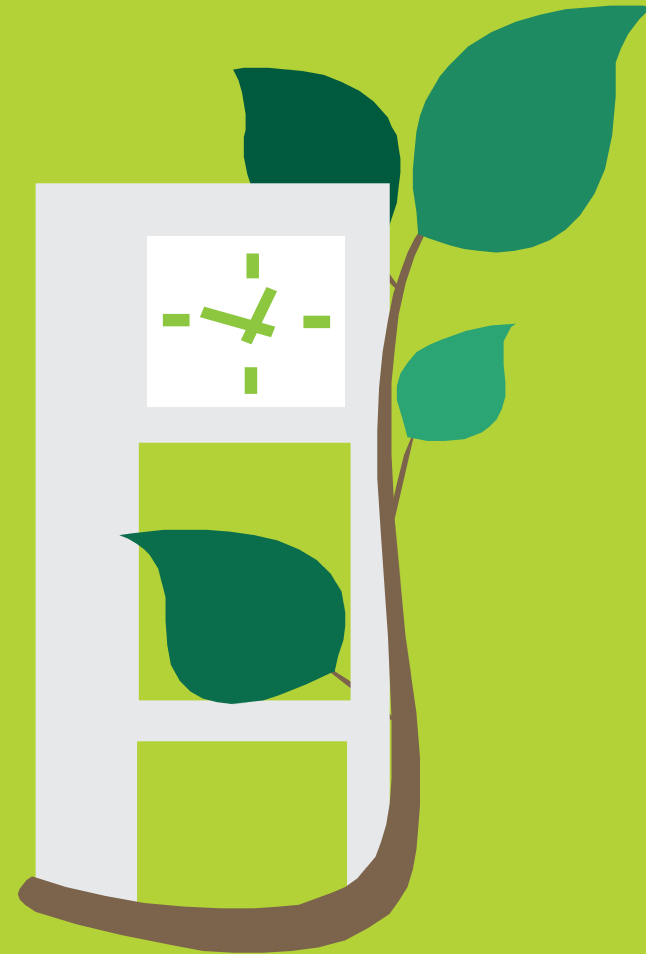


# resource conservation & sustainability



the evergreen  
state college  
olympia, washington



# What is Resource Conservation?

- The goal:
  - To become better stewards of our environment by increasing efficiency and reducing costs associated with:
    - Electricity
    - Natural Gas
    - Water and sewer
    - Waste and recycling



# How is Evergreen Conserving Resources?

- Renewable energy and Green Power Purchasing
- Using digital controls to monitor and schedule equipment
- Repair, upgrade, and replacement of inefficient building and infrastructural systems
- Collaborating with the Office of Sustainability to engage the campus community





## Photovoltaic Array (i.e., “solar panels”)

atop the Library Building, producing on average 8,000 kWh of electricity annually – roughly the same electricity consumed annually by the average US home.



# Green Power Purchasing

- Evergreen participates in Puget Sound Energy's Green Power Program
- The Green Power Program is certified annually by Green-e Energy, the nation's leading voluntary certification program for renewable energy.

Green-e Certified New <sup>2</sup> Renewables in PSE's Green Power Program			Generation Location	
	2012	2013 (projected)	2012	2013 (projected)
Wind	58%	74%	WA/ID	WA/OR/ID
Livestock methane	9%	12%	WA	WA/OR
Landfill gas	5%	0%	WA	N/A
Low impact hydro	27%	10%	WA/ID	WA
Solar	1%	4%	WA/CA/OR	WA/OR/CA/ID
<b>TOTAL</b>	<b>100%</b>	<b>100%</b>	<b>WA/OR/ID/CA</b>	<b>WA/OR/ID/CA</b>



