Leveraging Federal Clean Energy Dollars for Economic Development

- Obama Administration’s economic development policy is focused on “innovation-driven job creation”
- Innovation driven economic policy stimulates the creation and expansion of existing firms, not attraction/relocation
- Federal grants policy encourages inter-agency coordination and regional inter-organizational cooperation
- Federal economic development programs are targeting green technology (e.g. SBA, EDA)
- Creative use of federal clean energy and conservation programs can stimulate demand for new products and support the firms that create those products

The New Politics of Energy Policy

- Energy independence, linked to national security, is a bi-partisan issue
- Administration policy directs agencies to achieve clean energy goals (e.g., DoD, GSA)
- The Obama Administration has adopted an “all of the above” energy policy
  - Clean coal
  - Off-shore drilling
  - Nuclear
  - Wind
  - Solar
  - Geothermal
  - Bio-energy (ethanol, algae)
  - Energy conservation
Drivers for a New Energy Policy

• International political pressure from under-developed nations and economic competition from China and European Union
• Recognition of need to be “Green” by major global corporations
• Although “Cap and Trade” is on the back-burner, US climate action partnership of Fortune 500 companies and environmental organizations demonstrated high level support.
• States, local governments, universities have endorsed green tech.
  – 676 signatures to American college and university presidents’ climate-commitment
  – Regional Greenhouse Gas Initiative (10 northeastern states) will conduct 10th auction of emission allowances on December 1st.
  – US Mayors Climate Protection Agreement (100)
  – Defeat of California Proposition 23

A Strategy for American Innovation: Driving Toward Sustainable Growth and Quality Jobs (9/09)

• National Economic Council and Office of Science & Technology
• Builds on $100 billion of Recovery Act Funds
• Supports need for “National Innovation Strategy”

Invest in Building Blocks of American Innovation

• Restore American leadership in fundamental research
• Educate the next generation onto 21st century knowledge and skill
• Build leading physical infrastructure
• Develop an advanced informational technology ecosystem
A Strategy for American Innovation: Driving Toward Sustainable Growth and Quality Jobs (9/09)

Promote Competitive markets that spur productive entrepreneurship
- Promote American experts
- Support open capital markets
- Encourage high-growth and innovative based entrepreneurship
- Improve public sector innovation and support community innovation

Catalyze Breakthroughs on National Priorities
- Unleash a clean energy revolution
- Support advanced vehicle technologies
- Drive innovations with health care technology
- Harness science and technology to address the “grand challenges” of the 21st century

“Regional Innovation Clusters – New Paradigm”
- “Regional innovation clusters” have been adopted by the Obama Administration as a key organizing principle of federal economic policy
- Concept brings together 3 economic development concepts
  - Regional approaches to bridge the disjuncture between political jurisdictions and economic regions
  - Science and technology as drivers of innovation
  - Industry clusters offer competitive advantage
- Administration has implemented this approach in 2010
  - White House led inter-agency working groups
  - Establishment of Office of Innovation and Entrepreneurship in Commerce Department and appointment of high level Advisory Council
  - Funding notices for programs by DoE, SBA, EDA, NSF, USDA
  - Authorization language in America “Competes” legislation
  - Funding proposed in FY 2011 budget
- “Cluster approach” encourages coordination of federal agency solicitations to optimize use of constrained federal funds.
Federal Regional Innovation Cluster Programs - 2010

- DoE – Energy Efficient Building Systems – Regional Innovation Clusters
- SBA – Innovative Economies Initiative
- EDA – I6 Challenge
- USDA – Rural Business Opportunity Grants
- NIST – Manufacturing Extension Partnerships
- NSF – Partnerships for Innovation
- EDA – Space Coast Regional Innovation Cluster

SBA – Innovative Economies Initiative

- Goal: Support development and growth of small business
  - create jobs, compete on a national and global scale, attract further business investment
  - $600,000/yr Regional Innovation Clusters, Advanced Defense Technologies (173 Proposals)
SBA – Innovative Economies Initiative, cont.

– Awards announced, September 20, 2010
  • Agriculture Innovative Cluster (Monterey, CA)
  • Carolinas’ Nuclear Cluster (NC, SC)
  • Connecticut Hydrogen Fuel Cell Coalition (New England)
  • Enterprise for Innovative Geospatial Solutions (MS, LA)
  • Illinois Smart Grid Regional Innovation Cluster (IL)
  • Northeast Ohio Flexible Electronics (OH)
  • Upper Michigan Green Aviation Coalition (MI)
  • Defense Alliance of Minnesota (MN, ND, SD, WI)
  • VonBraun Center for Science and Innovation (Huntsville, AL)

