

# Climate Change: Moving People to Take Action

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for Bob Doppelt  
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***Positive proof of global warming.***



**18th  
Century**

**1900**

**1950**

**1970**

**1980**

**1990**

# Key Messages From March 09 Copenhagen IARU International Scientific Congress on Climate Change

1. Worse Case IPCC Occurring: New data shows likely temperature rise of 3.6° F (2° C & maybe 3-5° C), sea rise of 3 ft (and maybe 6-12 ft.), major risk of *abrupt & irreversible changes*.

*Few species or societies can adapt to more than 1.8° F (1C) increase in a century.*

2. Major Social Upheaval: Billions of people moving, global conflicts.

3. Disproportional Impacts: Most vulnerable within *and* between societies most affected *now* and in *immediate future*—*all* affected soon.

4. Immediate Action Needed: We must become '*carbon free*' by 2050 (+80%) but *near term action essential* (3-5 year and 2020) .

***“High carbon-based growth kills itself.”***

**Nicholas Stern**

**Former Chief Economist of the World Bank and  
UK Stern Review of the Economics of Climate Change**

**Why?**

**Because it is *debt-based phantom growth!***

**Sound Familiar?**

## **5. No Excuse For Inaction**

**We have the knowledge, skills and technologies right now to stabilize the climate**

**Acting now will produce multiple benefits:**

- **Cost savings in many sectors**
- **Better public health**
- **Job growth in existing sustainable industries!**
- **Thousands of jobs in emerging sustainable industries!**

**Shift to low or carbon-free ‘green’ industries  
and jobs requires...**

**“Sustainable Thinking”!**



# SUSTAINABLE THINKING

Change From

**‘Take—Make —Waste’**

To

**‘Borrow-Use-Replenish’**

# **SUSTAINABLE THINKING CAN LEAD TO GREEN INDUSTRIES AND JOBS**

**Someone must design, manufacture, install,  
operate & maintain low or carbon free  
goods and services.**

## **Green Jobs**

***“Family supporting, career track jobs that directly  
contribute to becoming carbon free and enhance  
environmental quality and social equity.”***

# ENERGY & WATER EFFICIENCY

## The Cleanest Energy Is Energy We Don't Use!

- 30% + of U.S. energy and water is *wasted*.
- Buildings constitute 36% of energy use, 30% of waste, and 30% of our CO2 emissions.

## SAMPLE JOBS

- Energy and water audits
- Window and door replacement
- Sealing doors, windows, ducts and fixing water leaks
- Installing insulation
- Mfg & installing energy sensors
- Mfg & installing super efficient cooling & heating systems
- Installing 'green' or 'living' roofs
- Installing super efficient home and farm irrigation equipment



# WIND ENERGY



- U.S. has enough wind resources to generate electricity for *every home and business in the nation*.
- Location, intermittency & transmission are biggest constraints.

## SAMPLE JOBS

- Mfg wind turbines and related parts and equipment
- Installing wind turbines and systems
- Maintaining wind turbines systems
- Building 'smart grid' transmission system

# SOLAR ENERGY



- Cities produce 75% of U.S. carbon emissions.
- All of California's electricity can be produced from just 200 square miles of sunshine—the size of Lake Mead

## SAMPLE JOBS

- Manufacturing solar thermal, PV and ‘concentrated solar’ panels and related parts and equipment
- Installing solar panels and systems
- Maintaining solar systems

# EFFICIENCY AND RENEWABLE ENERGY JOBS ARE LABOR INTENSIVE



Research shows clean energy produces twice as many jobs per unit of energy for electricity --30% of U.S. emissions—than fossil fuels.

# AGRICULTURE AND FOOD



- From farm to waste disposal food system is *20% of U.S. carbon emissions.*
- Other costs: chemical runoff, loss of top soil, farm labor health impacts, diet-related ailments; methane from animals.

