

# ANJEC Congress 2013

## Energy And Climate Change

Sustainable Energy: Crisis or Opportunity?

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# Now Is The Time

- The Need For Action Has Never Been More Clear:
  - Latest IPCC Report:
    - 95% confidence climate change is happening, anthropogenic
    - Immediate consequences both broad and deep, and immediate
  - Real Impacts From Extreme Weather
- The Challenge Is That:
  - Consequences (especially Climate Change) Nearly Invisible
  - Vulnerabilities Are Perceived As A Future Threat
  - Required Action Is So Difficult As To Be Paralyzing

**How Do We Motivate Broad Engagement?  
Can We Get There From Here?**



# Great Changes Are Possible

*“The situation is dire. The **horse** is absolutely essential for the functioning of our cities – for transportation, freight, mechanical power. Without **horses**, our cities would literally starve. But the accumulating stench from their resulting filth is intolerable. **Horses** are an economic burden, an affront to cleanliness, and a terrible tax upon human life”.*

A synthesis of quotes about life in Manhattan, circa 1900

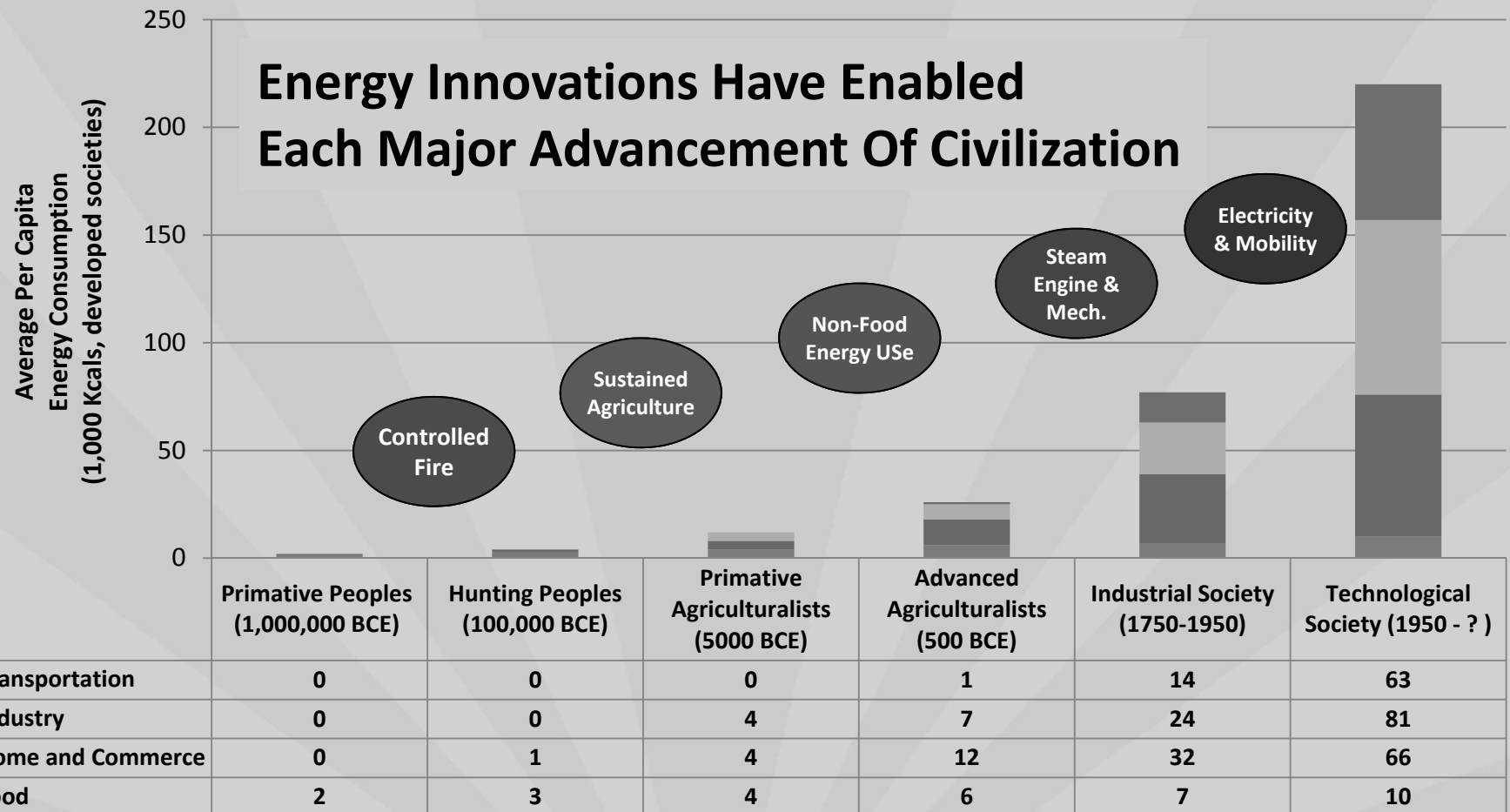
**It Looked Like A Crisis At The Time...**

