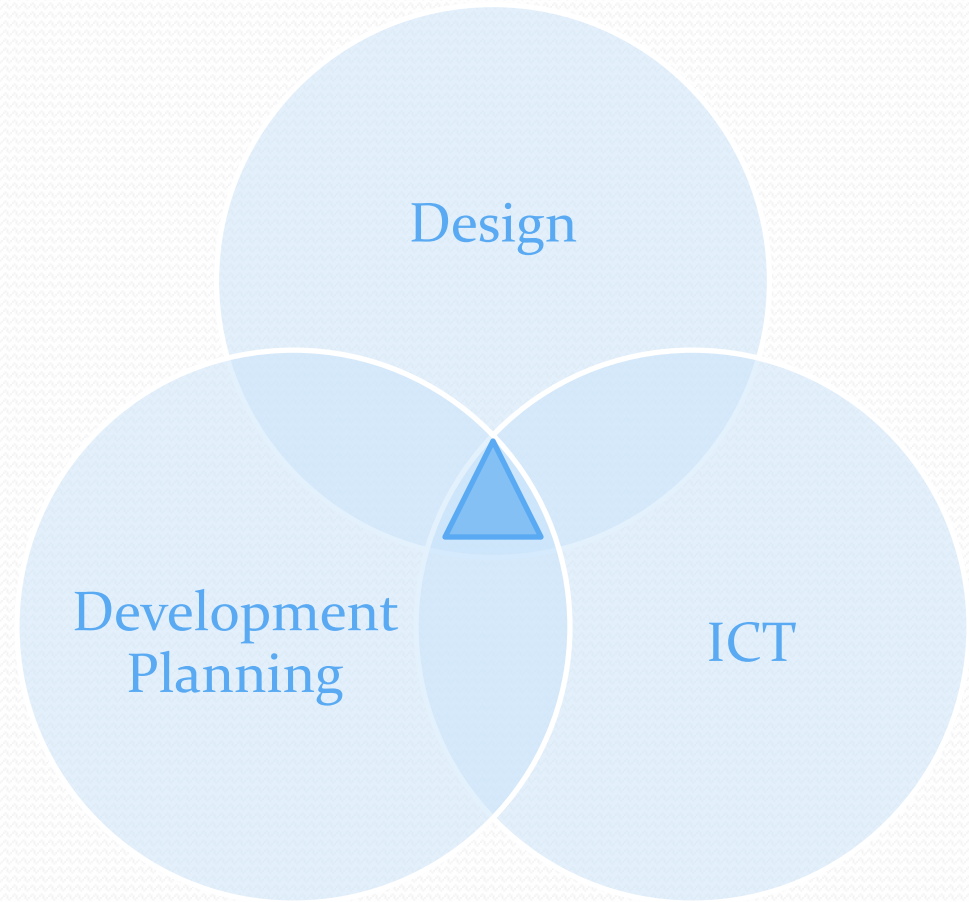


ETown:

An Idea Whose Time has Come!

Hodjat Ghadimi
September
2008

My Background



Create sustainable intelligent built environment

Simple Facts

- To accommodate the world's urban population, we need to build a new town of One Million every week for the next 45 years
- More than $2/3$ of total energy consumption is needed for urban metabolism
- More than $2/3$ of the CO₂ emissions are due to it

ETown: City of Tomorrow

- Create an ETown as a flagship for starting an era of “zero-carbon footprint” Live, Work, Learn, and Play.

6 E-Concepts

- Energy
- Environment
- Electronic (Cybercity)
- Experimental
- Educational
- Ecological

Salient Features:

- An Energy sufficient-Environmentally responsive, knowledge-based economy *Technopole*
- A combination of a *Science Park* and a *Smart City*
- A City as *a Laboratory*: dedicated to “living experimentation” of a truly sustainable development
- A *Research Nexus* for energy, environment, economic development, engineering, and design
- A setting for *Lifelong Learning* for all ages
- A City of tomorrow to - live, work, learn, and play - in *harmony with nature*

Why Now?

