

Women in Government's  
16th Annual State Directors' Conference:  
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# **States & Clean Energy Progress: Creative Approaches to Advance Renewable Energy Sources**



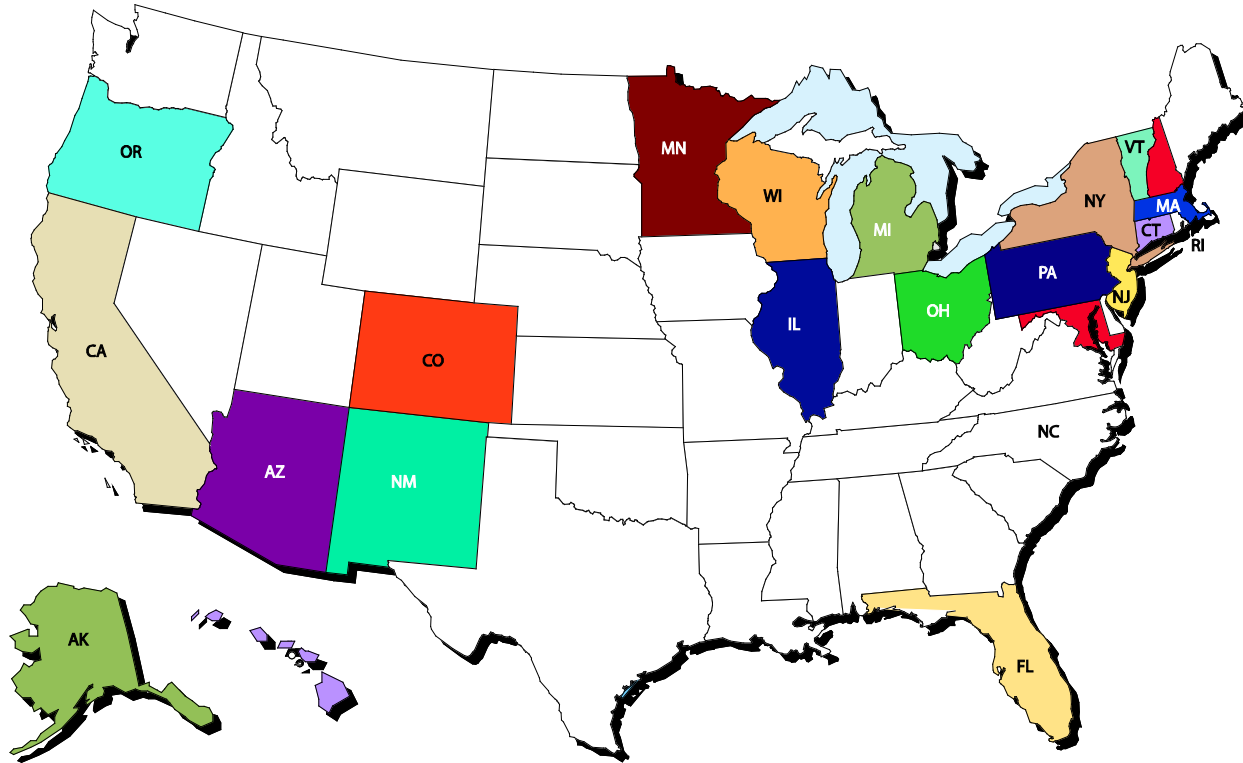
Lewis Milford  
President  
Clean Energy Group

# States Lead Renewable Energy Revolution

## State-Led Revolution in Clean Energy in U.S. – 1998-2009

- State are right locus to accelerate development of renewable energy and the green economy
- Clean energy is development – programs can emphasize local energy resources and be tailored to needs of state economy
- Rapid bottom-up learning – allows for many, diverse experimental programs, demonstration projects
- New financing models – production incentives, green power contracts, consumer grants, rebates and loans

