



NEXTENERGY

Economic Security through Energy Diversity





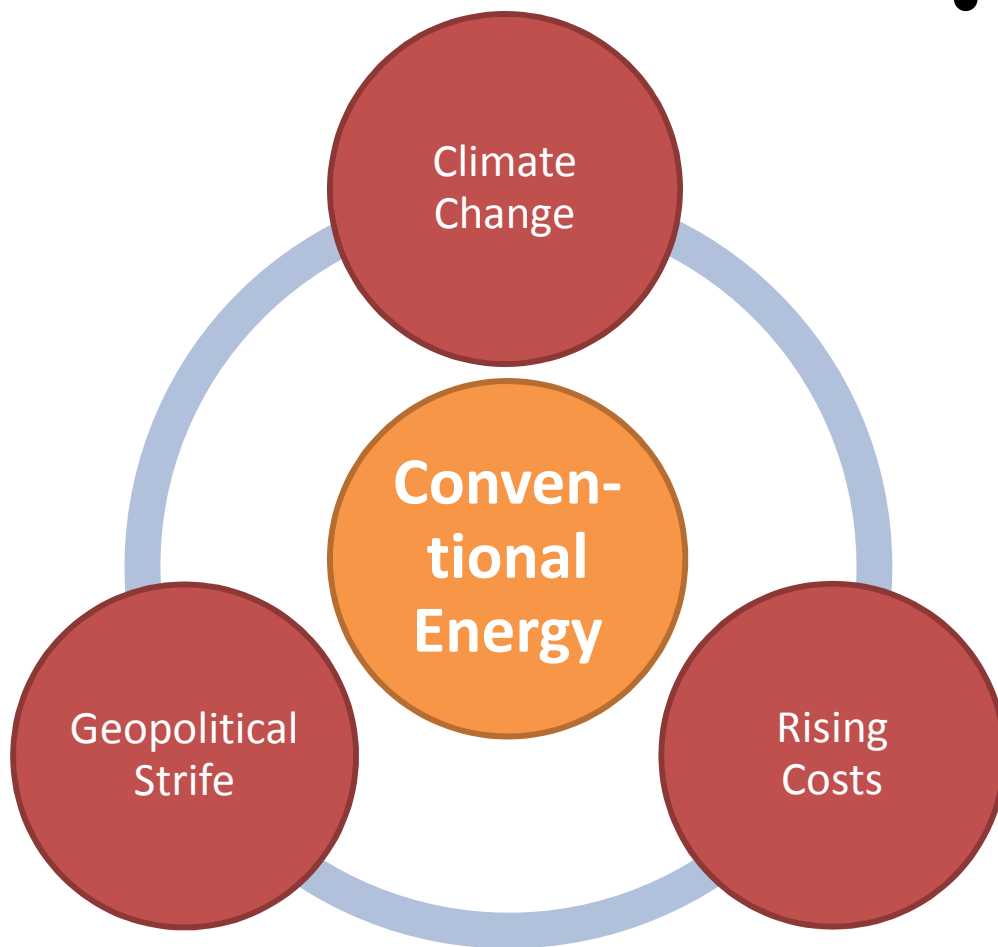
Strategies for the Low-Carbon Energy Transition