## SAMPLE JOBS

- Organic and sustainable farming
- Seed husbandry
- Local/regional food production and sales
- Composting
- Bio-products (e.g. cosmetics, supplements)

# REUSE AND RECYCLING



- Landfills produce methane, incineration & waste transporting produces CO<sub>2</sub>
- On per ton basis, sorting and processing recyclables creates 11 times more jobs than incineration & landfilling and already employs over 1.1 million people

## SAMPLE JOBS

- Entry level collecting, sorting, driving, loading, warehousing, packaging and retail sales.
- Advanced warehouse & floor manager jobs
- Industries emerging using used materials

# CARBON FREE MATERIALS & PRODUCTS



- Gas, plastics, conventional fertilizers & many other materials are made with fossil fuels or their derivatives.
- Energy inefficient goods will be at risk.
- Major shift coming in material & products

## SAMPLE JOBS



- Non-food based biofuels
- Electric & alternative fuel vehicles
- Super energy efficient appliances
- Public transportation and bicycles
- Nanotechnology
- Bio material-based products

# WINNERS & LOSERS IN CARBON FREE ECONOMY

## Winners

- Manufacturers of energy efficient appliances
- Manufacturers of energy efficient and alternative fuel cars, trucks, busses
- Renewable energy producers e.g. solar thermal and PV, wind, biomass, biofuels
- Bicycle manufacturers and repair shops

## Losers

- Manufacturers of energy inefficient appliances
- Today's U.S. inefficient, fossil fuel-based car, truck and bus manufacturers
- Fossil fuel industry involved with extraction, processing and fuel supply
- Car dealers and gas stations

# WINNERS & LOSERS IN CARBON FREE ECONOMY

## Winners

- Construction industry retrofitting existing buildings for energy and water efficiency
- New technologies like micro CHP (combined heat and power), heat pumps
- Local and organic farmers
- Businesses offering low energy/carbon solutions (e.g. zero-energy homes)

## Losers

- Traditional construction industries building inefficient buildings
- Old technologies such as oil and gas heating systems
- Conventional petro-chemical farming
- Businesses selling high energy systems e.g. inefficient air conditioning

# **SUSTAINABLE THINKING AND GREEN JOBS CAN REVITALIZE THE ECONOMY**

**Major Driver Of Today's Financial Crisis Is  
Oversupply**

***“Too many products chasing too few consumers.”***

**Overcapacity causes producers to manufacture ‘needs’ and produce *wasteful goods*.**

***Sustainable thinking & jobs can refocus economy on producing real goods for genuine needs---and save the economy!***

# The First Key to Motivating Sustainable Thinking

## Build 'Tension' for Shift To Carbon Free

- To make a fundamental change, people must feel sufficient tension (dissonance) between a desired goal or value and current reality.
- Tension can be a desire to obtain a positive (e.g. better health, family security, live our values) or avoid a negative (e.g. financial loss, rising costs, property damage).



Change agents must emphasize the critical nature of climate change &/or unmet goals or values

# The Second Key to Motivating Sustainable Thinking

## Build 'Self-Efficacy'

- People must have sufficient confidence that they can reduce the tension & eliminate the dissonance

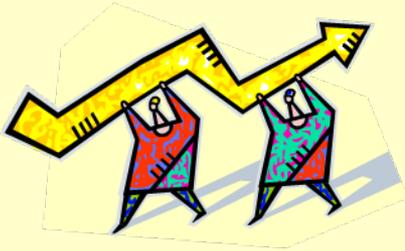
Perception of *social networks, costs, difficulty, skills* keys.



Change agents must build confidence in the *ability to become carbon free* & enhance faith that new practices & policies *will make a difference.*

# The Third Key to Motivating Sustainable Thinking

## Build the Benefits of Carbon-Free



- To make a fundamental shift, people must see at least two benefits to new behaviors for every downside



Change agents must *build the pros* and *minimize the cons* of shift to carbon-free economy early on.

## *Change Agents Must Also...*

# **Use Effective Communications 'Frames'**

**A 'Frame' is a "central organizing idea...for making sense of relevant events, suggesting what is an important issue."**

**Gamson/Modigliani**

# 5 KEY ELEMENTS OF EFFECTIVE CLIMATE COMMUNICATIONS FRAMES



## What is the problem?

Emphasize role of *too much carbon* (carbon overload) in creating problem.

