1) WHAT’S IN YOUR UTILITY MASTER PLAN
   • Utility master plan (ump) project database
   • Utility master plan map database

2) THE BIG PICTURE
   • Capital outlay program & ump projects

--------------------------- BREAK [1000] ---------------------------

3) PROJECTS IN BOND-FUNDED ENVIRONMENT
   • Bonds
   • Projects

4) THE BAKERSFIELD PROJECT CASE STUDY

--------------------------- LUNCH [1200] ---------------------------

5) PRIVATE USE & PRIVATE ACTIVITY

6) MANAGING PROJECTS

7) FULLERTON BEYOND THE UTILITY MASTER PLANS
WHAT’S IN YOUR UMP UTILITY MASTER PLAN
What is a UMP (part 1): **UTILITY MASTER PLAN**

Utility Infrastructure: Systems Failure Analysis and Impact Assessment

**Utility Master Plan (UMP)** Database

{ IDENTIFY, EVALUATE, IMPACT ANALYSIS }
Developing the UMP: METHODOLOGY
Prioritizing UMP Projects: Analysis

Priority 1 – Campus Wide Shutdown

Priority 2 – Partial Campus Shutdown

Priority 3 – High Impact (critical) building shutdown

Priority 4 – Lower Impact Building Shutdown
Components of UMP PROJECT DATABASE

Project Ranking

<table>
<thead>
<tr>
<th>Priority 1</th>
<th>Campus Wide Shutdown</th>
<th>Priority 3</th>
<th>Critical (High Impact) Building Shutdowns</th>
</tr>
</thead>
<tbody>
<tr>
<td>Priority 2</td>
<td>Partial Campus Shutdown</td>
<td>Priority 4</td>
<td>Lower Impact Building Shutdowns</td>
</tr>
</tbody>
</table>

Brief Description of the Risk to be Mitigated

**TOTAL CONSTRUCTION COST**

**TOTAL PROJECT COST**

**PHASED PROJECT COST**

<table>
<thead>
<tr>
<th>Brief Description of the Risk to be Mitigated</th>
<th>CSU BFP Priority Level (1-4)</th>
<th>Expected Duration of Disruption</th>
<th>Project Name</th>
<th>Brief Scope of Project</th>
</tr>
</thead>
<tbody>
<tr>
<td>The existing Cooling tower is at the end of its useful life and is experiencing corrosion and scale build up resulting in a condenser temperature of at least 5-10°F higher and reducing efficiency and reliability of the chillers while wasting energy and increasing operating costs for the campus. Failure of the tower will result in disruption of cooling to all major facilities on campus.</td>
<td>1</td>
<td>24hours</td>
<td>Cooling Tower Replacement Project</td>
<td>Replacement of existing cooling tower, water treatment system, associated piping and condenser water pumps.</td>
</tr>
<tr>
<td>The campus is experiencing corrosion at joints; particularly where dissimilar metals are connected. The original campus mains are a combination of fiberglass and steel pipes. Failure of these joints will disrupt chilled water service to buildings affecting cooling and their operations.</td>
<td>2</td>
<td>24hours</td>
<td>Chilled Water Line Upgrades</td>
<td>Replacement of existing CHW lines, and provision of new CHW isolation valves with vaults</td>
</tr>
</tbody>
</table>
What is a **UMP (part 2): Utility Master Plan**

Utility Master Plan Map Database

- [https://prezi.com/your/](https://prezi.com/your/)
THE BIG PICTURE
Total UMP Project Cost by Priority Level

- Priority 1 - Campuswide: 52%
- Priority 2 - Partial Campus: 33%
- Priority 3 - Critical Building: 9%
- Priority 4 - Others: 6%
Total UMP Project Cost by Utility - Millions ($)

- Electrical
- HVAC
- Water/Sewer
- Steam
- Telecom
- Gas
- Storm Drain
- Fire Alarm
- EMS

Cost ranges from $0 to $250,000 million.
Capital Outlay Program

2014-15 and 2015-16

UMP Project Costs

Non-UMP Project Costs

30%

70%
Capital Outlay Program and Total UMP by Utility - Millions ($)

- Telecom
- Storm Drain
- EMS
- Gas
- Fire Alarm
- Water/Sewer
- Steam
- HVAC
- Electrical

- Infrastructure Improvement Project Costs
- Total UMP Project Costs by Utility
Infrastructure Improvements and Total UMP

- Remaining UMP Project Costs: 66%
- Funded UMP Project Costs: 34%
hey... what's next?

