



Pacific Institute for Climate Solutions



University
of Victoria



THE UNIVERSITY OF BRITISH COLUMBIA



UNIVERSITY OF
NORTHERN BRITISH COLUMBIA



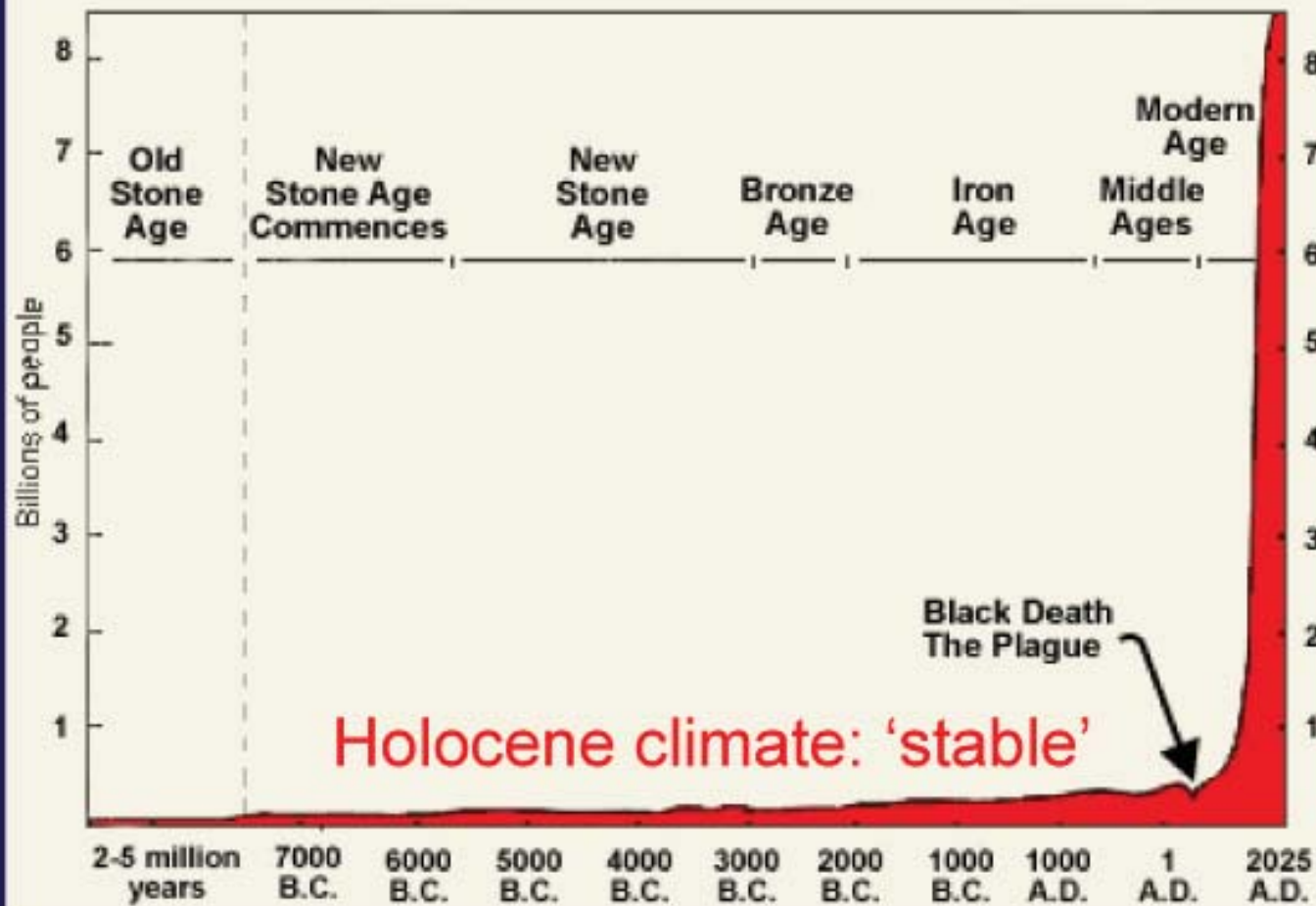
