

UBC ACADEMIC DES

Tour of UBC's Campus Energy Centre and
Bioenergy Research and Demonstration Facility



TOUR GUIDES

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IDEA MAIN CONFERENCE JUNE 11-14TH 2018 VANCOUVER

THE UNIVERSITY OF BRITISH COLUMBIA

Single Owner
1000 acre campus

Day time population
69,000

17 million sqft of
floorspace

Average annual growth
of 200,000 sqft

\$54 million annual
Utility Budget managed
by UBC Energy &
Water Services



Supply to UBC's DES

***Campus Energy
Centre 70%***



Bioenergy 25%



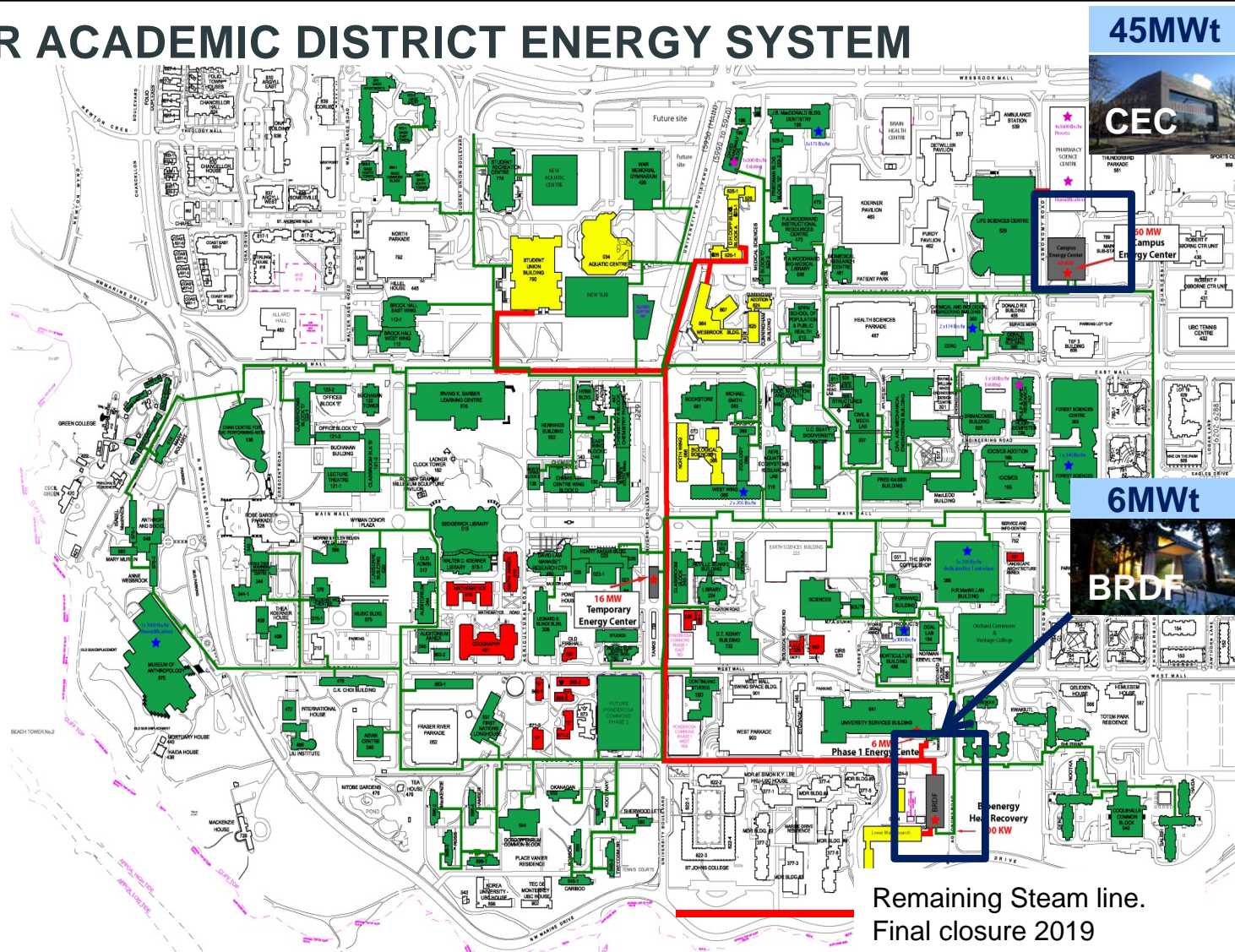
Cogeneration 5%



HOT WATER ACADEMIC DISTRICT ENERGY SYSTEM

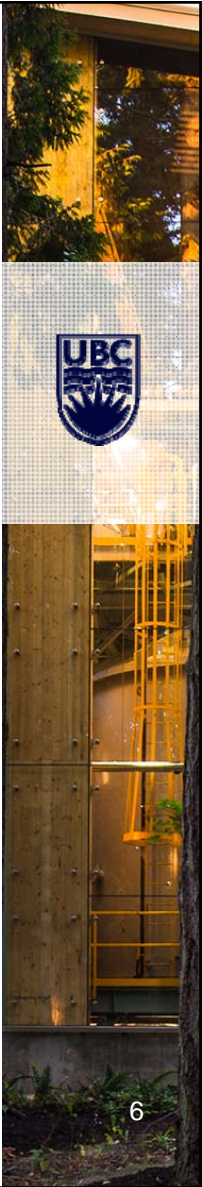
Summary

- 22km supply and return piping laid
- CEC in service
45MW installed Capacity
- BRDF ~6MW installed thermal capacity on biomass, 2MWe Cogen with heat recovery, gas backup boiler