- 2016-17 Capital Outlay Program
- Project Phasing
- 5-yr Plan and Priorities
- Additional Funding Sources
BREAK

BACK IN FIFTEEN

(AHHHHHHH, GO FOR A SHORT)
3 PROJECTS IN BOND FUNDED ENVIRONMENT
Managing **CAPITAL OUTLAY PROGRAM** in CSU
Bond Funded Environment
Managing **CAPITAL OUTLAY PROGRAM** in CSU

Bond Funded Environment

- **April 2013**
  - Campus Request

- **November 2013**
  - BOT Approval

- **December 2013**
  - DOF Review

- **April 2014**
  - Legislative Approval

- **July 2014**
  - State Budget Signed

- **November 2014**
  - BOT approves Financing

- **January 2015**
  - Bond sale

- **July 2015**
  - Allocation of Funds

- **November 2015**
  - State Budget Signed

- **August 2015**
  - Allocation of Funds
Managing **CAPITAL OUTLAY PROGRAM in CSU**
Bond Funded Environment

Some things stay the same

**SUAM**
**Scope**
**Time**
Managing **CAPITAL OUTLAY PROGRAM in CSU**
Bond Funded Environment

Some things are different

- **BID SAVINGS**
- **BID OVERAGES**
There are a couple of basic rules

Well, 3...
Managing CAPITAL OUTLAY PROGRAM in CSU
Bond Funded Environment

Don’t MIX State projects with Non-State
Managing CAPITAL OUTLAY PROGRAM in CSU
Bond Funded Environment

Expenditures made cannot be reversed.
Managing the 2014 Projects in CSU Bond Funded Environment

Time matters
New Financing Environment

- New Capital Financing Authority (SB 860)
- Systemwide Revenue Bond (SRB) program

Approvals:
- Trustees Approval of Projects November 2013
- Trustees Approval of Financing January 2015
- Reimbursement Resolution January 27, 2015
New Financing Environment

- IRS regulations for tax-exempt bonds - Focus on near term projects
- Campus estimates *cash flow*
- Role of the Financing Team
- SRB issuance for summer 2015
- What’s DIFFERENT from traditional State Funding process?
  - projects are to be close to *start of construction*
  - 2014-2015 *projects are in a transition period*
- Interest rates @ time of bond sale determines final project list
New Financing Environment

- IRS 2-year spend down requirements drive BASIS OF FINANCING
- Projected project cash flow through July 2017
- Annual bond issuances
- Provides CSU lowest cost of borrowing
New Financing Environment: Basis of Financing Example

• BA Nursing Bldg. HVAC Replacement
  P  March 2015 – June 2015
  W  June 2015 – December 2015
  C  March 2016 – August 2016

• BA PE Bldg. HVAC/Roof Replacement
  P  Completed prior to 2013
  W  March 2015 – June 2015
  C  September 2015 – December 2016

• SRB Series 2015A Bond Sale July 2015

• Project within 2 year window

• Costs eligible to be reimbursed
New Financing Environment: PROJECT Reimbursement

- Reimbursement permitted by IRS based on:
  - Reimbursement Resolution executed by F&T
  - Documentation of campus expenses are within 60 days of Reimbursement Resolution - Jan. 27, 2015
  - 60-day window for expenditure: Nov. 29, 2014
  - Tax counsel confirms eligibility of expenses
  - At time bond issuance reimbursement amount provided to IRS
### Anticipated Reimbursement of Expenditures Listing
For CSU-Financed Projects