SIMON FRASER UNIVERSITY
TRAILBLAZER OF THE WORLD

Sustainability: Science, Social Science, Society, Scales...and PICS

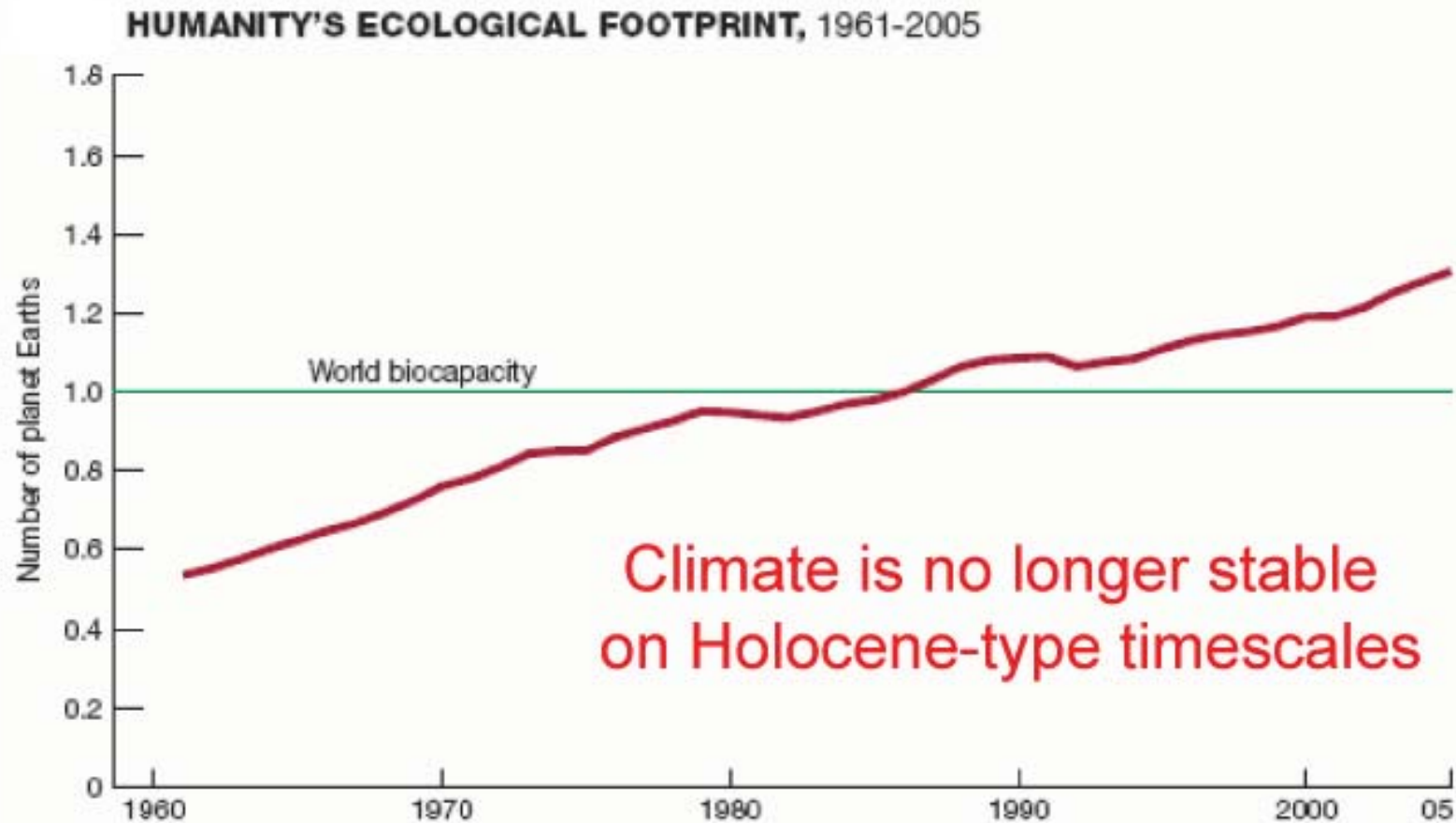
