

## Melanie Thie - UAS Administrator Stay 2016

Stay Duration: 05.02.2016 – 12.02.2016

Partner University: UBC

### Purpose of the Administrator Stay:

- Deepen contacts made during the Management Incubator in November 2015 at FUB and share experiences regarding sustainability initiatives at universities.
- Gain insights in the reporting system, energy monitoring and Green IT approaches

### Campus Overview

Campus Tour, visit of the LEED certified buildings: CIRS – Centre for Interactive Research on Sustainability, the new Pharmaceutical Sciences Building, the Buchanan Complex for Art Studies, the Building of the Forest Faculty, Chemistry Building.



CIRS – Center for Interactive Research on Sustainability



The Pharmaceutical Sciences Building



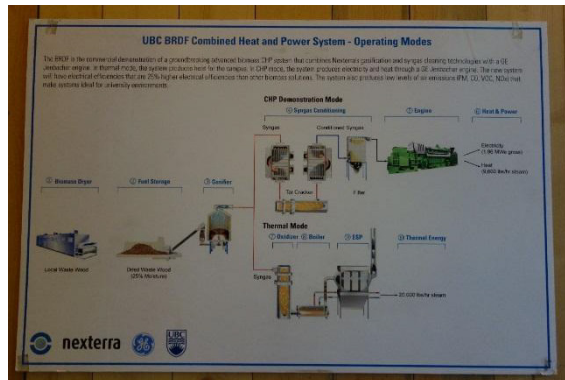
The Forest Science Centre



The Chemistry Building



### Bioenergy Research & Demonstration Facility (BRDF):



### Bioenergy Research & Demonstration Facility

The bioenergy plant reduces UBC's greenhouse gas emissions considerably and acts as a living lab project where researchers and students focus on applied research.

The plant is running with biomass ("waste wood") and is constructed as a combined heat and power plant. The part of producing energy is only for research. The economic as well as the ecological incentive for producing electricity is very low as the UBC energy supply is mainly from renewable energy (water power) and the prices for electricity are very low compared to heating energy power.

Facts:

- Operational since 2012
- Processes 2-3 truckloads of waste wood daily

- Two modes of operation:
- Thermal Mode: 6 MW steam/h → gasification technology burns biomass into syngas
- Biomass Cogeneration (CHP) Mode → 2,8 MW thermal energy (heat recovery) + 2 MW electricity (raw biomass syngas is refined to produce an engine grade or clean syngas)
- CO<sub>2</sub>-Reduction: 7,000 tons/

### Campus Energy Centre (CEC)



#### Campus Energy Centre

The CEC is the new primary energy source for the new hot water district energy system.

Facts:

- Boilers: 3x 15 MW thermal, natural gas fired
- Waste heat recovery
- Building material: Cross laminated timber – renewable, low carbon alternative to steel construction
- CEC is planned to be a LEED Gold certificate building
- Planned Co<sub>2</sub> reduction: 22% compared to 2007
- Challenges: stack is too short, massive vibrations and noise emitted to environment

### UBC IT

Dialog partner: **Michael Thorson** Director, Infrastructure – UBC Information Technology

New Datacenter:

- Build-up in 2012, 500 kW UPS
- 100% virtual server strategy
- PUE 1,2
- water cooled racks for high performance racks with up to 30 KW
- normal air cooling system with hot aisle containment for normal racks
- no policy to consolidate servers in central IT datacenter, resistance of researchers

End user:

- Power Management for computers is realized as well as for the VOIP infrastructure (Cisco devices)
- Video conferencing strategy (“blue jeans” - <http://bluejeans.com/>)
- Ca. 5000 computers are supported by UBC IT

Procurement:

- No central procurement strategy but faculties get incentives to buy IT devices internal together with an overall IT Support to “a good price”. If they buy outside the support is more expensive.

In conclusion UBC endeavors to run the IT energy efficient and to save energy but a central strategy or a green it program is not in place. This could be a topic worthwhile to explore in the next Management Incubator.

## **Reporting**

Dialog partner: **Marko Pajalic** Manager, Communications and Engagement – UBC Sustainability Initiative Office (USI)

**Topics:** Annual Sustainability Report and campaign strategies: Ambassador Program, interactive data “Be an Ambassador”

Program designed to increase the sustainability community by using the contacts and networking of different stakeholders of UBC and spread information over their networks. USI provides prepared posts that the ambassadors can use and spread over their networks.

### Ambassador Program

- Student engagement program
- Offer Workshops
- Difference to sustainability coordinators → more technical view (Peer-to-peer)

### Interactive Data

- Creating methods to present data in more dynamic and interactive ways
- report.sustain.ubc.ca
- data set: Performance data on ION – ion.energy.ubc.ca

Ripple Effect Program <http://rippleeffect.sustain.ubc.ca/>

- 3 feasts 2015: Harvest feast, Waste management day, water bottles
- The feasts were received very well.

## **Talk: Bonus System of FUB**

Dialog partners: **Bud Fraser** Senior Planning and Sustainability Engineer – Campus + Community Planning

**Julia Manton** Manager, Contracts, Leases & Housing – UBC Treasury

**Topic:** Bonus System of FUB – Structure, political background, experience, results

The UBC is very interested in FUB’s Bonus Scheme for energy savings. In this talk we dived deeper into the structure and discussed lessons learnt, the factors of success and the similarities and differences between both universities.

## **Campus Tour**

Visit of:

- “The Nest” (House of the Student Society AMS),

- C.K. Choi Building for the Institute of Asian Research
- Earth Sciences Building
- Life Sciences Centre



The Nest

### Meeting: Energy Controlling and Monitoring at UBC and FUB

Dialog partner: **Orion Henderson** Director Energy Planning & Innovation – Energy and Water Services

UBC introduced an online controlling system in 2010 in ca. 70 buildings, half of them are monitored in more detail. The rest of the buildings are listed in an Excel database. New buildings are monitored after running some time to create a baseline. Based on this programs are defined.

It is planned to implement data analytics – a software that comes with new DDCs with additional functions. It is an analytic system that implements rules for example for free cooling (e.g. ambient temp < 10°C -> use outside air for cooling) and triggers alarms when thresholds are not hold.

Further information:

- CIRS Energy consumption in total: 120 kWh/m<sup>2</sup>/a (planned: 80 kWh/m<sup>2</sup>/a without users)
- Online-Monitoring: <https://ubc.pulseenergy.com>
- Data collection: ION-Network <http://ion.energy.ubc.ca/ion/>

### Conclusion:

The Administrator Stay was very worthwhile to get a broader and deeper insight in the sustainability management and governance at UBC. Especially the in-depth look of UBC's Reporting System is helpful for building up the structure and strategy of FUB's sustainability report. The intensive exchange with the specialist for energy controlling allowed to analyze similarities and differences of the energy management at UBC and FUB and the framework conditions of both universities. A further step was the exchange about the applied energy monitoring tools and to give access to the tools in both directions to improve the energy controlling systems.