**...But It Turned Out To Be A Huge Opportunity**

**We Face The Next Great Energy Transition.  
WHAT WILL WE CHOOSE TO DO?**



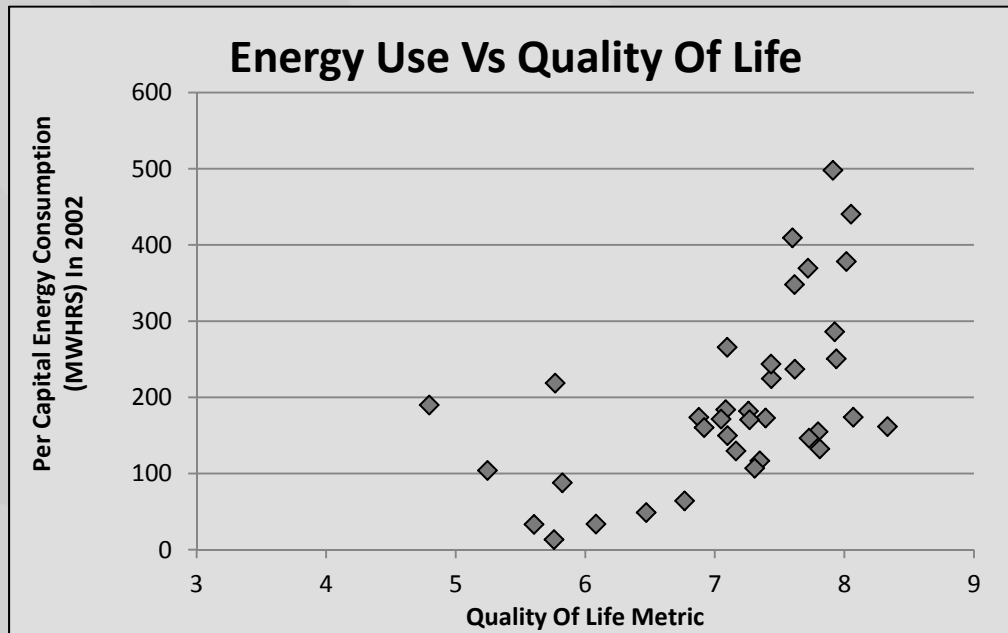
# Energy Use And Human Development



Adapted from E. Cook, "Energy Flow In An Industrialized Society", Scientific American, 1971 pg135