EDA – Space Coast Regional Innovation Cluster

• Goal: “Fund promising job creation and economic development initiative aligned with regional cluster and competitiveness analysis to sustain the coordinated economic development and reconstruction of the Space Coast.”
• $35 Million
• Conducted with NASA, SBA, DoL, Presidential Task Force on Space Industry Workforce and Economic Development
• Focus Areas
  – Aviation and Aerospace
  – Clean Tech
  – Homeland Security/ Defense
  – Information Technology
  – Life Science
Energy Efficient Building Systems - Regional Innovation Cluster Initiative (E-RIC)

- Joint Funding Opportunity Announcement (five year program)
  - Department of Energy $22 million/yr (with 4 additional yrs at $25)
  - Economic Development Administration $5 million
  - NIST/Manufacturing Extension Partnership $500k (with 2 additional years)
  - SBA/Small Business Development Center $300k (with 3 additional years)
  - Support from DoL, DEd, NSF

- One proposal, separate applications, individual agency eligibility requirements, national review
- Application Deadline: May 6, 2010
- Page limit: 350 pages

Energy Efficient Building Systems - Regional Innovation Cluster Initiative (E-RIC), cont.

- Explicit set of application criteria
  - Collaborative regional innovation
  - Public/private partnerships
  - National strategic priorities
  - Global competitiveness
  - Environmentally sustainable development
  - Economic distressed and underserved communities

- 11 Proposals received
DoE Award – *Greater Philadelphia Innovation Cluster for Energy Efficient Buildings*

- Announced August 2010
- $130 million 5-year award
- National R&D Consortium led by Penn State
  - Largest federal award ever won by PSU
- Located at Philadelphia Navy Yard
  - “Clean Energy” campus
  - Navy Yard was “closed” in 1990’s
- R&D component linked to proposals to the EDA, SBA, & NIST-MEP
- DoE science mission tied to economic development goals

Creating Market Demand and Supplying New Products to Satisfy that Demand

- Energy usage is driven by the built environment – commercial/residential buildings and transportation infrastructure
- Public policy – especially at the local and state levels – shapes the built environment
  - Building codes, school construction, zoning
  - State highway departments, local transit authorities
  - Tax policy
- Unlike the bio tech/life science sector, in which only a few communities can achieve critical mass of universities, venture capital, and experienced entrepreneurs, the energy sector is more inclusive
Programs that Create Demand and Supply Programs

- Illustrative Examples:
  - Include university engineering programs in local building efficiency programs to tease out new product development
  - Utilize DoL training programs to provide labor for neighborhood based weatherization programs
  - Energy R&D programs (SBIR, ARPA-e) linked to state and regional technology commercialization programs
  - Create business incubation programs with energy conservation block grants and qualified energy conservation bonds
- Requires regional organizational cooperation and federal agency coordination.
- Requires advocacy by local governments at White House level (e.g. waivers)
- Recovery funding still “accessible” for program modification (e.g. unobligated local funds)

Transportation

- Transportation Electrification (DOE)
  - $400 million to states, local governments and metropolitan transportation authorities for qualified electric transportation projects that reduce emissions, including: truck stop electrification, airport ground support equipment and cargo-handling equipment.
- Alternative Fueled Vehicles Pilot Grant Program (DOE)
  - $300 million in grants through the Clean Cities program to state and local governments, metropolitan transportation authorities and others for encouraging the use of plug-in electric-drive vehicles or other emerging electric vehicle technologies.
- Advanced Batteries (DOE)
  - $2 billion in grants for the manufacturing of advanced batteries and components, including advanced lithium-ion batteries, hybrid electrical systems, component manufacturers and software designers.
- Diesel Emissions Reduction (EPA)
  - $300 million for diesel emission reductions grants to states.
Electricity Generation

• Smart Grid
  – $4.5 billion to modernize the electric grid including demand-response equipment, security and reliability enhancements, energy storage research, development, demonstration and deployment, and to facilitate recovery from disruptions from the energy supply.
  – Of this, $100 million is for worker training and $80 million is to conduct a resource assessment and analysis of future demand transmission requirements. $10 million is for Smart Grid Interoperability Framework coordinated by NIST.

• Clean Coal
  – $800 million in competitive grants for the Clean Coal Power Initiative Round 3.

• Fossil Energy Research and Development
  – $1 billion for fossil energy, coal technologies, carbon capture, coal mining technologies, oil and gas, oil and gas reservoirs, complex weld technology testing, and methane hydrate R&D programs

• Advanced Research Projects Agency
  – $400 million to support high-risk, high-payoff research to accelerate the innovation cycle for both traditional and alternative energy sources and energy efficiency. This funding is for research and construction of laboratory facilities.

Renewables and Biofuels

• Energy Efficiency and Renewable Energy Program (DOE)
  – $2.5 billion for applied research, development, demonstration and deployment activities to include: $800 million for projects related to biomass and $400 million for geothermal.
  – The balance of the money is for solar, wind, hydrogen, water power, and energy efficiency demonstrations for industrial and commercial practices.