# Clean Energy States Alliance – Working with State Clean Energy Programs



AK, AZ, CA, CO, CT, HI, IL, FL, MA, MD, MI, MN, NC, NH, NJ, NM, NY, OH, OR, PA, VT, WI & DC

# CESA: State Clean Energy Program Capacity Building

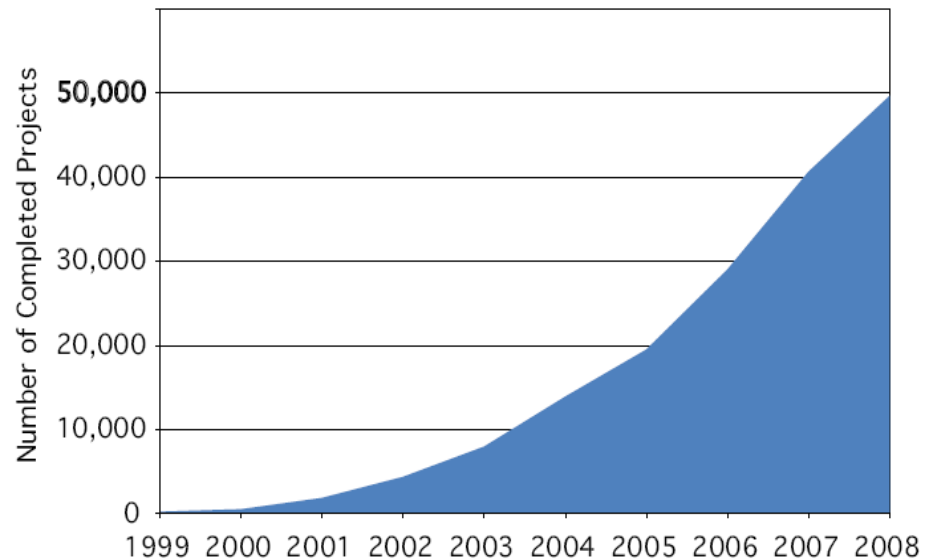
CESA is a multi-state coalition of clean energy programs that develops & promotes clean energy technologies through:

- Information Exchange & Analysis
- Partnership Development
- Joint Projects

# Results that Matter: CESA RE Database

- States with dedicated funds to finance clean energy projects
  - Invested \$1.5 billion in last 10 years
  - Investment leverage: more than \$2.5 billion in other investment
  - Over 50,000 RE projects
  - 1.7 GW clean energy capacity installed
  - Primary driver for grid-connected PV; in 2007, more than 75% of installed systems were installed in states with clean energy funds
  - \$6 billion state funding for next 10 years plus new federal stimulus funding (\$3 billion for State Energy Programs)

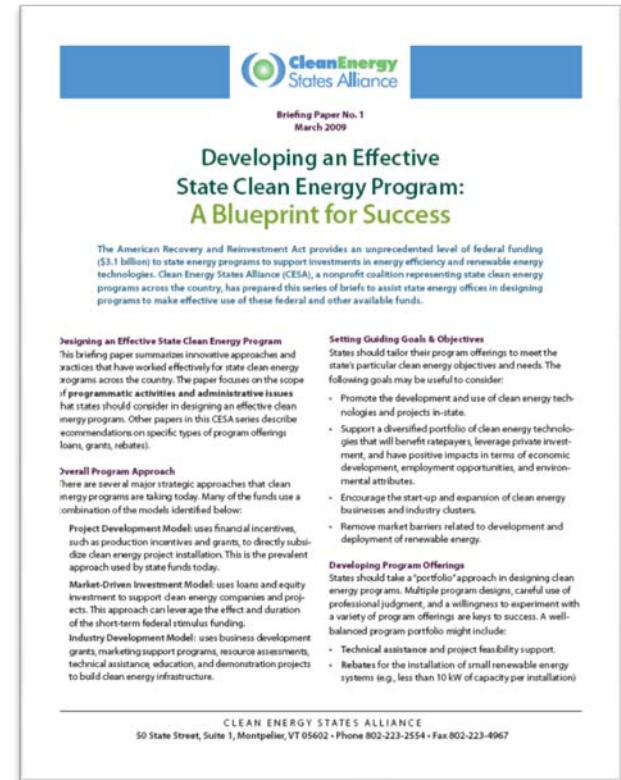
FIGURE 1B Cumulative Number of State Clean Energy Fund Projects



