

UBC CLIMATE ACTION PLANNING AND GOVERNANCE

UNIVERSITY ALLIANCE SPRING MANAGEMENT CAMPUS

JOHN MADDEN | DIRECTOR | SUSTAINABILITY & ENGINEERING
CAMPUS & COMMUNITY PLANNING



UBC CONTEXT

Vancouver Campus

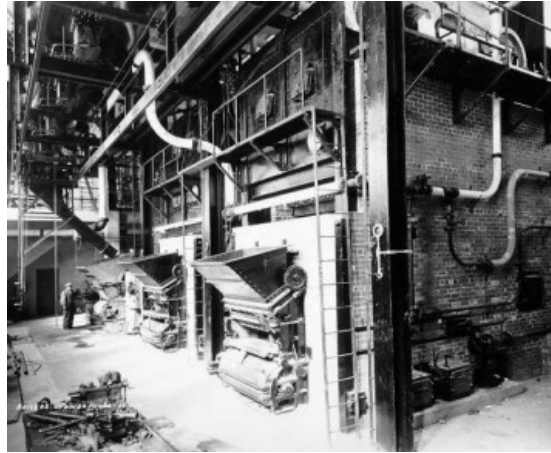
- 402 hectare campus
- 44,000+ students (FTE)
- 13,000+ staff and faculty (FTE)
- 20,000 residents
- 500+ buildings
- 15 million square feet building floorspace
- 70,000+ daytime population



OUR STORY STARTS OFF A LITTLE “DIRTY”



UBC Original Coal Steam Plant
1925



The hoppers for coal boilers



UBC Power Plant 1965:
transitioning from oil to natural
gas

UBC VANCOUVER CAMPUS | HISTORIC EVOLUTION

From “commuter campus” to “complete campus”



Point Grey campus -- aerial view looking north
(1958)



Point Grey campus -- aerial view looking north
(1973)



Point Grey campus -- aerial view looking north
(2011)

OUR MISSION IS TO ADVANCE TO NET POSITIVE



“Innovation is change that unlocks value”

VISION: ABILITY TO SEE THE POSSIBLE



3 BOLD MOVES

1. Creation of the Sustainability Office
2. EcoTrek Program
3. Climate Action Plan Targets



ESTABLISHMENT OF THE SUSTAINABILITY OFFICE (1998)



CK Choi Building: At the start of the design a primary goal was for the project to "set new standards for sustainable design, construction and operation."

UBC ECOTREK PROGRAM (2001 – 2008)

- Canada's largest university energy/water retrofit project
- \$35M in energy and water retrofits to 288 buildings
- Interior and exterior lighting upgrades
- HVAC and BMS system upgrades
- Steam system refurbishment and upgrades
- Energy management training for ops staff



ECOTREK RESULTS AND BENEFITS

Compared to 2000 levels, The Ecotrek program had achieved:

- 23% reduction of energy consumption per m²
- 35% reduction of water / m²
- 23% reduction of GHGs emissions per m²
- \$15-20 M reduction in deferred maintenance
- Improved Air Quality
- The success of this project demonstrated the possibility for deeper savings



UBC 2010 Climate Action: Greenhouse Gas reduction targets of:

33% below **2007** levels by **2015**

67% below **2007** levels by **2020**

100% below **2007** levels by **2050**

UBC sets aggressive new targets to reduce greenhouse gas emissions

Media Release | March 24, 2010

University of British Columbia President Stephen Toope announced aggressive new greenhouse gas (GHG) emissions targets for UBC's Vancouver campus today. Toope made the announcement to delegates at the GLOBE 2010 conference in Vancouver, one of the world's largest environmental conferences.