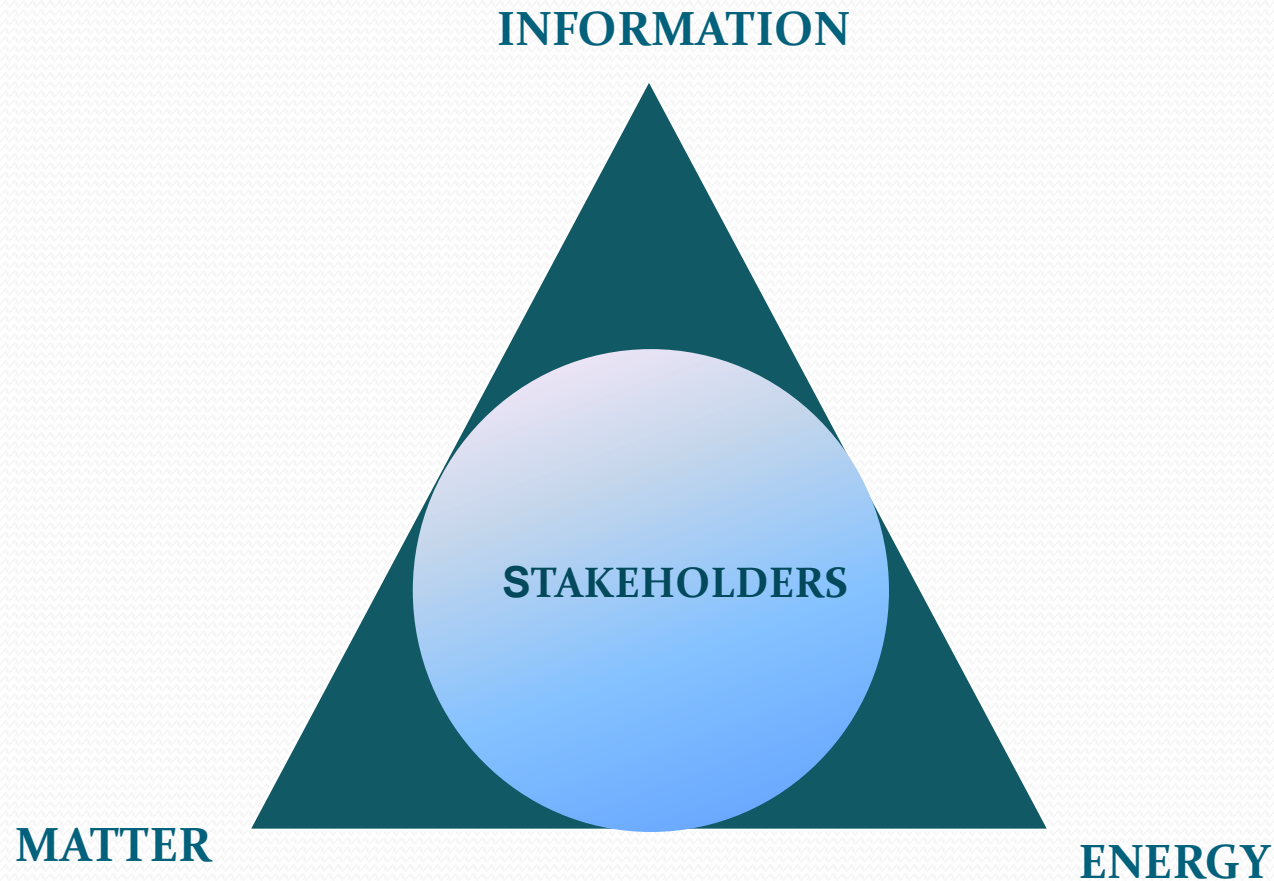
A turning point

- Globalization
- ICT Revolution
- Sustainability Concerns

The critical question:

Can development be sustained in an integrated world using accumulated human knowledge and the new technologies?

Information as a Resource



The Grand Challenges

- Cost of materials, rising
- Cost of energy, rising
- Cost of information, declining

Can we substitute cheaper resource for dearer ones?

Can this lead to a sustainable development?

Interdependent

Energy/Environment/Development
challenges and responses

Responding to Challenges

- Global debates: UNEP; Brundtland Report 83; Earth Summits 92, 02; IPCC Reports 07

Energy, Environment, and development are inseparable

“The capacity to **adapt and mitigate** is dependent on socio-economic and environmental circumstances and the availability of information and technology.” IPCC Reports

- Energy/Environment high on national agenda
- Private sector initiatives

- “America is in a hole and it's getting deeper every day. We import 70 percent of our oil at a cost of \$700 billion a year - four times the annual cost of the Iraq war. I've been an oil man all my life, but this is one emergency we can't drill our way out of. But if we create a new renewable energy network, we can break our addiction to foreign oil.”

T. Boone Pickens

Why Here?

- Energy heritage in the region
- Natural attractions and amenities
- Rural character is an asset
- Proximity to Washington DC
- Potential relevant expertise

What is in it?

For WV:

- Brand the region (Energy Davos?)
- Imagine WV: Energy not coal
- Preserve the environment
- Upstage WV

For WVU:

- WVU's Strategic Plan
- A Flagship Project
- An Instructional Lab

Funding -support?

