

Willkommen
Welcome
Bienvenue

Swiss-US Energy Innovation Days

Workshop B Energy Technology – Buildings and Districts of the Future

Dr. Peter Richner
Empa

Objectives

- Identification of drivers and barriers for the transformation of the building stock towards more energy efficiency and a smaller carbon footprint
- Exchange of experience, current and future practice in US/CH
- Identification of potential collaborations between US and CH partners

Day 1 Buildings

- How to make an energetic refurbishment also an economic success?
- How can legal prescriptions foster the transformation?
- Are smart homes the solution to all our problems?

Program Day 1

- Introduction, Peter Richner
- Keynote Christoph Gmür, Office of Waste, Water, Energy and Air Canton of Zurich: *"Development of the energy regulations and their impacts"*
- Swapnil Shah, FirstFuel Software: *"Using Data to Foment Transformation: The Power of Data to Drive Energy Savings in the Business Sector"*
- Karl Viridén, Viridén + Partner AG: *"Retrofit for the next 50 years"*
- Martin Vontobel, ABB Building Automation Solutions: *"Home sweet home - how smart a home do you need?"*
- Matthias Boelke, Schneider Electric: *"Digitazition of energy: Massive change, unique opportunity"*
- Coffee Break [20']

Program Day 1

- Group discussions, breakout in 4 groups [60']
 - Group 1: The role of legal prescriptions (A. Altenburger)
 - Group 2: How smart should our buildings be? (L. Baldini)
 - Group 3: How to make an energetic refurbishment also an economic success? (E. Opan)
 - Group 4: Hidden barriers and drivers for the transformation of the building stock (R. Largo)

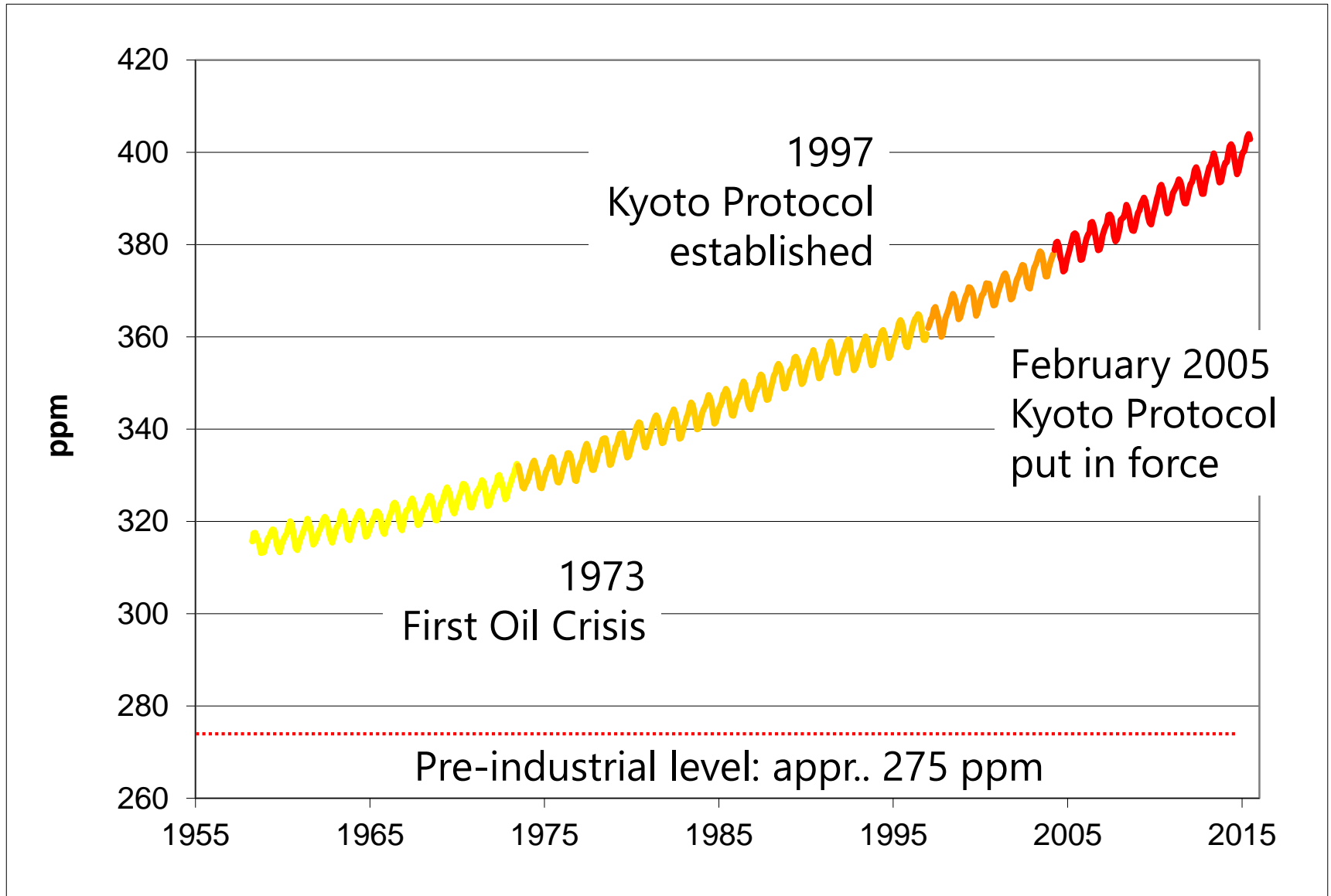
- Conclusions and closing in plenum [30']