# Direct Digital Controls

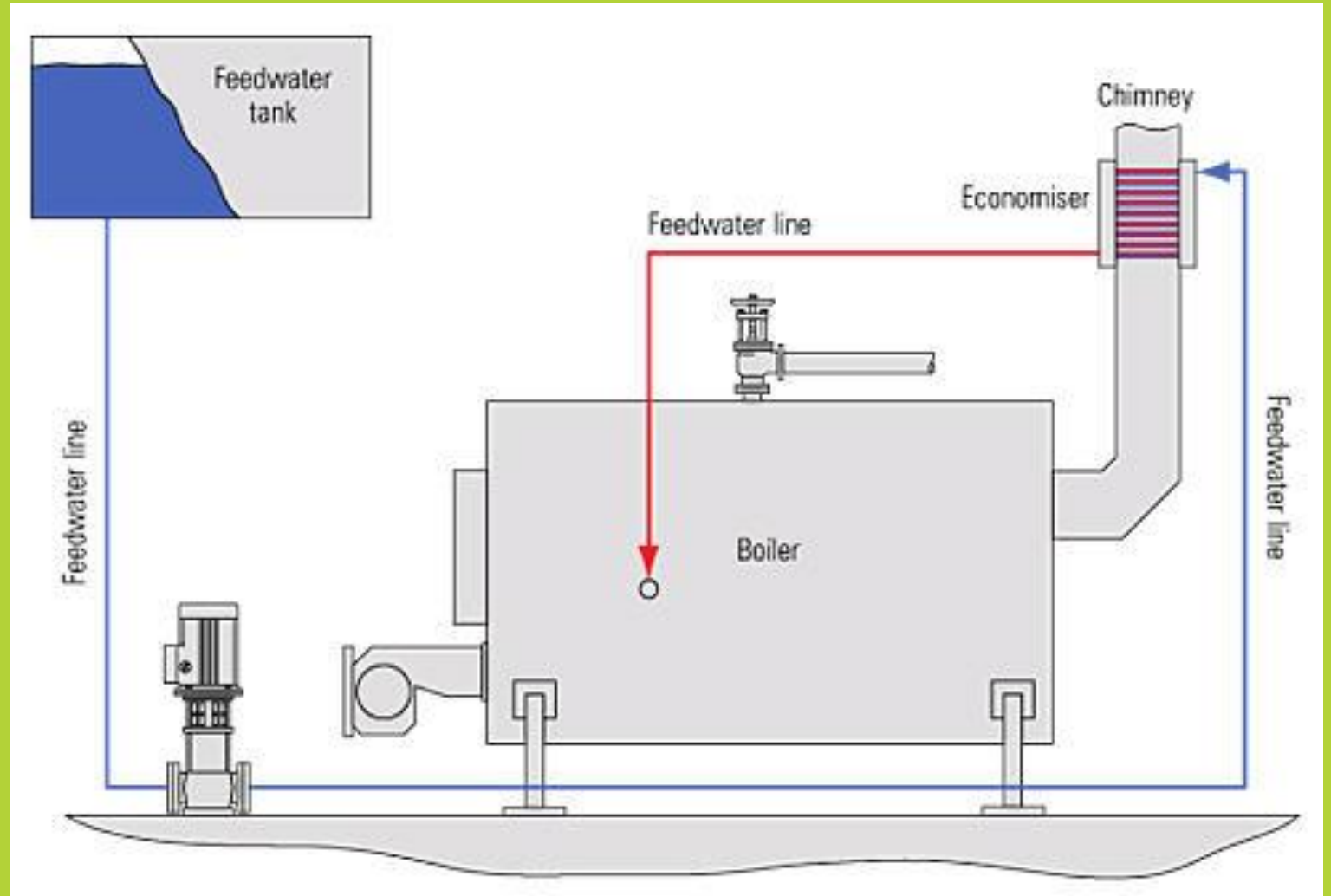


- Direct Digital Controls (DDC) are used to control Heating, Ventilation, and Air Conditioning devices.
- An accompanying software package allows operators to monitor, control, alarm and diagnose building equipment remotely.



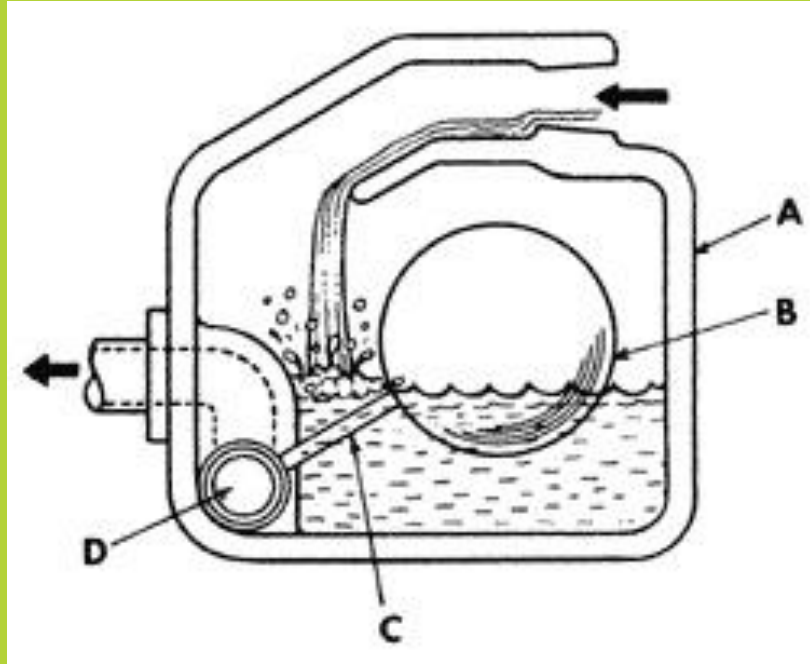
## Boiler Stack Economizer

Saves energy by using exhaust gases from the campus boilers to preheat “feed water,” or the water pumped into the system that becomes steam to heat buildings.





# Steam Trap Repair and Replacement



A steam trap is “an automatic valve that releases condensed steam (condensate) from a steam space while preventing the loss of live steam.”

(Source: [www.steamonline.com](http://www.steamonline.com))



Repairing and replacing steam traps makes the steam distribution system more efficient, saving significant amounts of water and energy.







Pool lighting upgrade



Gym lighting upgrade



Pavilion lighting upgrade

## Pool, Gym, and Pavilion Lighting Upgrades @ the CRC

[evergreen.edu/sustainability](http://evergreen.edu/sustainability)





Heat recovery systems recover thermal energy and reduce heating/cooling requirements in Labs 1 & 2.



Pool covers reduce heat loss and evaporation, conserving energy and water at the CRC.

## Heat Recovery in Labs and Pool Cover @ the CRC





Library lighting upgrade



Occupancy sensors in the Library stacks reduce lighting levels when unoccupied.

## Lighting Upgrades @ the Library







Old campus parking lot and walkway lighting fixtures were inefficient and often obstructed by vegetation



New LED parking lot and walkway lighting saves greater than 30 kilowatts of electrical load and are unobstructed

## Parking Lot and Walkway Lighting Upgrades



## By the numbers...

- So far, the Resource Conservation program has:
  - reduced on-campus electricity use 15% and natural gas use 10% below 2005 levels; roughly 2.5 million kWh of electricity and 121,000 therms of natural gas.
  - received greater than \$1 million in grant funding for energy conservation projects on campus
  - saved the college more than \$450,000 in annual energy costs