## What are the stakes?

Expand beyond *environment & science* to how climate affects everything—economy, health, food, security etc--- that it's happening now, and costs will be irreversible.

## Why now?

Emphasize we are at a Crossroads, a historic moment of Choice, the time for arguing is past.

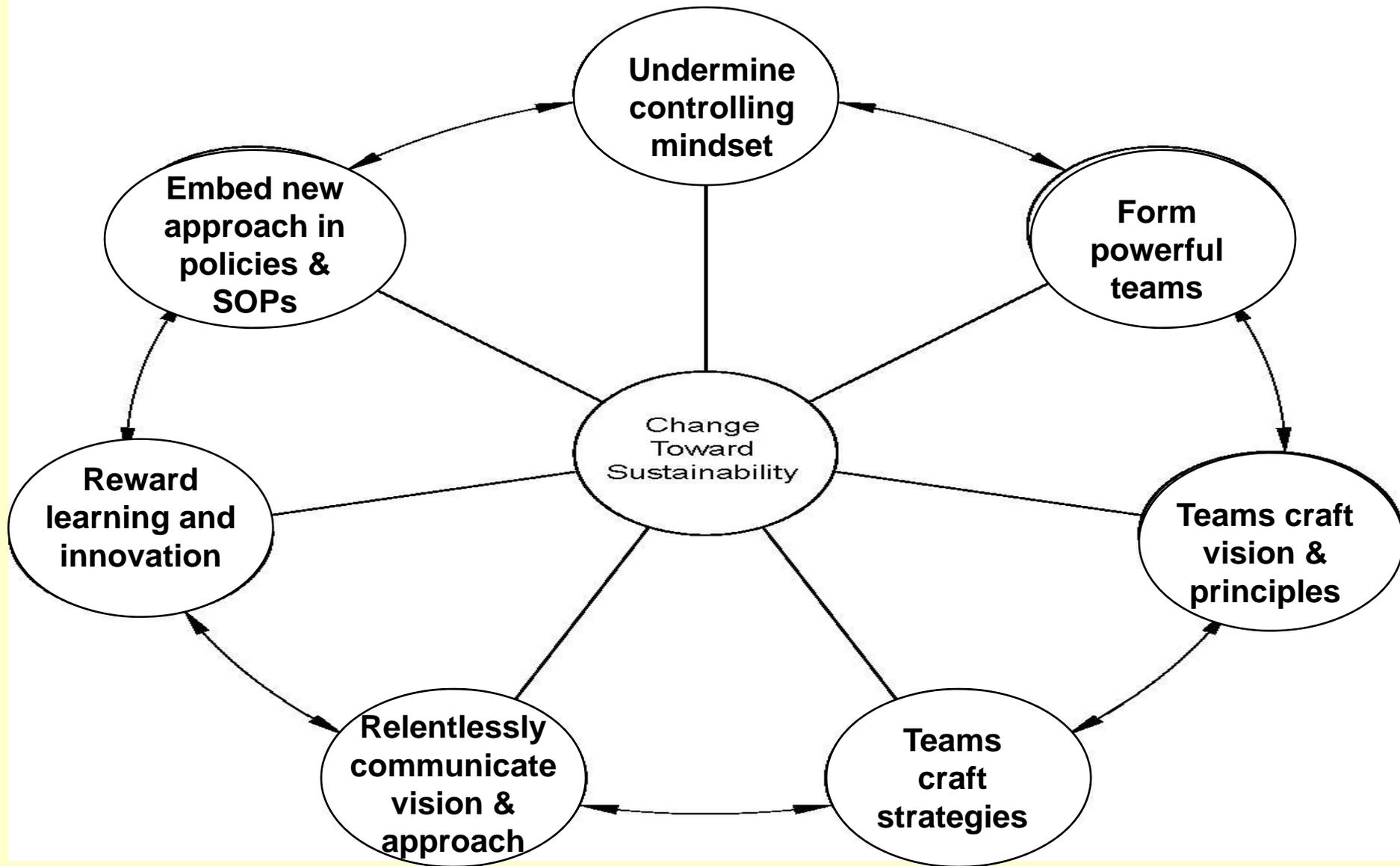
## Why me?