# Energy Use And Quality Of Life



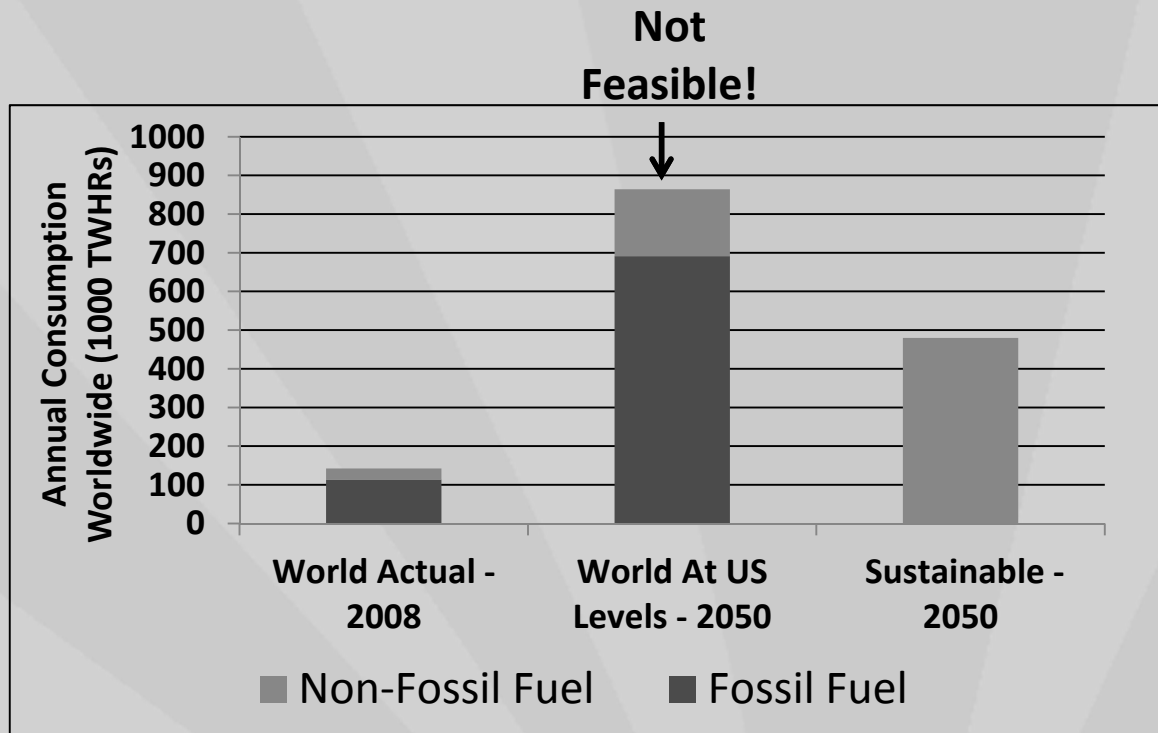
Quality Of Life In An Industrialized/Technological Society Depends Heavily Upon The Sustainability Of Its Energy Infrastructure

**What Will Happen As The World Moves Toward Energy-Equality?**

Note: Quality Of Life Index From The Economic Intelligence Unit, 2006



# Achieving "Energy Equality"



Climate Impacts (and Other Consequences) Will Scale With Absolute Fossil Fuel Use Levels

**A Sustainable Approach To Energy Allows For Global Energy Equality With Less CONFLICT**

Note: 2008 Actual: ~21 mwhrs/person worldwide, population 6.6 billion

Note: In 2008, US consumed ~90 mwhrs/person, 2050 population of 9.6 billion

Note: "Sustainable" target at about half the US energy intensity (50 mwhrs/person), no fossil fuel use

Note: About 80% of 2008 energy from fossil fuel, same supply mix assumed for 2050



# Re-Framing The Proposition

Sustainable Energy, And Climate Change, Have Traditionally Been Positioned As A Fundamentally Altruistic, Environmental, Future-Oriented Proposition - And As A Problem To Be Solved, Rather Than An Opportunity To Be Captured.