TOWARD ZERO CARBON

Academic District Energy System



**22% GHG
Reduction**
(11,000 tonnes GHG/yr)

Bio-energy Research and Demonstration Facility



**11% GHG
Reduction**
(8,000 tonnes GHG/yr)

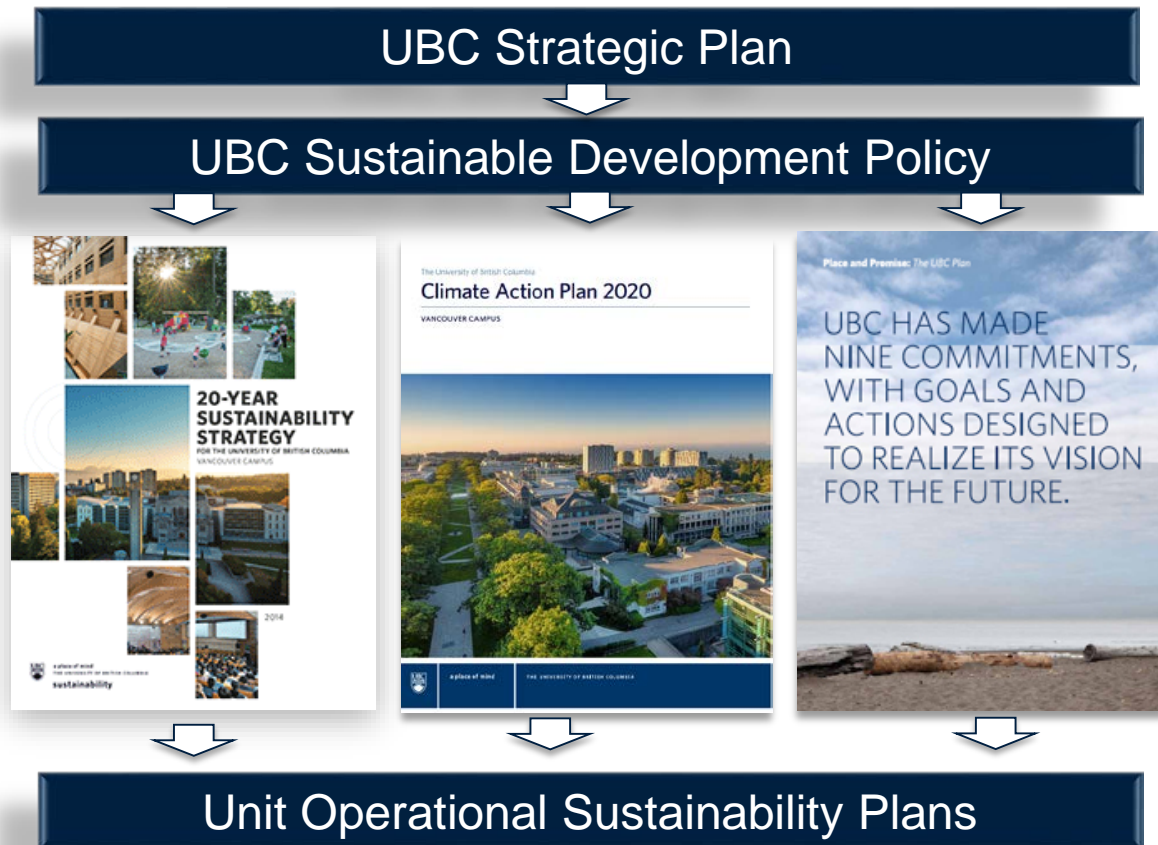
Continuous Optimization Building Tune-Up



**Recommission
over 70
buildings**
(4,000 tonnes + 3,000 tonnes for
new green bldgs)



POLICY CONTEXT



CHANGING POLICY LANDSCAPE

Federal

- Pan-Canadian carbon pricing: \$50 per tonne of CO₂ by 2022
- Code: “Net-zero” buildings and incentives for new construction and renovations.

BC Climate Leadership Plan Recommendations:

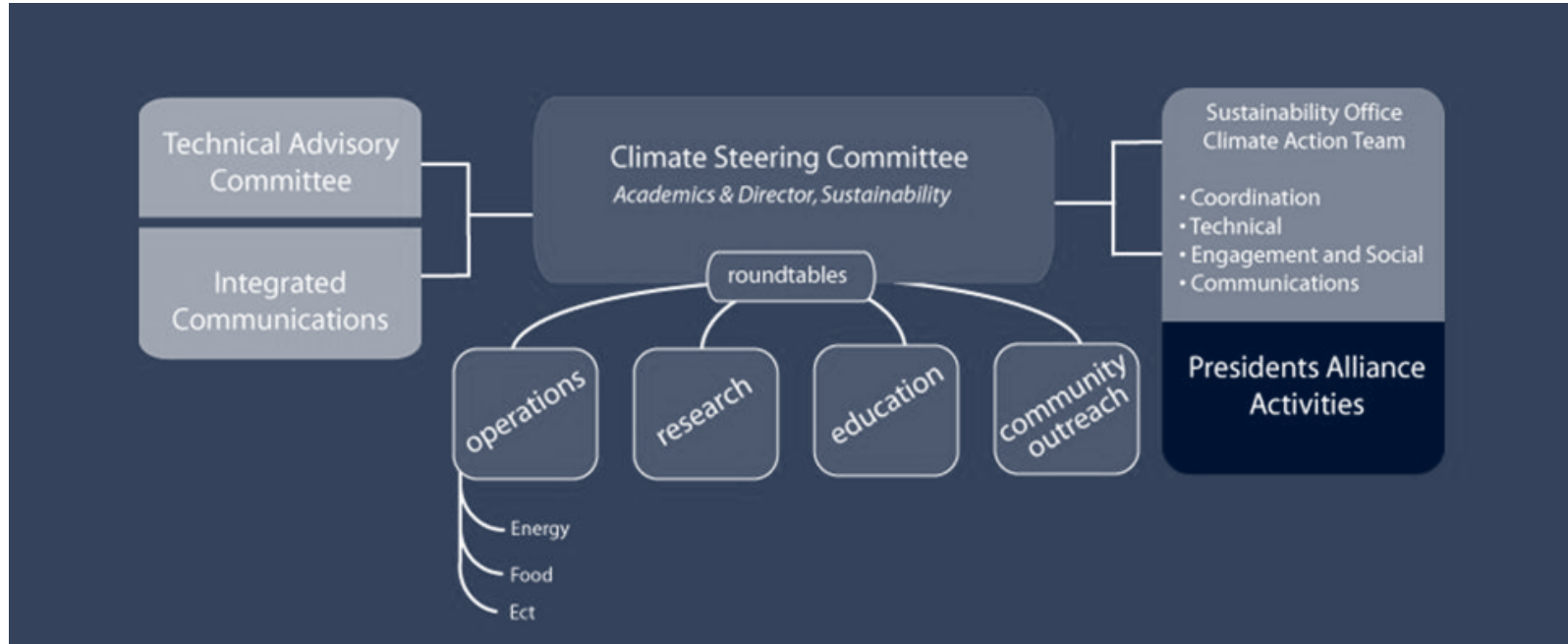
- Carbon Tax incremental increases: now \$35 / tonne
- BC Building Code (BCBC): evolve to net-zero energy ready by 2032
- 10-year emissions reduction plans for the public sector
- Commitment to government financial incentives for energy-efficient buildings

British Columbia Building Code (BCBC):

- Building Act to ensure consistency, competency and innovation
- Step energy code enabling local government to require performance beyond code

GOVERNANCE

- Develop a governance structure that encourages all levels of participation.
- The CAP committee structure ensured clear lines of accountability & responsibility,
- Reinforced the priority placed on the CAP throughout the university.



ENGAGEMENT IS INSIGHT



UBC's approach to campus and community engagement leveraged operational insight, academic expertise and grassroots passion fostering institutional commitment and broad support



5 YEAR ENGAGEMENT STRATEGY

- Build a network of champions (sustainability coordinators, Ambassadors, student work-learns, scholars and SEEDs)
- Identifies the biggest impact behavioral changes, education and workshop programming and campaigns
- The ultimate goal is to embed a sense of sustainability stewardship and culture across campus



IMPLEMENTATION: OPERATIONAL SUSTAINABILITY



UBC STRATEGIC PLAN

UBC Policy #5 – UBC Policy # 92

20 YEAR SUSTAINABILITY STRATEGY

UBC VANCOUVER CAMPUS

TEACHING, LEARNING &
RESEARCH

INFRASTRUCTURE & OPERATIONS

COMMUNITY

Plans & Policy

Plans & Policy

Sustainability Academic Strategy

OPERATIONAL SUSTAINABILITY STRATEGY

Unit Sustainability Frameworks

- ✚ Building Operations
- ✚ Campus & Community Planning
- ✚ Energy & Water Services
- ✚ UBC Finance
- ✚ Student Housing & Hospitality Services
- ✚ Infrastructure Development
- ✚ Risk Management Services
- ✚ UBC IT