Source: CESA

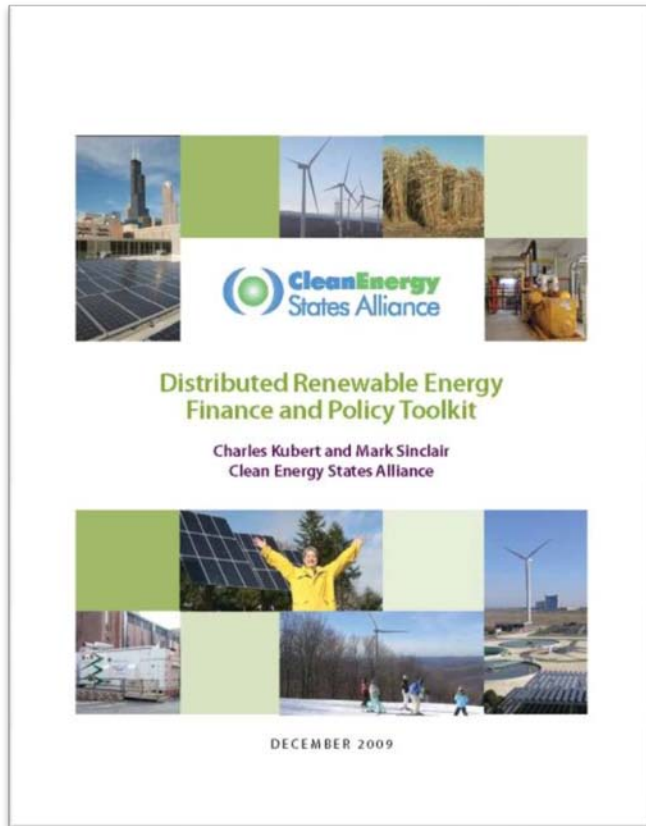
# CESA State Technical Assistance Program

- ARRA Clean Energy Briefing Papers
  1. Program Blueprint for Success
  2. Effective Rebate Program Design
  3. Effective Loan Program Design
  4. Effective Competitive Grant Program Design
- CESA ARRA Webinars and Technical Assistance



<http://www.cleanenergystates.org/presentations.html>

# Clean Energy Finance and Policy Toolkit



- Describes financing options available to public offices and agencies for utilizing public funds for clean energy projects.
- Analyzes financing tools available to states and municipalities – from rebates and grants to loan guarantees to feed-in tariffs.
- Evaluates these tools based on a number of criteria, from market transformation to sustainability and leveraging

[http://www.cleanenergystates.org/Publications/cesa-financial\\_Toolkit\\_Dec2009.pdf](http://www.cleanenergystates.org/Publications/cesa-financial_Toolkit_Dec2009.pdf)

# Comprehensive Support for Clean Energy Technologies

- Solar
- Wind
- Fuel Cells
- Biomass
- Distributed Generation
- Energy Efficiency
- Green Buildings
- Hydropower
- Ocean Energy



# Why States Support Clean Energy



**Market Transformation**



**Environmental Benefits**



**In-State Economic Benefits**



**Reduced Consumer Electricity Costs**



**Supply Diversification**



**Grid Security**

# State Clean Energy Funds

- What:
  - Fund collected typically through surcharge on electricity rates
  - Used to support public purposes such as energy efficiency and renewable energy
  - Increasingly popular for states
- Why:
  - RE & EE advance public interest
  - Electricity markets often do not place value on RE/EE
  - Serious market barriers
  - Utilities may lack incentives to promote RE/EE

# Advantages of Funds

- Multiple sources of funding (federal stimulus dollars, surcharges on electric rates, pollution tax)
- Maximum flexibility in use of funds to target unique opportunities
- Cost can be fixed and known in advance
- BUT does ***not*** eliminate need for other complementary energy policies

# New Importance of State Clean Energy Funding

- In these difficult financial times, there is a critical need for predictable access to capital for clean energy and energy efficiency projects.
- Institutional lenders are no longer lending, or when they do lend, it is on terms that incorporate high risk premiums.
- Projects that were feasible and ready to go six months ago can no longer obtain financing on commercially reasonable terms, if at all.
- Many entities have no ability to take advantage of grants, rebates or tax credits that may be available for clean energy projects since they are unable to finance the balance of the project costs.

# Setting the Level of the Fund

- A political decision
  - How well is private market functioning
  - Potential for public benefits
  - Current trends in electricity
  - Program designs proposed
- RE Funds typically set at up to 0.75% of retail electricity sales
- Compare to typical EE Funds: up to 2.5% of sales revenue
- CT: 1 mill per kWh; about 90 cents per month on customer's bill



# Setting Duration of the Fund

- RE markets only transformed with significant efforts
- Funds generally established with lengthy duration
- No defined end-date or at least 10 years
- Use one-time federal ARRA funding to create sustainable, long-term programs
  - Revolving loans, investments
- Creating robust state programs will attract future federal dollars from climate programs, national RPS, etc.

