team saved 3 million gallons of water 2015-16 fiscal year by reducing irrigation times.

District Watershed Budget is 28 million gallons per year. 30% reduction from baseline.

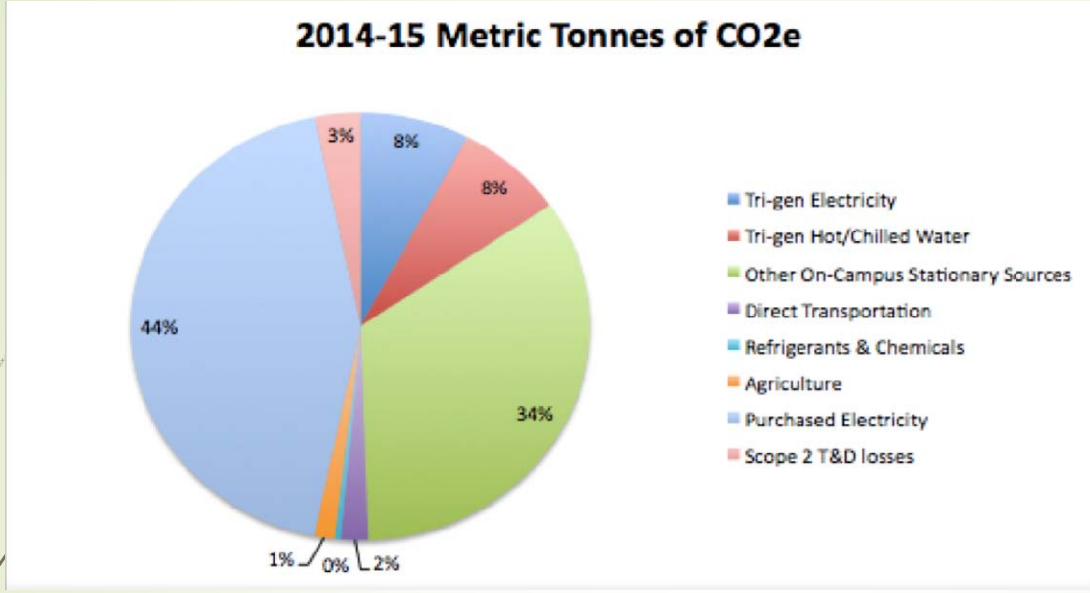
Carbon Footprint (Scope 2)



8,342 Metric Tonnes of CO2e (equivalent to 2000 vehicles on the road per year)

11.2 lbs of CO2e per sq ft

2.0 lbs of CO2e per $(General Fund)



With Cogen Loss. Footprint is expected to shift to primarily electricity dominated Greenhouse gases.

Scope 3 is very important and will be completed this year. Includes upstream and downstream emissions such as Transportation.

Better tracking of chemicals/refrigerants/ fertilizers

Facilities Master Plan

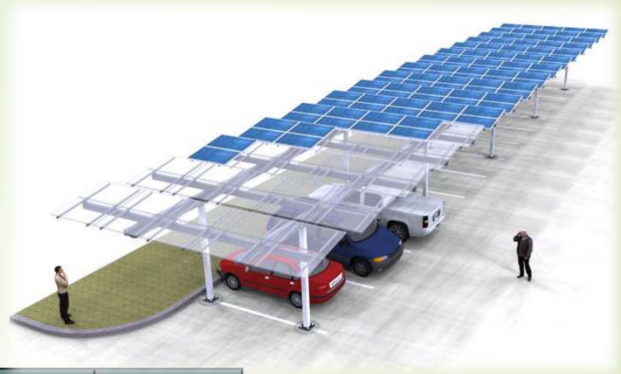
- Sustainability FMP goals.
  - **Zero Net Energy District by 2030**
  - **Carbon Neutral Building Operations by 2030**
  - **Zero Net Non-Potable Water Ready by 2030**
  - **Maximized Indoor Environmental Quality through High Performance Buildings**
- Seven priorities from the Sustainability Subcommittee
  - **Building Design & Construction**
  - **Energy & Climate**
  - **Building Operations & Management**
  - **Transportation**
  - **Waste Reduction & Diversion**
  - **Landscapes & Water**
  - **Sourcing**

Transportation

Transportation:

- Continuous bike/pedestrian paths located centrally through campuses and sites.
- Improve public transportation access; better access to campuses and sites for bikes and pedestrians.
- Preferred parking for alternative fuel vehicles and carpooling; electric vehicle charging stations powered by PV.
- Advocate for bridge over Highway 101 at Jennings Avenue or Edwards Avenue.
- Bike barns or similar accommodations where appropriate; connected to a department that can provide oversight and staffing for both security and bike services.

Facilities Master Plan Projects



STRATEGY		CAMPUS BUILDING	DESCRIPTION	FIRST COST ($)	ESTIMATED SAVINGS ($/Year)	ESTIMATED PAYBACK (Years)	PAE RECOMENDATION
Modular Campus Central Plant		Campus (SRJC x4) (Petaluma x1)	Modular Central 30' x 50' Bldg, 1000 Tons Cooling Towers (1000 Ton) CW Pumps (3,000 GPM) Boilers (7.5 Million Btu) HW Pumps (750 GPM) Campus central controls 500 Feet of utilities $25/SF Offset cost for HVAC within Buildings.	**~$7,000,000/ Net Plant Cost ~10,000,000/ Geothermal Plant**	**~$120,000/ Yr**	**~9 Yrs**	✓
Geothermal Heat Exchange		Campus	Vertical Bore Geo-Exchange (180 FT/Ton, $25/Ft)	**$5,700/Ton**	**TBD Design Dependent**	**TBD Design Dependent**	✓
PV Arrays		District 2030 Goal (5MW)	Photo-Voltaic solar arrays for electricity generation (Carport)	**$19,000,000**	**~$1,350,000/Yr**	**~16 Yrs**	✓
Cogeneration and Fuel Cell (Micro Turbine)		Campus (SRJC)	300 kW Micro-turbine plant	**~3,200,000/Cogen Plant**	**~$200,000/ Yr**	**~16 Yrs**	✓
Energy & Water Sub-Metering		Campus	Recommeded for Condenser Water Plant and loop distribution. Required to achieve Vision Plan.	**"1,300,000**	**TBD Design Dependent**	**TBD Design Dependent**	**Recommended to achieve Vision Plan**

Sustainability Action Plan

- Document to be finalized next IEPC. Sent to shared governance parties for review and blessing. (Only for District and SR campus)
- Complements the Facilities Master Plan by focusing on Facilities Operation, maintenance and Institutional culture.