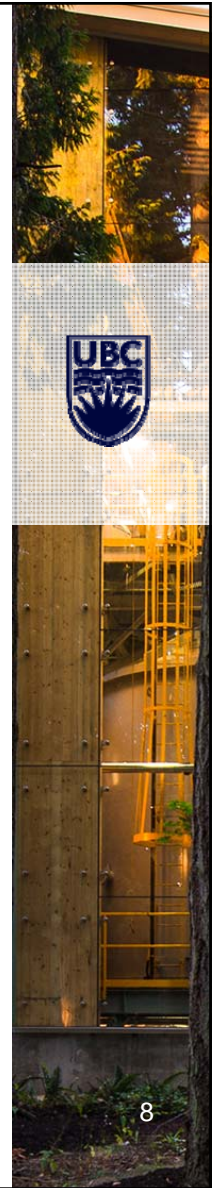


BIOENERGY RESEARCH AND DEMONSTRATION FACILITY



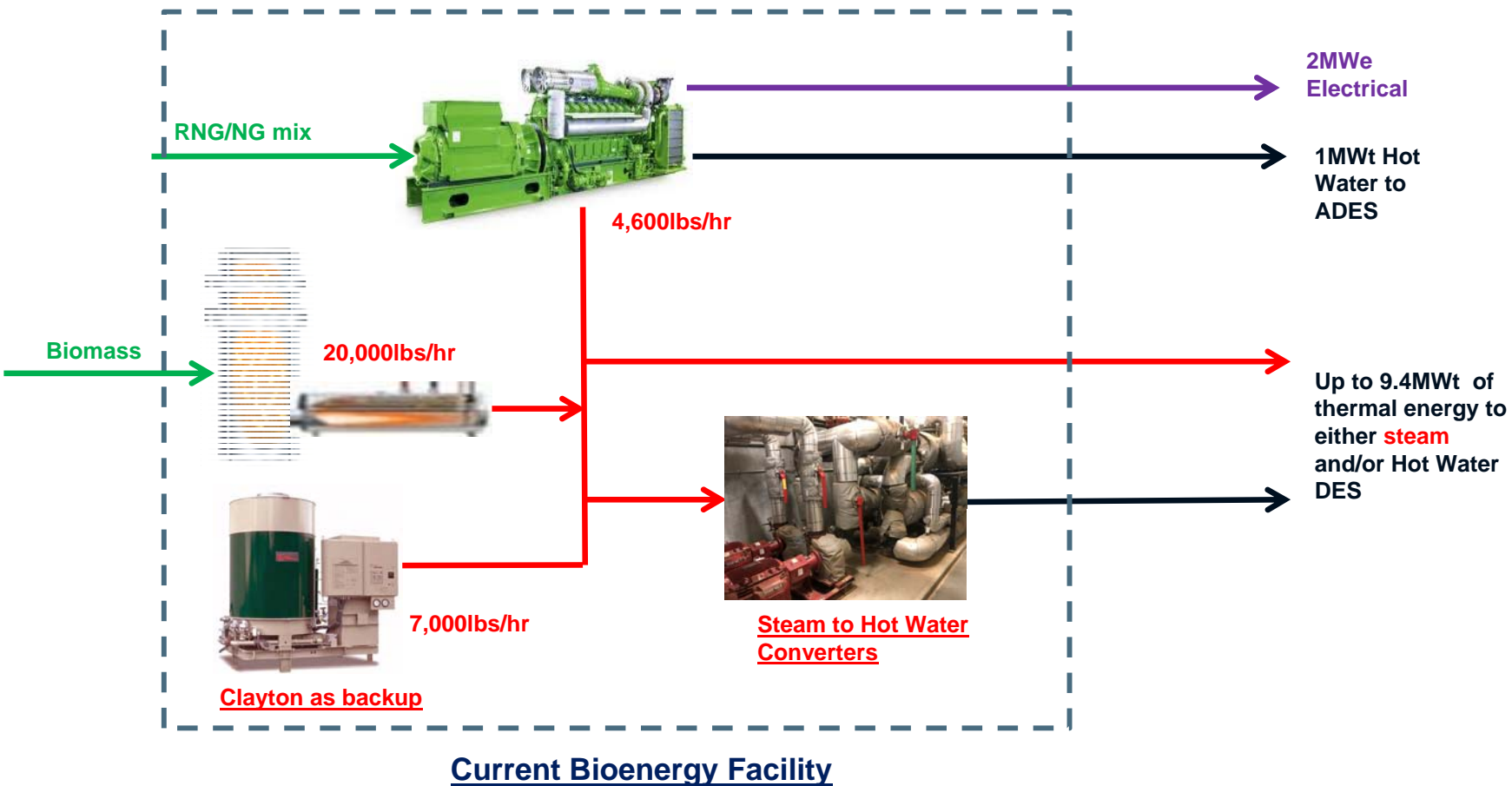








BRDF OUTPUT: BIOMASS, RNG FUELLED COGEN, BACKUP GAS



CAMPUS ENERGY CENTRE



CAMPUS ENERGY CENTRE (CEC) IN SERVICE NOV. 20TH, 2015

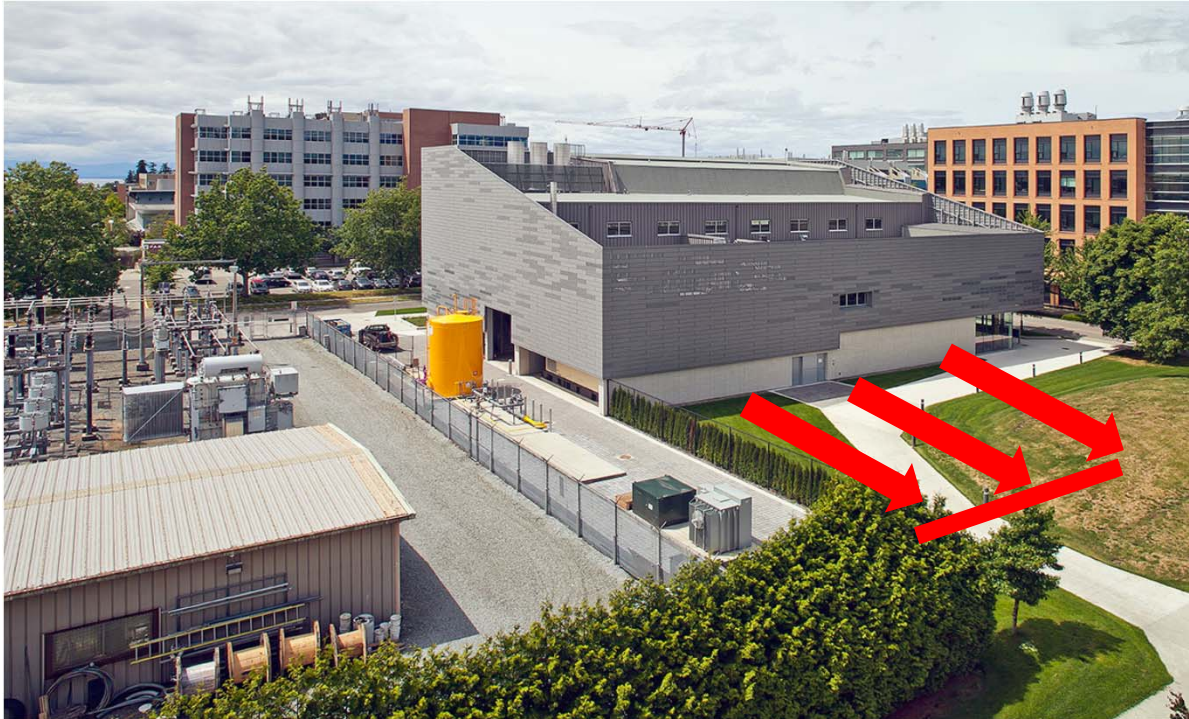
- LEED Gold Certified
- Constructed using Canadian cross laminated timber (CLT)
- \$24 million CAD



- Built for 4 boilers
- Initial Installation 3x15MWt natural gas boilers (45MWt)
 - Backup provided by #2 diesel
- To match UBC thermal load growth profile over next 20 years
 - Each boiler bay is sized for 4 x 22MW boilers (88MWt) ultimate expansion



POTENTIAL FOR COGENERATION EXPANSION



CEC Cogeneration Option

- CEC Site chosen to allow for a cogeneration expansion
- Total potential CEC capacity: CEC phase 1 + Cogeneration phase 2 at maximum build out will be 110MWt and 25MWe





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