Priority Themes

Housing &
Amenities

Food &
Nutrition

Engagement
Programs

Energy &
Emissions

Water

Commuting
& Getting

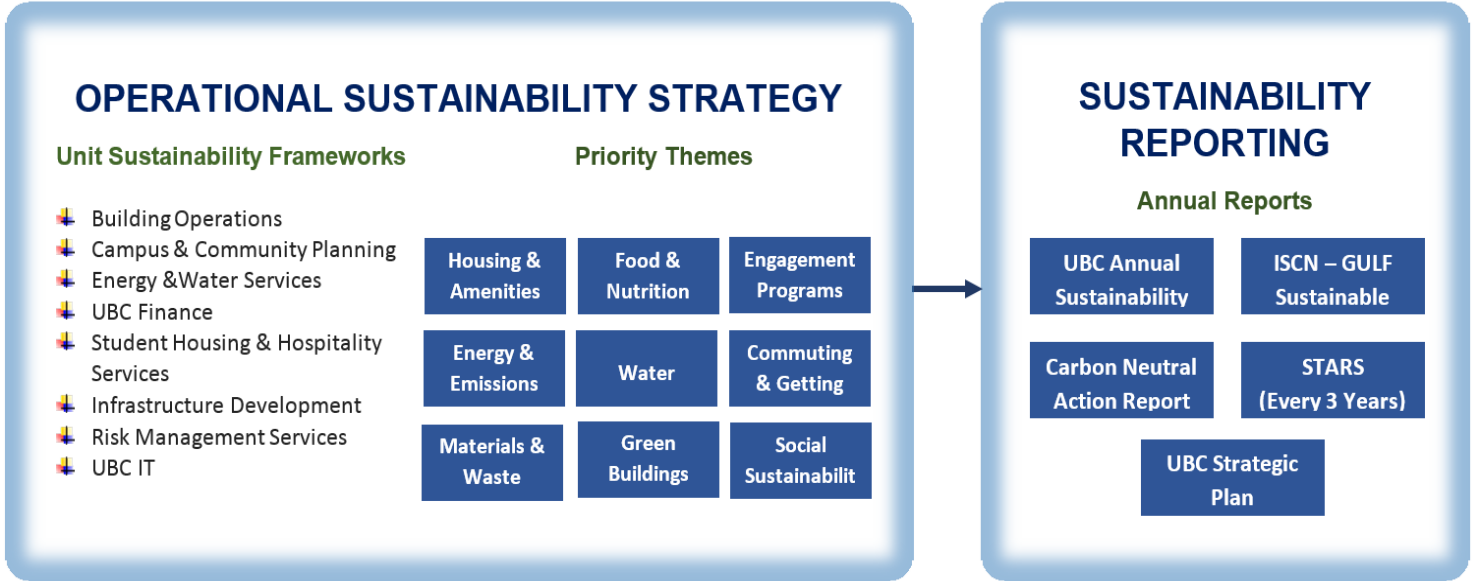
Materials &
Waste

Green
Buildings

Social
Sustainabilit



SUSTAINABILITY IMPLEMENTATION FRAMEWORK



OPERATIONAL IMPLEMENTATION FRAMEWORK



Tailored plans that identify a series of SMART actions that are developed through collaborative process

OPERATIONAL SUSTAINABILITY PLAN: VALUE ADD

- Clearly align unit efforts with highest sustainability goals
- Achieve definitive targets
- Define approaches and processes for achievement of targets
- Administrative ease
- Recognize all unit efforts and sustainability contributions
- Identify all sustainability stakeholders and create a communication network



LESSONS LEARNED

1. Importance of leadership

- Strategic institutional priority
- Articulation in policy and process
- Willingness to take risk

2. Institutional Culture Change and Social Norms

- Not just academic excellence and cost savings

3. Power of a positive goal: regenerative sustainability

- Importance of building generative relationships
- Plan with a purpose

4. Critical Importance of Enabling Role

- Build a constituency of support and foster capacity by empowering groups



1990

SO, THIS CLIMATE
CHANGE THING
COULD BE A PROBLEM...



1995

CLIMATE CHANGE:
DEFINITELY A
PROBLEM.



2001

YEP, WE SHOULD
REALLY BE GETTING
ON WITH SORTING THIS
OUT PRETTY SOON...



2007

LOOK, SORRY TO SOUND
LIKE A BROKEN RECORD
HERE...



2013

WE REALLY HAVE
CHECKED AND WE'RE
NOT MAKING THIS UP.



2019

IS THIS
THING ON?



THE AUSTRALIAN 28/9/13

"NONE SO DRAF"

KUPFLK.
28/9/13
KUPFLK.



THANK
YOU

John Madden

Director, Sustainability & Engineering

Sustainability and Engineering | Campus + Community Planning

University of British Columbia

Vancouver BC, Canada

j.madden@ubc.ca

(604) 827-3441

<http://planning.ubc.ca/>





THE UNIVERSITY OF BRITISH COLUMBIA

THE UNIVERSITY OF BRITISH COLUMBIA