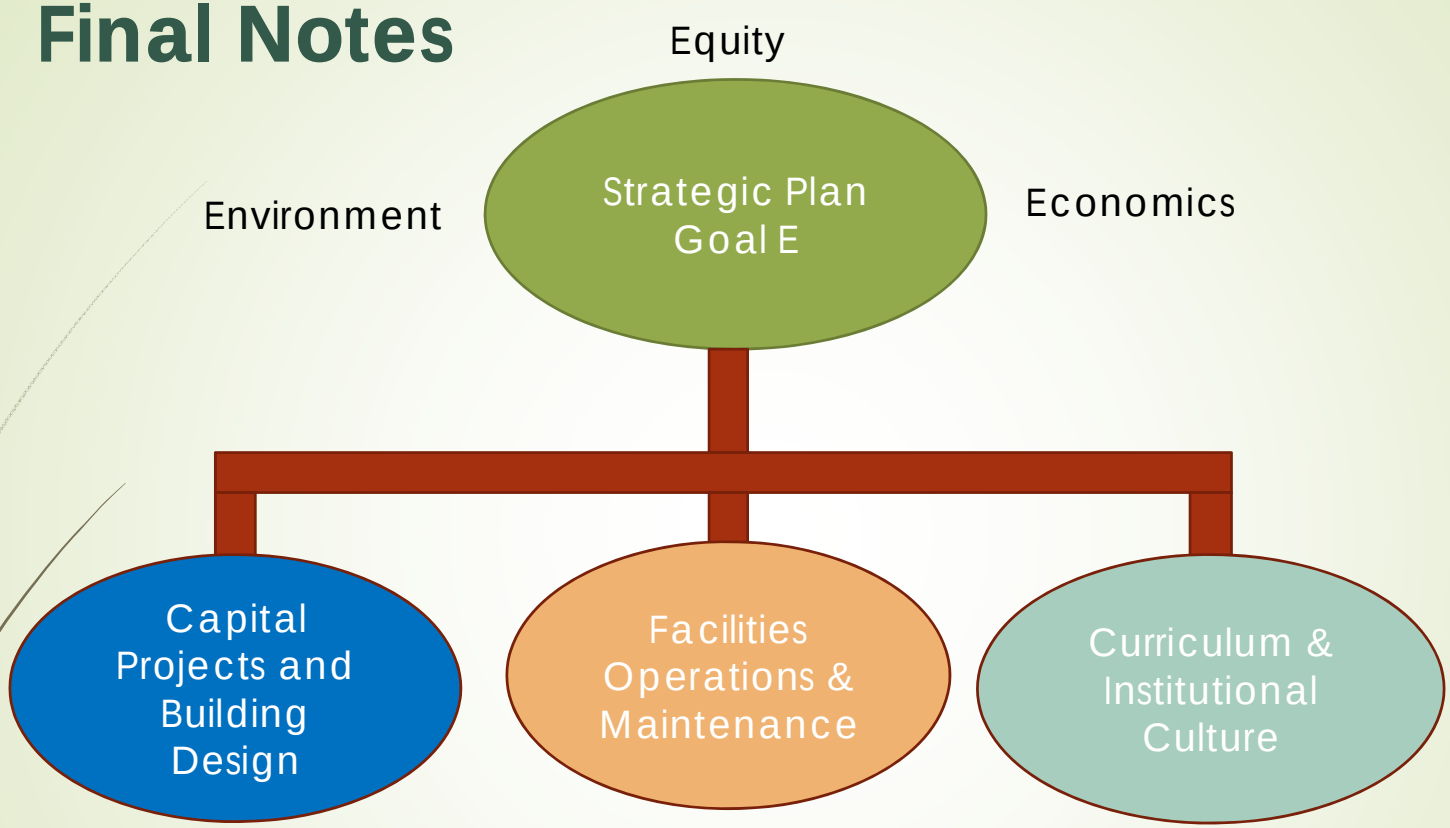
Goal Number	Area of Sustainability
1	Student Engagement
2	Campus and Community Education and Awareness
3	Curriculum Development
4	The Built Environment
5	Energy
6	Water
7	Solid Waste
8	Transportation
9	Food
10	Sustainable Purchasing
11	Climate

Environmentally Preferred Purchasing Policy (EPP)

Responsible Sourcing:

- Soon to be passed through IEPC then sent to all shared governance parties
- Procure goods that encompass responsible management for product's social, economic and environmental dimensions.
- Responsible sourcing of products, materials and labor.
- All purchasing in compliance with updated EPP policy.
- Include sustainable content (recycled, FCS certified wood, low-emitting, low embodied energy and carbon footprints).
- New gatekeeper of materials coming into the college. Also helps push vendors to become more sustainable in the circular economy by meeting our criteria.

Final Notes


Equity
Environment
Strategic Plan Goal E
Economics
Capital Projects and Building Design
Facilities Operations & Maintenance
Curriculum & Institutional Culture