Tom Pedersen,
Director, PICS

September 27, 2010

World Population Growth Through History



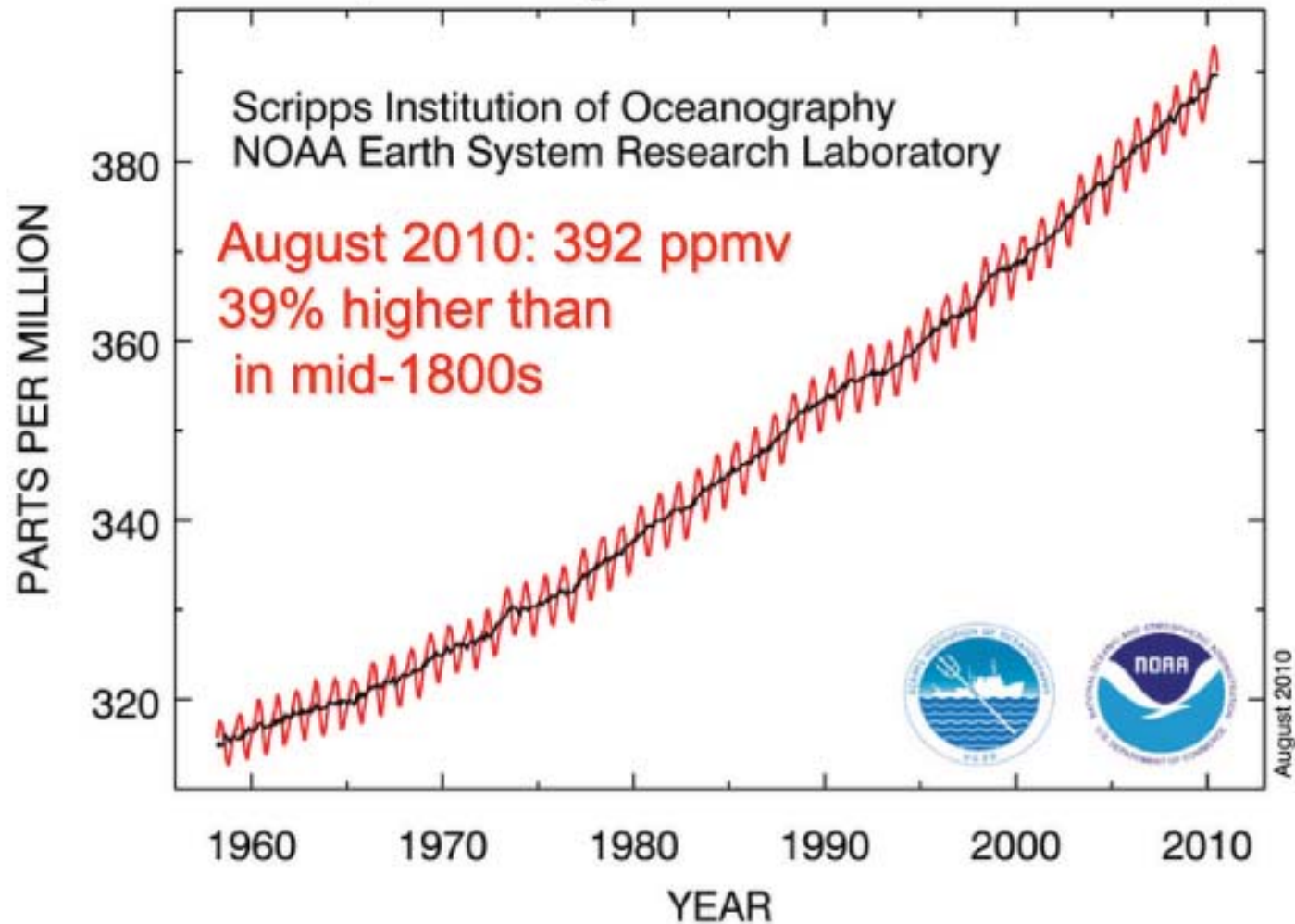
Sustainability and depletion of natural capital