• Innovative Technology Loan Guarantee Program (DOE)
  – $6 billion to pay for the costs of guarantees made under this section for renewable technologies and transmission technologies. This includes renewable energy systems such as incremental hydropower; electric power transmission systems; and leading-edge biofuels projects at the pilot or demonstration scale. This should support $60 billion of loans.

• Energy Efficiency and Conservation Block Grants (DOE)
  – $3.2 billion of which $2.8 billion is to states through the existing formula in EISA Title V subtitle V. The remaining $400 million shall be rewarded on a competitive basis as determined by the Secretary. Types of projects include energy audits, implementing building codes, and government building on-site projects that generate electricity from renewable sources.

• Wildland Fire Management (USDA)
  – $50 million from for wood-to-energy grants to promote increased utilization of biomass. There is no cost-sharing requirement.
Financing Incentives

• Renewable Energy Production Tax Credit
  – Provides a per-kilowatt-hour tax credit for electricity production from qualified renewable sources. Provides an extension through 2012 for wind facilities and through 2013 for solar, open- and closed-loop biomass, geothermal, municipal solid waste and qualified hydropower.
  – The bill also allows facilities to claim the Investment Tax Credit in lieu of the Production Tax Credit. The ITC is available in the year in which a facility is placed in service as opposed to the PTC, which is paid over a 10-year period.

• Repeal Subsidized Energy Financing Limitation on the Investment Tax Credit
  – Under current law, the ITC must be reduced if the property qualifying for the investment tax credit is also financed with industrial development bonds or through any other government-subsidized financing program. The bill would repeal the subsidized energy financing limitation on the ITC in order to allow businesses and individuals to qualify for the full amount of the investment tax credit even if such property is financed with industrial development bonds or through any other subsidized energy financing.

• Treasury Department Energy Grants
  – In lieu of tax credits, taxpayers can receive a grant from the Treasury Department in an amount equal to 30% of the cost of the renewable energy facility.

Financing Incentives

• Clean Renewable Energy Bonds (CREBs)
  – Authorizes an additional $1.6 billion of new CREBs to finance facilities that generate electricity from qualifying resources. CREBs may be issued by electric cooperatives, government entities (states, cities, counties, territories, Indian tribal governments, or any political subdivision thereof), and certain lenders. CREBs are issued (theoretically) with a 0% interest rate. The borrower pays back only the principal of the bond, and the bondholder receives federal tax credits in lieu of the traditional bond interest.

• Qualified Energy Conservation Bonds
  – Authorizes an additional $2.4 billion of new, qualified energy conservation bonds to finance State, municipal and tribal government programs and initiatives designed to reduce greenhouse gas emissions. Qualified energy conservation bonds may be issued to make loans and grants for capital expenditures to implement green community programs. They may also be used for programs in which utilities provide ratepayers with energy-efficient property and recoup the costs of that property over an extended period of time.

• Advanced Energy Manufacturing Credits
  – The bill provides $2 billion worth of energy-related manufacturing investment credits at a 30% rate. These credits apply to projects creating or retooling manufacturing facilities to make components used to generate renewable energy, storage systems for use in electric or hybrid-electric cars, power grid components supporting additional renewable sources, and equipment for carbon capture and storage.
Department of Energy Programs (illustrative)

Energy Efficiency and Conservation Block Grant - $3.2 billion
- Idaho - $9.5 million
  - Subgrants to city and county governments for energy audits, adopt international energy conservation code
- Nevada – $9.5 million
  - 60% to local governments for community efficiency projects
- New Jersey - $14.4 million
  - 70% to local governments

State Energy Program - $3.1 billion
- Alabama - $22.2 million (40%)
  - Promote energy efficiency of businesses, schools and correctional facilities and develop renewable energy resource
- Illinois - $40.5 million (40%)
  - Improve energy efficiency in new and existing buildings
- North Dakota - $9.9 million (40%)
  - Grants to local governments and non-profits

Solar Energy Technologies - $78 million
- Solar America Cities Special Projects
  - 16 cities, $10 million
  - Solar Curriculum Development (Austin)
  - Solar Evacuation Route (Boston)
  - Solar Business Center (Madison)
- High Penetration Solar Deployment Projects
  - 7 projects, $37.5 million
  - Arizona Public Sewer
  - Florida State University
  - Sacramento Municipality Utility District
- Solar Installer Instruction Training Network
  - 9 winners, $27 million
  - North Carolina State University
  - Midwest Renewable Energy Association
  - Houston Community College
- National Laboratories
  - 6 labs, 17 million
  - Savannah River National Lab
  - Pacific Northwest National Lab
  - Oak Ridge National Lab