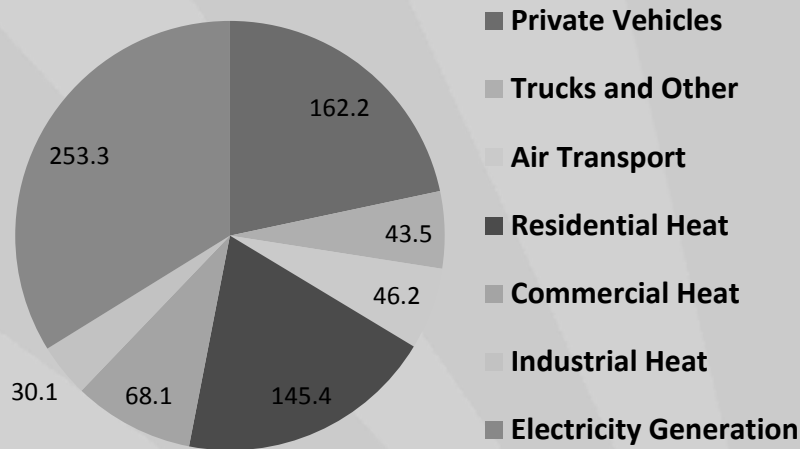
## Other Ways To Frame The Issue:

- Non-environmental benefits: resiliency, economics, etc
- An act of self-interest, not an act of altruism
- Saving the people, not the just the planet
- A competitive advantage, not a cost center
- A TODAY issue (definitely), not a TOMORROW issue (maybe)
- About “de-risking” our society, especially the economy
- Will create new jobs, new industries, new leadership opportunities

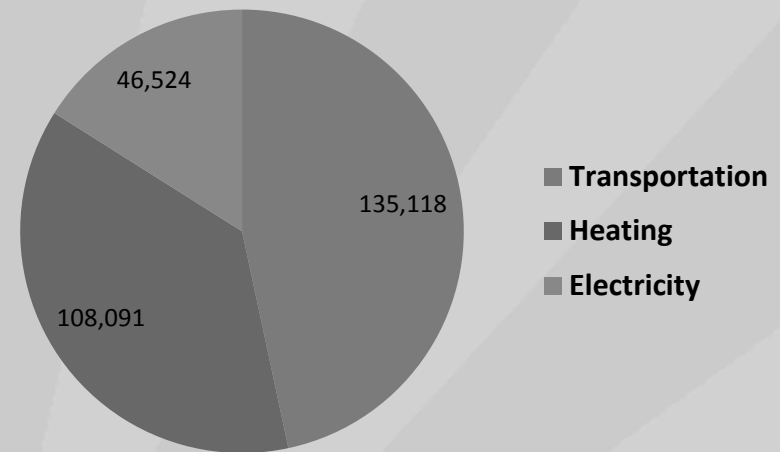


# The NJ Energy Landscape

**NJ Energy Usage (2005, Twhrs)  
(at the point of primary supply)**



**NJ Energy Related GHG  
Emissions (2005, Mpounds)**



**90% Of NJ's Energy Comes From Fossil Fuel**





# NJ Sustainable Energy Goals

**NJ's Strategic Goal: reduce CO2 to 20% of 2006 levels by 2050 (Global Warming Response Act, 2007)**

**Our Energy Economy Is Sustainable When It Is:**

- Affordable
- Clean
- Inexhaustible
- Safe and Available
- Secure and Reliable



# Sustainable Energy: 2050

## Pathways To Sustainability (Feasible & Impactful):

- Energy Efficiency
- Electric Mobility
- Renewable Supply
- Alternative Heating Solutions
- Enhanced Infrastructure