Source: World Wildlife Federation

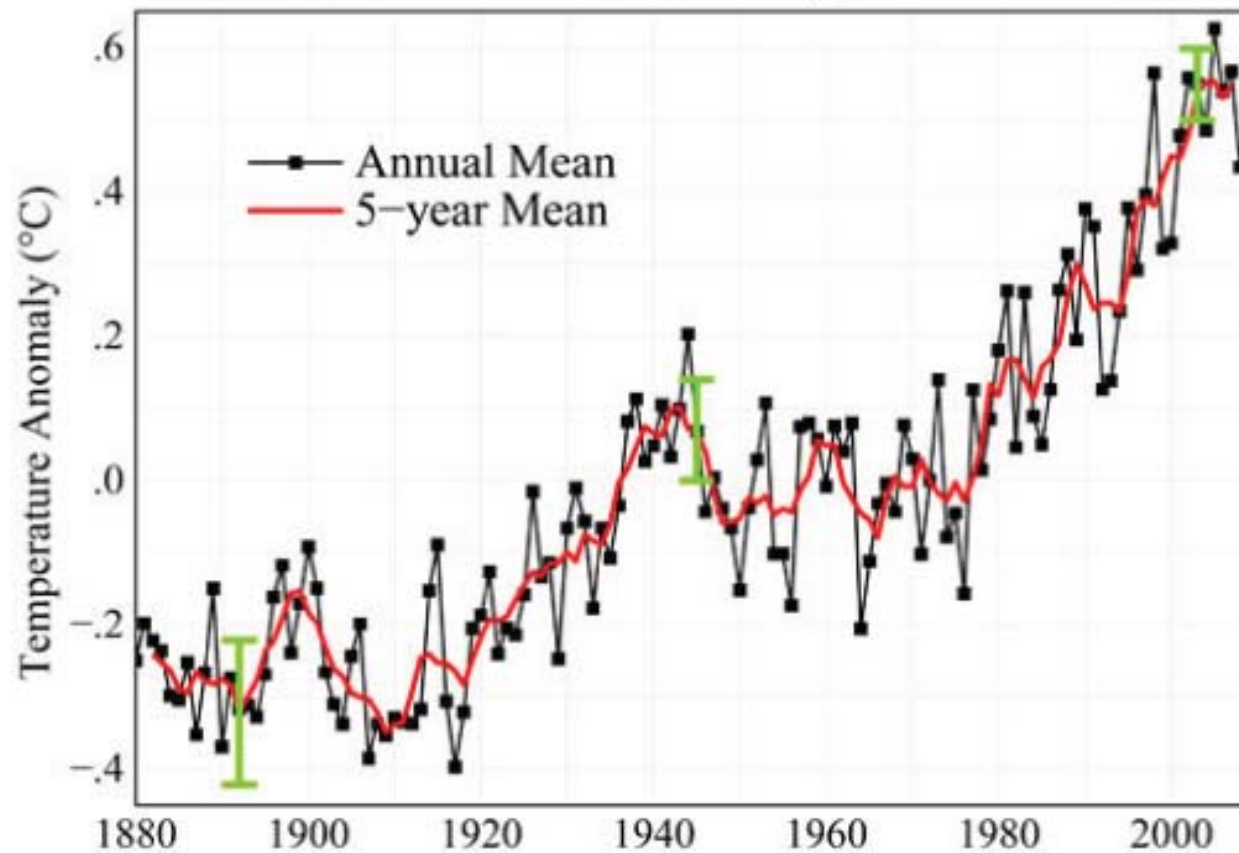
Environmental sustainability

Atmospheric CO₂ at Mauna Loa Observatory



NASA "Gistemp"