Outlook Day 2

From Buildings to Districts

- What are the potentials of renewables, waste and locally available resources and where are these potentials located?
- How to implement a district concept within the frame of a university campus
- Keynotes by Gaëtan Cherix, Center for Research in Energy and Cities
Paul McManus, Questrom School of Business
Dominik Brem, ETH Zurich

Global CO₂ Concentration



Source: Dr. Pieter Tans, NOAA/ESRL (<http://www.esrl.noaa.gov/gmd/ccgg/trends/>)

Aletsch Glacier



2004



1900

The building stock: THE opportunity for a change



- 2014:
41% of total US energy consumption was consumed in residential and commercial buildings

Source: eia



- 2013:
48% of total end energy consumption is attributed to buildings

Source: Analyse des schweizerischen Energieverbrauchs 2000-2013
nach Verwendungszweck, 2014, SFOE

Goals according to the political agenda



Clean Power Plan

- -32% CO₂ emissions from power plants by 2030 compared to 2005



New Energy Strategy

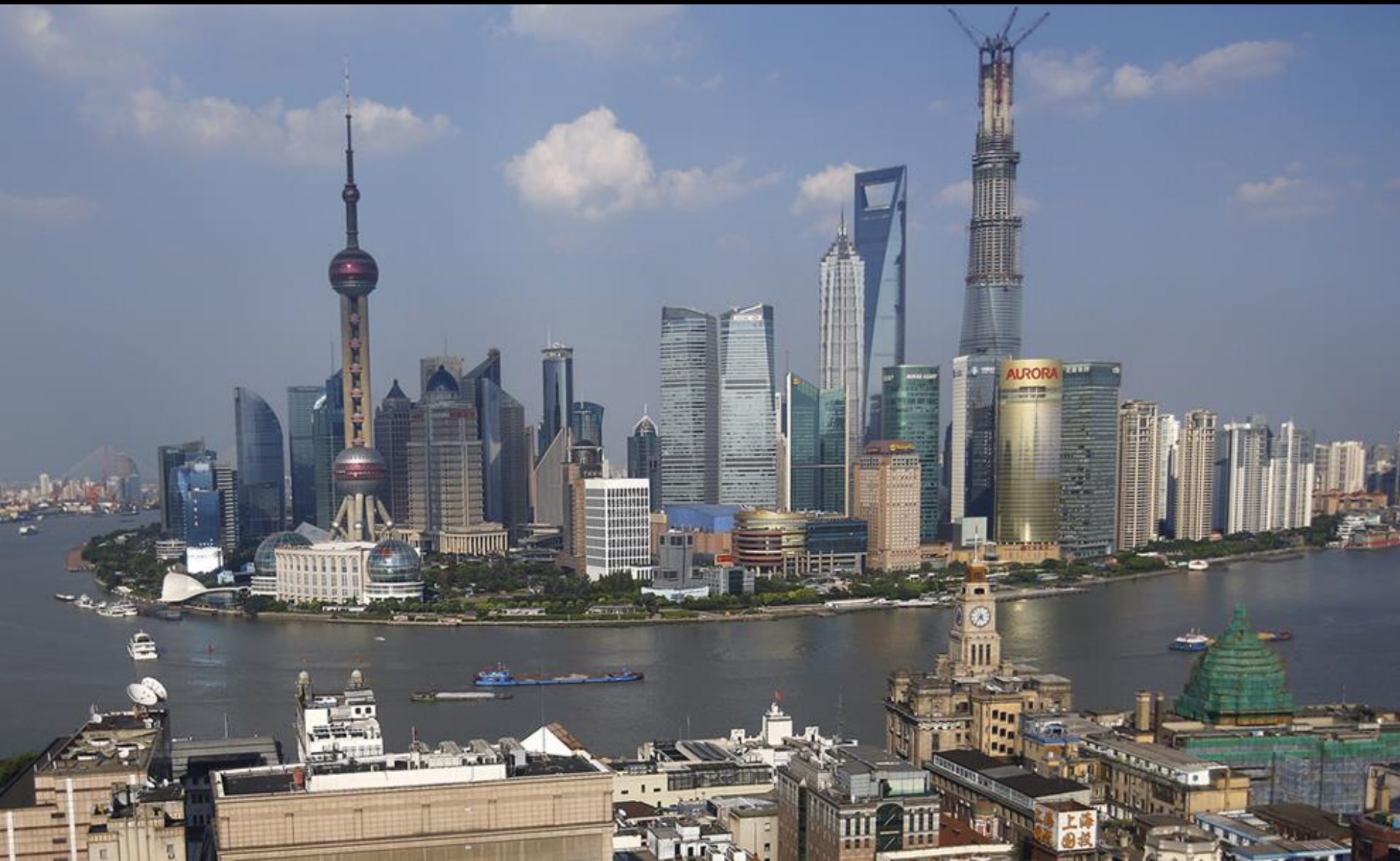
- Reduction of the average energy demand per capita
2020: - 16% (compared to 2000)
2035: - 43%
2012: - 7% (*absolute: +3%*)
- Reduction of the average electricity demand per capita
2020: - 3% (compared to 2000)
2035: - 13%
2012: + 0.9% (*absolute: +12.6%*)
- Reduction of the yearly CO₂-emissions
from 4.8 t per capita (2011)
to **1-1.5** t per capita (2050)

Shanghai, Pudong District, 1987



The Atlantic, August 2013

Shanghai, Pudong District, 2013



The Atlantic, August 2013

Inauguration Pope Benedikt XVI, 2005



Inauguration Pope Francis I, 2013





We have to change the world – and yes, we can do it!