<table>
<thead>
<tr>
<th>Date:</th>
<th>2/27/15</th>
</tr>
</thead>
<tbody>
<tr>
<td>Budget Year:</td>
<td>2014/15</td>
</tr>
<tr>
<td>Project Number:</td>
<td>1308</td>
</tr>
</tbody>
</table>

**Campus:**  
**Project:**

<table>
<thead>
<tr>
<th>Anticipated Expenditure Date</th>
<th>Project Phase</th>
<th>Anticipated Expenditures</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Before August 2015</td>
<td>PWC</td>
<td>Preliminary Design, Working Drawings, and partial Construction</td>
<td>$1,531,000</td>
</tr>
</tbody>
</table>

If funds are available by August 2015, up to $1,531,000 may be pre-funded by campus but most likely to fund about $1,019,000.

---

### New Financing Environment: Reimbursement Form

There is a **wrong** way
## New Financing Environment: Reimbursement Form

### Anticipated Reimbursement of Expenditures Listing
For CSU-Financed Projects

<table>
<thead>
<tr>
<th>Anticipated Expenditure Date</th>
<th>Project Phase</th>
<th>Anticipated Expenditures</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>7/1/15</td>
<td>PW</td>
<td>Engineering (Preliminary Design/Working Drawings)</td>
<td>$90,000</td>
</tr>
<tr>
<td>7/1/15</td>
<td>P</td>
<td>Mechanical Review Board Fee</td>
<td>$8,000</td>
</tr>
<tr>
<td>7/1/15</td>
<td>P</td>
<td>Seismic Review Board Fee</td>
<td>$2,500</td>
</tr>
<tr>
<td>7/1/15</td>
<td>P</td>
<td>Plan Check</td>
<td>$4,000</td>
</tr>
</tbody>
</table>

Total Anticipated Reimbursement: $104,500

There is a **RIGHT** way
New Financing Environment: CPDC Reimbursement Form

• Are expenditures after **Nov. 29, 2014**?

• Are **ACTUAL & PROJECTED** expenses listed by month?

• Does campus have documentation supporting invoices paid?
New Financing Environment: Bakersfield Project

• Are project expenses paid after Nov. 29, 2014?

• Are types of expenses eligible?
  – Planning and Working Drawings
  – Direct to the project
  – Not management fees or contingencies
New Financing Environment: PROCESS of Reimbursement

- Reimbursement form identifying monthly amounts
- Final form with actual expenses through June 2015 and anticipated for actual payments in July 2015
  — To be included, CPDC must have campus forms by June 15, 2015
- Analysis by F&T and tax counsel
- Allocation Order issued in mid August enables campus to reimburse itself and have funding for the rest of the project
- Documentation subject to IRS audit – 35 year window
New Financing Environment: IMPORTANCE OF Timelines

• IRS SPEND-DOWN requirements:
  — 10% within 6 months of financing
  — 45% @ 12 months
  — 75% @ 18 months
  — 100% @ 24 months
**New Financing Environment:** IMPORTANCE OF Timelines

IF spend down benchmark not met AND excess interest earning occurs:

- **CSU pays** IRS arbitrage rebate **penalty**
- **Domino effect** on CSU projects

Further information at:

- [http://www.calstate.edu/ft/taxexemptbonds/](http://www.calstate.edu/ft/taxexemptbonds/)
New **Finance** Environment:  **Importance of Timelines**

- Annual analysis of actual spend-downs performed by tax counsel in coordination with F&T
  - Based off of State Controller’s Tab Runs showing **actual** expenditures
  - **ENCUMBRANCES** are **not considered**

- **SPEND DOWN** projections **NEED TO BE** based on **expected** PAYMENT of invoices
CASE STUDY

Nursing Building HVAC Replacement
CASE STUDY

1980s Chiller Problem

...Is there a Solution
LUNCH

CHICKEN (YES, CHICKEN) W/

MUSTARD & MUSHROOMS

SALAD

FOCACCIA BREAD

COOKIES (YES, COOKIES)
WHAT ABOUT PRIVATE USE

PRIVATE ACTIVITY
IRS **limits** private use for tax-exempt bonds

Private use = use (direct or indirect) in a trade or business carried on by any person other than a governmental unit, including:

- Ownership
- Lease
- Management
- Special Legal Entitlements
- Special Economic Benefits

F&T Website: has training information from **May 2014 and Oct. 2012**
Generally **private use limited** to 10% of tax-exempt, bond-financed space
  - Based on ASF
  - Time of Use
  - Cost

**$15 million limit** for each issue of debt over $150 million

F&T works with TAX COUNSEL

Annually, private use tracked by CPDC and F&T task force

Private Use Check List
PRIVATE USE ACTIVITY

EXCEPTIONS

- Qualified Management Contracts
- Incidental use capped at 2.5%
- Research Contract Safe Harbor
- Short term use:
  - 50 Day: commercial use, arm’s length, fair market value compensation.
  - 200 Day: general public use, fair market rates
- CPDC, F&T, AND Tax Counsel can find solutions
- More info. on F&T website:
  http://www.calstate.edu/ft/taxexemptbonds/
Importance to **Funding use**

**Prudent** questions

*Changes over life of bond*

**Validation**
One year from now...

Private Use

Campus Restrictions
Spend down framework

"I think you should be more explicit here in step two."

Stark

\[ \frac{2.03 - 6.24}{x^2} \text{ then a miracle occurs.} \]
LEVERAGE OPPORTUNITY

56 PROJECTS
6 Roofs
Six HVAC
5 Switchgear
4 Substations
One Cooling Tower
One Chiller
2 Boilers
Electrical lines
Heating and chilled water lines
Gas and sewer lines
LEVERAGE OPPORTUNITY

2015 Projects

117 Projects
6 Roofs
Nine HVAC
5 Switchgear
6 Substations

Transformers
One Cooling Tower

5 Chillers 8 Boilers

Fire alarm systems

Electrical Boards

Electrical lines

Domestic, Fire, Heating and chilled water lines

Gas and sewer lines
SHOW ME THE MONEY
POST BOND SALE

- Allocation Orders
- Schematic Approval
- Quarterly Reports
  - Tracking Cash Flow, Schedule
- Active Project Reports
NEXT STEPS
FULLERTON
BEYOND UMP
Sustainable Strategic University Operations
Presentation at Chancellor’s Office
April 24, 2015
Agenda

• Campus Overview
• Driving Factors
• Recent Successes
• Costs of Doing Nothing
• Utility Master Plan
• Leadership
Campus Overview

- Fastest growing campus in CSU
- Among most energy efficient campuses since 1990’s
- Honored three times by the UC/CSU Energy Efficiency Partnership program
- Leader in energy efficient design and conserving energy
- Recognized for reduced use of natural resources and ongoing energy conservation efforts
Sustainability Vision and Mission

- Be a national university sector leader in sustainability
- Achieve carbon neutrality
- Incorporate sustainable practices in daily lives
- Develop long term programs around environmental, social, and financial stewardship
State Driving Factors

- CSU Sustainability Policy
- California Long Term Energy Efficiency Strategic Plan
- California Executive Order B-18-12
- AB-32 GHG emissions reduction
- Presidents Climate Commitment (ACUPCC)
- CSU Executive Order 987
  - 15% EUI reduction from 03/04 → 09/10
  - 20% renewable energy by 2010
Federal Driving Factors

• Executive Order 13514 for Federal Agencies
  • Implementation of the 2030 net-zero-energy building requirement
  • 30% reduction in vehicle fleet petroleum use by 2020
  • 26% improvement in water efficiency by 2020
  • 50% recycling and waste diversion by 2015
  • Reduce carbon pollution by at least 3 billion metric tons cumulatively by 2030
• EPA Emissions Reporting Requirements