Chris Detjen, Program Development Manager

Clean3 Initiative, ESD Institute

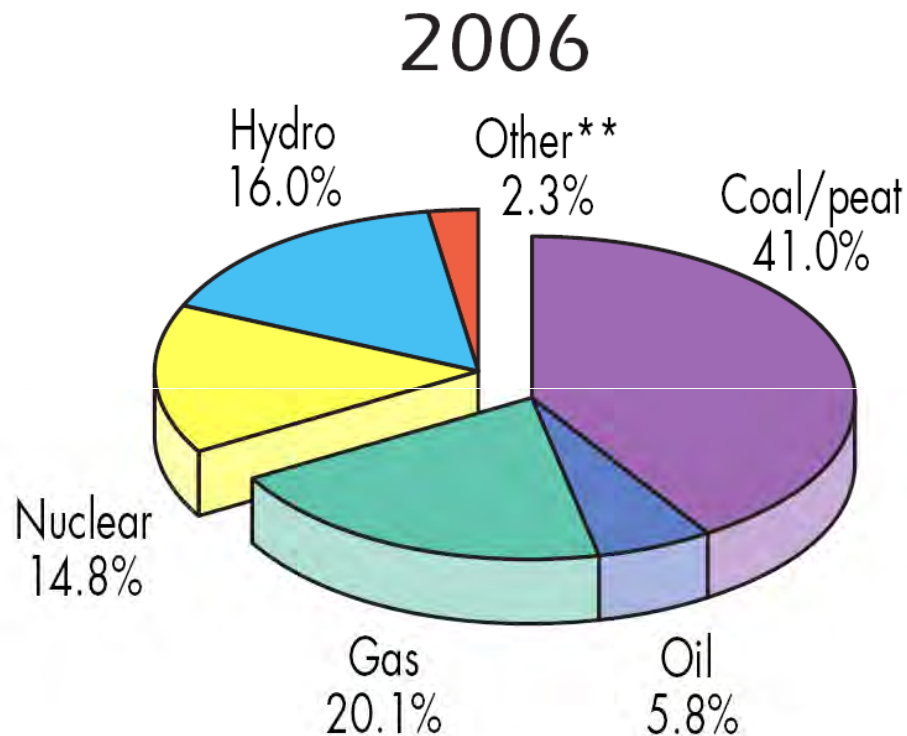
Southfield, MI, September 14, 2009

The Global Momentum of Clean Energy



- Economies everywhere are transitioning to low-carbon energy, due to:
 - Population-driven demand increases
 - Rising costs inevitable for conventional energy
 - Climate change
 - Geopolitical strife

IEA Renewables Projections



18 930 TWh

By 2015:

- Renewables will overtake natural gas as the world's second largest electricity source

IEA Renewables Projections

Between now and 2030:

- Wind, solar, geothermal, tide, and wave energy sectors will grow at an average annual rate of 7.2%
- Investment in non-hydro renewable energy sources will increase to \$1 trillion
- In OECD countries, growth in renewable power capacity will exceed growth in fossil-based and nuclear capacity combined

The low-carbon energy wagon is arriving now.

Will Michigan drive it, or miss it?

NextEnergy's Role in the Low-Carbon Energy Economy

We:

- Facilitate collaborative R&D opportunities to accelerate commercialization of energy technologies
 - Partners include: Federal labs (DOE, DoD, DOT, EPA), universities, industry (utilities, auto OEMs, suppliers, and start-ups), and the Michigan Economic Development Corporation
- Connect technology developers and start-ups to strategic partners (customers, investors, go-to-market partners)
- Lead diversification of Michigan manufacturers into the energy industry

NextEnergy Impact

- Diversifying Michigan Manufacturers and Companies into the Energy Industry
 - Leading efforts for Michigan companies within the wind industry
 - Over \$675M in revenue to Michigan wind business
 - Approximately \$80 M in capital investment within Michigan wind component manufacturing
 - Over 1,500 Michigan jobs created or retained
 - Supporting the MEDC in the development of additional AET industries

Three NextEnergy Strategies

1. Develop critical energy sectors by linking commercialization efforts to necessary resources
2. Build collaborative partnerships for sector growth
3. Identify and remove impediments to growth
 - Policy gaps
 - Industry shortcomings

1. Developing critical energy sectors by linking commercialization efforts to necessary resources

- Examples:

- NextWind

- National Biofuels Energy Laboratory



2. Building collaborative partnerships for sector growth

- Collaborative R&D
 - NextEnergy has developed and/or participated in over \$50 million in new alternative energy R&D programs.
 - Alternative fuels including biodiesel, ethanol, butanol, hydrogen, waste, and synthetic fuels
 - Alternative power generation including stationary and mobile microgrids, mobile utility systems, and renewable electricity and power
 - Alternative powertrains, including hybrid electric, hybrid hydraulic, plug-in hybrid electric, and fuel cells
- AET Network

3. Identifying and removing impediments to growth

- Surveying and research to identify barriers
- Policy gaps
 - Limited local alternative energy demand hindering sector growth and price decreases in Michigan
 - Strengthened RPS?
 - Feed-in tariff?
- Industry shortcomings
 - Shortage of technical and entrepreneurial expertise