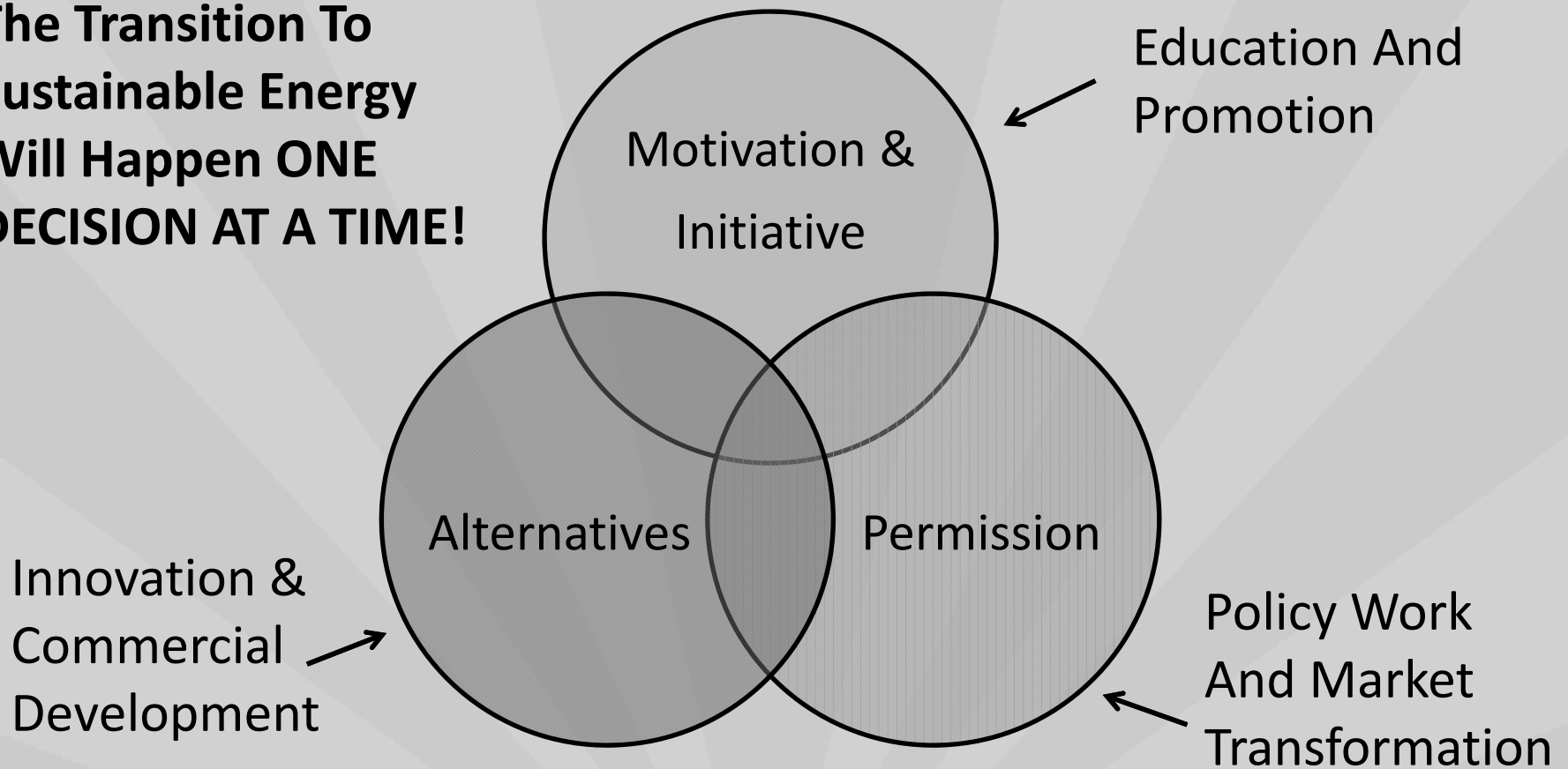
**Americans Can Be Counted Upon To Do The Right Thing, After They Have Exhausted Every Other Option.**

*- Winston Churchill*



# The Path Forward

**The Transition To Sustainable Energy Will Happen ONE DECISION AT A TIME!**



# Conclusion

## **We Are Faced With A Huge Transition, BUT:**

- Large transitions like this have happened before
- With each major transition, society advances
- Practical solutions are becoming available
- This IS doable, momentum is building!
- We can RE-FRAME the issue to compel change

**We Are Continually Faced With Great Opportunities  
Brilliantly Disguised As Unsolvable Problems.**

*- Benjamin Franklin*