We have a moral obligation to leave our children a planet that’s not polluted or damaged, and by taking an all-of-the-above approach to develop homegrown energy and steady, responsible steps to cut carbon pollution, we can protect our kids’ health and begin to slow the effects of climate change so we leave a cleaner, more stable environment for future generations.
Successes Since 1990/91

• FTE increased by 75%
• Added approximately 2.4M GSF
• Reduced energy use per gross square foot (GSF) on campus by 62%
• Achieved $100 million cost avoidance as a result of energy efficiency improvements
Recent Successes

- **LEED Facilities**
  - LEED Platinum Student Housing Phase III
  - LEED Gold Student Recreation Center
  - LEED Silver (Equivalent) Steven G. Mihaylo Hall
  - LEED Silver (Equivalent) Children's Center

- **Awarded the “Best Overall Sustainable Design”**
  - Student Recreation Center
  - Fullerton Arboretum Visitor Center and Orange County Agricultural and Nikkei Heritage Museum

- **Implementation of renewable power and electric vehicle charging stations to reduce GHG**
CSU Net Zero Energy Scenario

Millions Dollars

2010 2015 2020 2025 2030 2035 2040 2045 2050

$0 $1,000 $2,000 $3,000 $4,000 $5,000 $6,000 $7,000

- Cumulative Implementation Costs
- Cumulative Energy Savings
Effect of Business as Usual

• Reduction in overall enrollment due to lack of sustainable facilities and practices
• Higher utilities costs in operating facilities (in absence of reducing energy imports and becoming energy independent)
  • Electricity
  • Water
  • Waste management
  • Natural gas
• Carbon tax for offsetting carbon emissions leading to additional annual costs (Due to lack of alternative transportation, energy efficiency, alternative/renewable energy sources etc.)
• Higher deferred maintenance costs and infrastructure costs
• Can we remain relevant?
Utility Costs

Utility Costs based on actual costs incurred by the campus for the year 2011-2012 and include Electric, Gas and Water Utility Costs. An escalation of 3.5% was assumed for BAU case. An escalation of 1.5% was assumed for SMP case.
Carbon Emissions based on data received from campus. Carbon emissions for SMP case based on regulatory requirements of AB32. (80% below 1990 levels).
Resilience

• Deliberately increasing our ability to take advantage of opportunities in a changed climate and to be able to better withstand and recover from climate impacts. This includes increasing 'adaptive capacity' so that even while projected climate changes in any given location might be uncertain, our systems are able to evolve as our climate changes.

Second Nature
Gambling on Climate Change

- Do you think
  - climate change is an urgent problem?
  - getting the world off fossil fuels is difficult?
- Mitigation of global warming is a rational, common-sense safeguard even for those who doubt the seriousness of the situation
- Over the next 35 years to 2050 the investment required to decarbonize the economy will be in the tens of trillions of dollars. The risks of BAU are much higher

The Chronicle Review April 10, 2015
Utility Master Plan

• Utility Infrastructure Failure Analysis and Impact Assessment
• Facility Condition Assessment
• Capital Renewal Assessment
• Growth Projections
• Landscape Master Plan
• Climate Action Plan
• Utility Master Plan
Comprehensive Sustainability Plan

• Self-generation and distributed energy opportunities to minimize natural resources and carbon emissions and migrate towards a carbon neutral campus
• Sustainable strategies, optimized usage of energy and water and storm water concepts
• Reducing campus energy imports and become energy independent
• Waste Management
• Design strategies for creating new and existing sustainable facilities
• Use of alternative transportation and fuels
• Achieving 80% reduction in greenhouse gas emissions target by 2050
Leadership

• CSU can and must demonstrate national leadership
• Develop a comprehensive plan to accomplish sustainability goals
  • Smart use of existing Deferred Maintenance and Capital Renewal Funding
  • Infrastructure funds can be utilized to make smart investments in campus sustainable future
  • Figure out the costs of doing nothing and translate that into wise real estate investments
  • Improve performance and use of existing facilities
  • Look for alternate ways to deal with growth
• Become a partner for University success and increase your influence
Thank You

wvanderpol@fullerton.edu