Global Land–Ocean Temperature Index



NASA Top 10

2005

2009

1998

2007

2003

2002

2006

2004

2001

2008

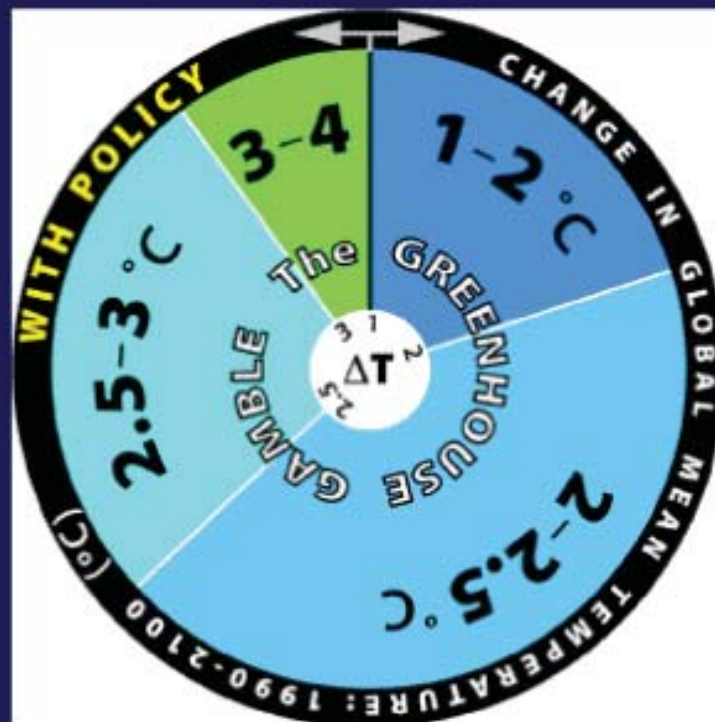
tied

- 2000-2009 was the warmest decade in recorded history.
- January - August, 2010: warmest 8 months globally on record (NOAA)

No action (BAU)



Action (≤ 450 ppmv by 2100)



Source: MIT Joint Program on the Science and Policy of Global Change

Derived from: "Probabilistic Forecast for 21st Century Climate Based on Uncertainties in Emissions (without Policy) and Climate Parameters"

A.P. Sokolov et al, Journal of Climate, Volume 22, October 2009, pp. 5175-5204

"The fierce urgency of now" (W. Churchill, 1936)



Lake Williston and the
W.A.C. Bennett Dam,
one of the world's
largest 'batteries'



PICS is a four-university consortium:



www.pics.uvic.ca

Our mandate:



Pacific Institute
for Climate Solutions
Knowledge. Insight. Action.

- *understand the patterns and magnitude of climate change (with our sister organization, the Pacific Climate Impacts Consortium at UVic)*
- *evaluate the physical, economic and social implications (thus, PICS is interdisciplinary)*
- *assess options and develop solutions, in the realms of both mitigation and adaptation*
- *communicate climate change issues to government, industry and the general public.*

“BC-relevant but not necessarily BC-centric”



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Five strategic research themes:

- *Low carbon-emissions economy*
- *Resilient ecosystems*
- *Social mobilization*
- *Sustainable communities*
- *C management in BC's forests*

*The concept of “sustainability” is embedded
in all five of the above*



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Our approach:

- *set key questions*
- *by default and design, almost all span multiple disciplines, and many span multiple constituencies, some of which may be at odds (e.g. the fate of forest 'waste' biomass)*
- *Scholars from all consortium universities (and others) participate*
- *Campus Coordinators at each university*

At UBC: Sara Muir-Owen

Aquatic Ecosystem Research Laboratory

Room 443 – 2202 Main Mall

604-822-4644

sara.muir-owen@ubc.ca

Where we are as of today:



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- *33 graduate fellows, 6 post-doctoral fellows, 18 of whom are here at UBC; topics range from human psychology through carbon economics to engineering*
- *White Papers series (eleven published to date; five more commissioned and imminent)*
- *Weekly “PICS News Scan”, widely e-distributed (>> 500 subscribers; in partnership with ISIS (Sauder School)*
- *PICS Briefing Notes launched in May, also in partnership with ISIS; weekly releases*
- *Short courses being offered in late 2010: multiple constituencies*

Where we are as of today, cont'd:



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- *Multiple public lectures across BC*
- *Seminar series, webcast, joint with the Pacific Climate Impacts Consortium*
- *Public guest lectures from noted scholars*
- *Visiting Fellows Program in place (two coming in 2011, so far)*
- *Co-op student program in place (~14 work terms/year)*
- *Robust collaboration with the Government of BC (policy!)*

But PICS also explores issues on scales larger than British Columbia.

One example :

Exploitation of wind power coupled with integration of the western North American electrical grid (PICS Forum topic, June 2010)