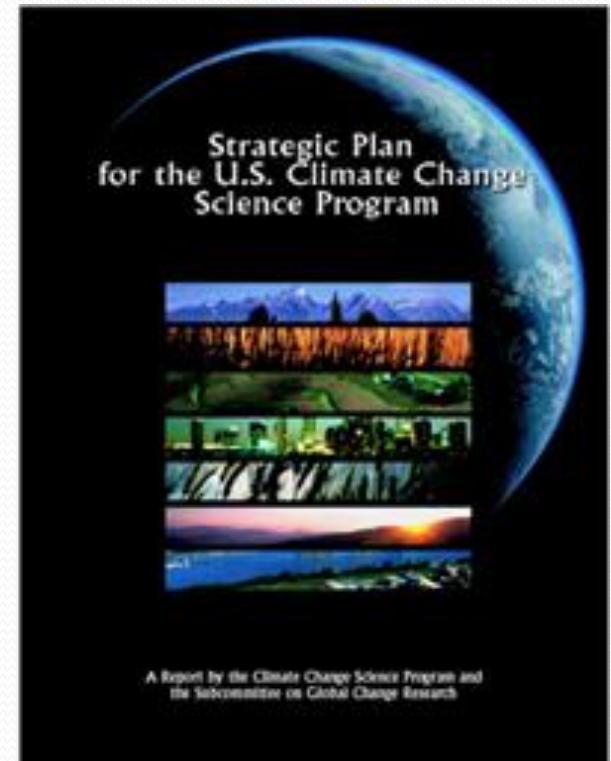
- Federal Agencies - Big Science
- Foundations
- PPP
- Convince entrepreneurs
- Vision 2015
- Imagine West Virginia

U.S. Climate Change Science Program

- An Ambitious Program of Research
- \$2 Billion / Year

Climate Science Goals

1. Improve Knowledge of Climate and Environment
2. Improve Quantification of Forces Driving Changes to Climate
3. Reduce Uncertainty in Projections of Future Climate Changes
4. Understand Sensitivity and Adaptability of Natural and Manmade Ecosystems
5. Explore Uses and Limits of Managing Risks and Opportunities

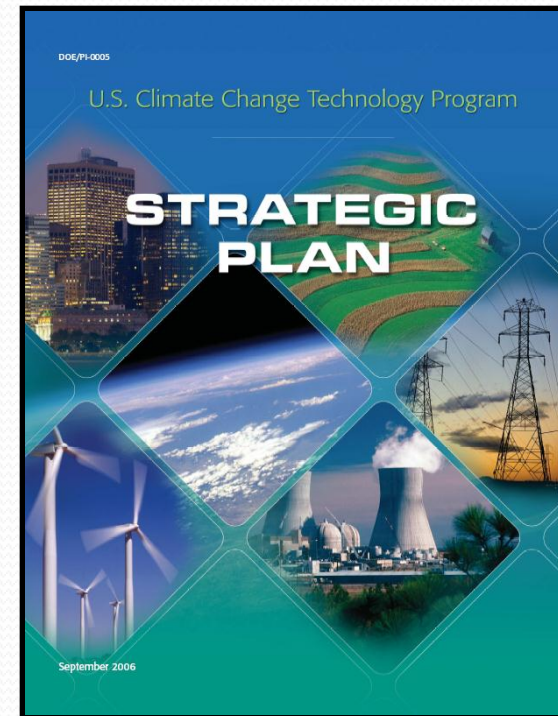


U.S. Climate Change Technology Program

- An Ambitious Program of RDD&D
- \$3 Billion/Year

Climate Technology Goals:

- 1- Reduce Emissions From Energy End Use & Infrastructure
- 2- Reduce Emissions From Energy Supply
- 3- Capture & Sequester CO₂
- 4- Reduce Emissions From Non-CO₂ Gases
- 5- Improve Capabilities to Measure & Monitor GHG
- 6- Bolster Basic Science



“Change in scientific paradigm”

‘Behind the great materials inventions of the last century and half was not merely a long internal development of technics: there was also a **change of mind**. Before the new industrial process could take hold on a great scale, a reorientation of wishes, habits, ideas, goals was necessary’

Mumford 1934

UN Decade of Education for Sustainable Development – 2005-14

'Education for Sustainable Development is an investment in our future, each respective country should ensure that appropriate resources are made available for its development'

World Summit on Sustainable Development: Plan of Implementation (2002)



ETown is no small project.

Next Steps?