Foster connection with person's identity—their work, values, faith, social norms and network.

## What are the solutions?

Emphasize known, not future solutions and build efficacy

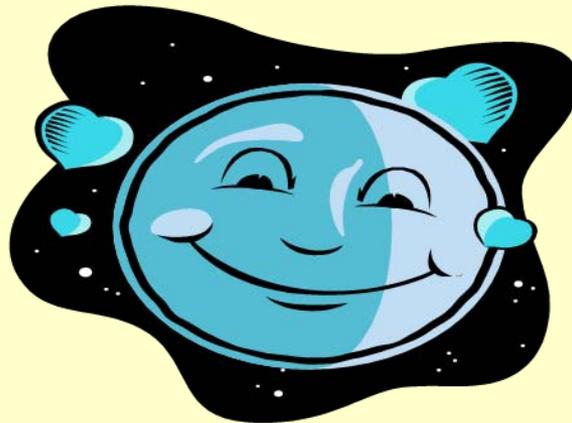
# The Wheel of Organizational Change toward Sustainability



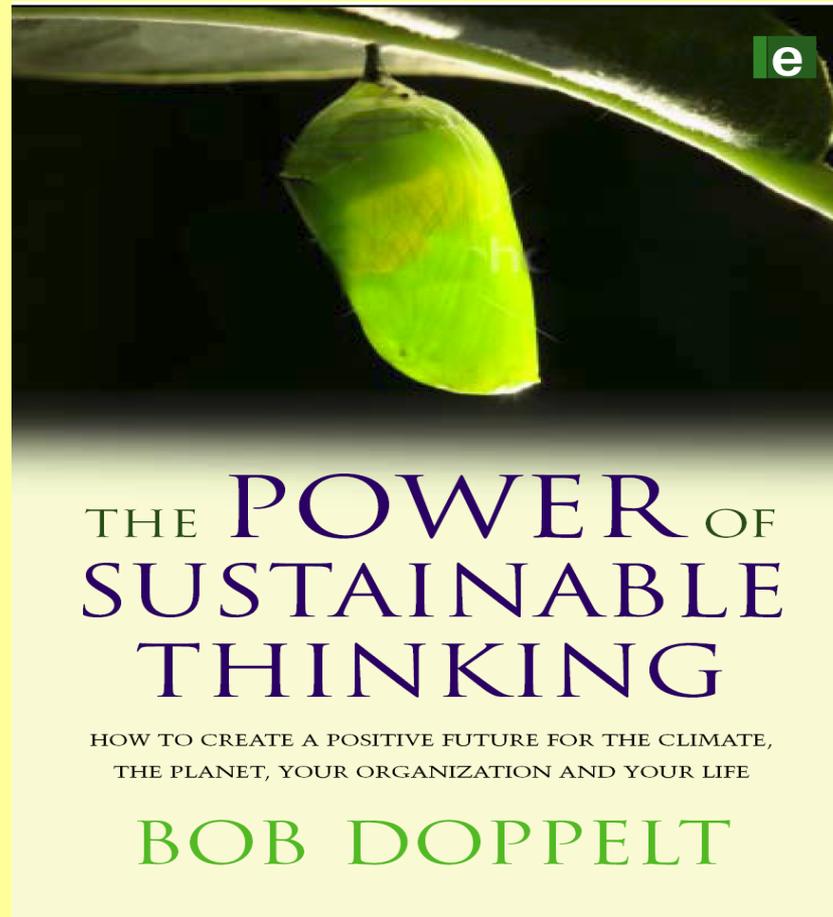
*Leading Change toward Sustainability* (Doppelt, Greenleaf Publishing 2003)

# SOCIETIES HAVE SOLVED COMPLEX PROBLEMS BEFORE

Through the *Power of Sustainable Thinking*  
we *can stabilize the climate as well!*



# Best Wishes on Your Journey!



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