Key question: *Can we remove coal from the Canadian energy diet?*

The Integrated North American Transmission Grid

~12 GW grid
~ 95% hydro

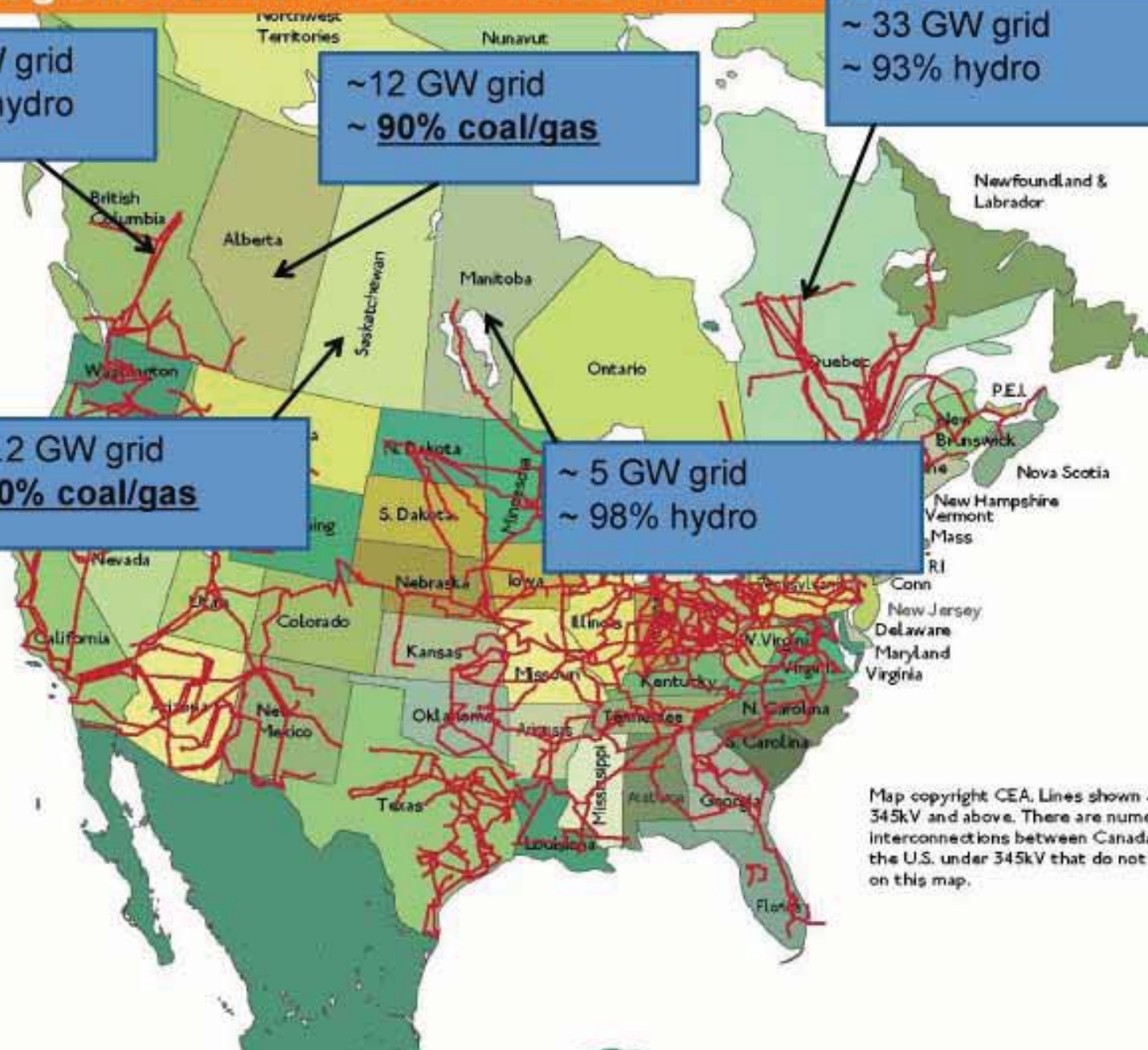
~12 GW grid
~ 90% coal/gas

~ 33 GW grid
~ 93% hydro

~ 3.2 GW grid
~ 60% coal/gas

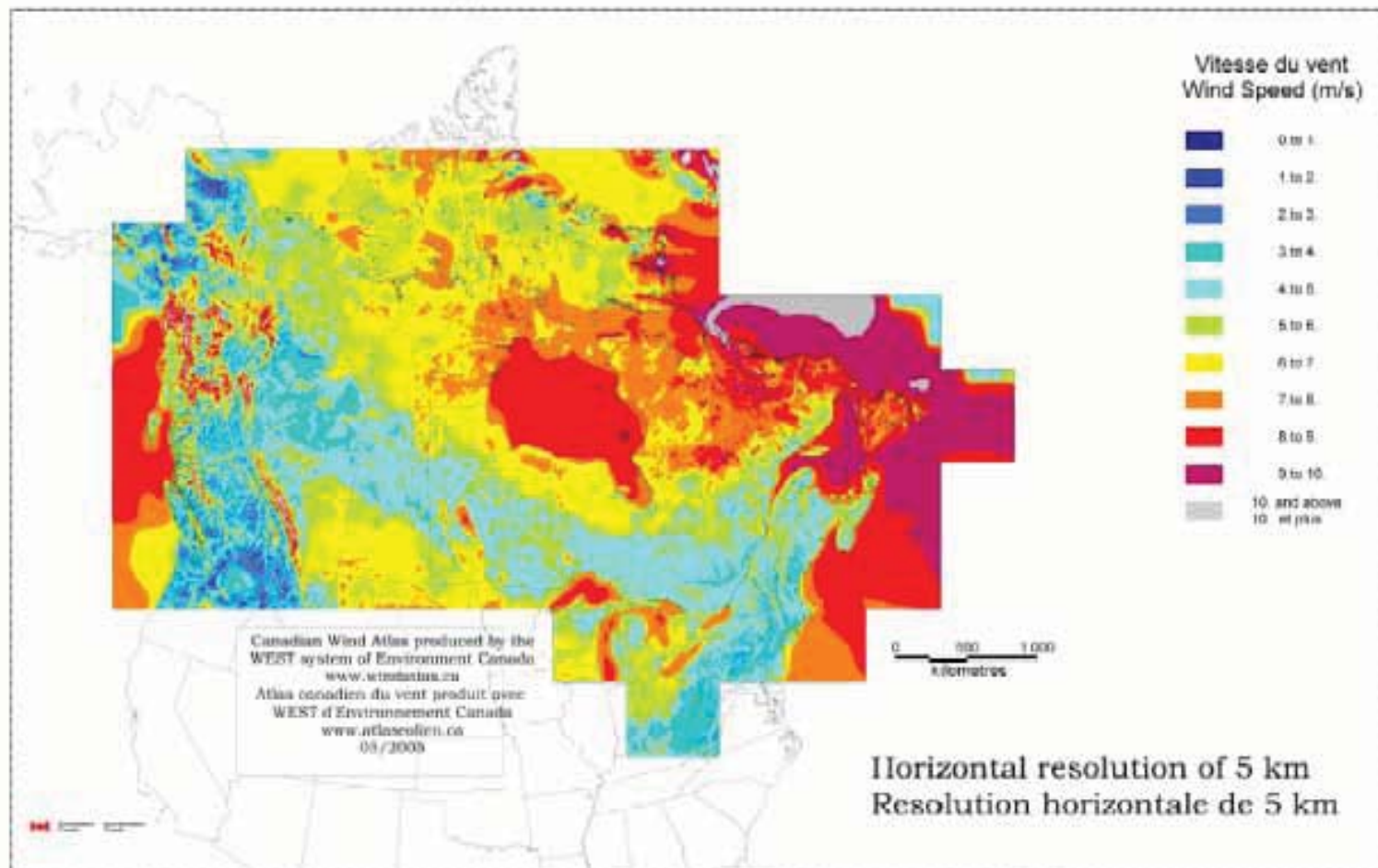
~ 5 GW grid
~ 98% hydro

Map copyright CEA. Lines shown are 345kV and above. There are numerous interconnections between Canada and the U.S. under 345kV that do not appear on this map.



Canadian Wind Resources: The World's Second Largest

Mean Wind Speed at 50 m above ground
Vitesse moyenne du vent à 50 m au dessus du sol





Lake Williston and the
W.A.C. Bennett Dam,
one of the world's
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A few closing words:

- *PICS is a new model: an endowed (thus independent), highly credible, responsive, applied-research think tank that draws directly from the talent pool in BC universities (and elsewhere)*
- *PICS is not a granting agency; rather we are a policy-oriented directed- and applied-research consortium*
- *Focus is firmly on “**Solutions**”*
- *We have now established a growing “PICS Community”*
- *Our collective task is indeed ‘**urgent**’*

The PICS-UBC-SFU Public Lecture Series

*September 29, 2010
7-9 pm*

Lecture 1: *Smart Energy on an Urban Scale*

Dr. Nancy Olewiler, SFU and Dr. John Robinson, UBC

C300 Theatre, UBC Robson Square

Live webcast: www.pics.uvic.ca/events.php



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Thank you.