# State Fund Strategic Models



- ④ **Project Development Model:**
  - Incentives & grants to directly subsidize project installation (California, New Jersey)
- ④ **Investment Model:**
  - Loans & equity investment in companies & projects (Connecticut, Pennsylvania)
- ④ **Industry Development Model:**
  - Business development grants, marketing support, technical assistance & education to build industry infrastructure (Wisconsin, New York)
- ④ **Research & Development Model:**
  - California & New York, in part; Minnesota
- ④ **Combination of approaches** (MA, VT)

# Program Types



# Disbursement Options

- Competitive solicitations
  - Focus fund activities
  - Encourage competition
  - Open, less politically sensitive selection process
  - Reduce administrative burden
- First-come
  - Useful for large number of smaller awards (solar PV program)
- Bilateral Negotiation
  - Negotiate as proposals come in

# Effective Administration

- Fundamentals:
  - Program design guided by clear public policy goals
  - Comprehensive knowledge of RE markets
  - Minimize transaction costs
  - Able to adapt quickly and flexibly to opportunities
  - Consensus of key stakeholders on goals, structure, program design
- Options:
  - Government administration
  - Independent, non-governmental organization

# New Trends in State Support: Enterprise Model

- **Traditional public role:** Establish public policies that use grant resources / tax incentives and regulatory tools to encourage desired development and punish undesired development.
- **Enterprise approach:** Allocate capital directly to companies and projects through loans, equity investments & performance-based grants to address barriers to market development:
  - Uncertainty of market demand
  - Absence of liquidity
  - Existence of certain costs that cannot be internalized by developers & businesses
- Enterprise model is more than providing financial assistance; also about being an entrepreneurial organization that is flexible and responsive to changing market conditions.

# New Trends: Use of Smart Subsidy

- Public subsidy is to be used only to mitigate risks that market participants are unable to assume, and should not replace conventional debt or equity risk/reward.
- Proper due diligence is as important in underwriting grant investments as it is for underwriting project financing. Treat grants as the equity they are.
- The level and structure of subsidy should change as market conditions change. Subsidy should become increasingly efficient, moving along a continuum:

**Grants → Subordinated debt with concessionary pricing → Conventional debt financing.**

# Benefits of Enterprise Approach

- Public money is used to leverage private sector resources.
- Funds are deployed and recovered with a return, to be used again.
- Grant and public subsidy are only used to incur costs that the market cannot bear (e.g., early stage predevelopment expenses and certain capital costs).
- Public and private resources are managed by an institution that has both a public sector mission and a private sector (market) discipline.

# Innovative Finance Tools: PA TRF Sustainable Development Fund

- Construction/renovation loans for energy-related project costs
- Permanent/term loans - take-out financing for energy-related construction loans, equipment financing
- Lease financing for energy conservation and clean energy equipment lease financing (energy-efficient equipment, green building and energy conservation measures)
- Predevelopment grants for incentives to encourage high performance energy measures, offset portion of energy audit/design fees

# PA Wind Project Financing Innovation

- Competitive RFP process involving same due diligence used to approve project financing:
  - project team experience and capacity
  - detailed equipment & project cost information
  - project pro formas
  - developer's financial capacity
  - project site control
  - site wind resource studies
  - permits and regulatory approvals
  - environmental impact/local community response
  - grid interconnection approvals
  - PPA negotiations
- Use of project milestones secured by performance deposits

# Comprehensive State Approach to RE: Pennsylvania

- Leadership at the top
- Created a state agency environment favorable to RE
- Integrated approach to reach clean energy & economic development goals
- Policy & regulatory environment and financial programs complement each other
- Invests in state-based companies developing RE technology & products: Gamesa
- Support for “upstream” and “downstream” businesses
- Loan guarantees to financial institutions
- Modest beginning to more progressive initiatives

# PA Keystone Green Investment Strategy

- **State Treasury Department strategy to make prudent investments in clean technology to:**
  - Generate attractive returns
  - Promote economic growth in clean tech industries
  - Ensure greater energy independence
- **Establish Keystone Green Fund**
  - \$40 million private capital investment fund from Treasury assets & state clean energy fund to finance projects & companies for RE and EE.
- **Establish Environmental Equity Investment Screen**
  - Treasurer to reallocate \$50 million of its assets to managers with a track record of investment returns in public clean technology sector.



# Leading State Solar Program: California Solar Initiative



- 10-year, \$3 billion program
- Goal: Increase installed capacity by 3000 MW in 10 years (over 2000% increase)
- Declining incentive levels each year as bargain with industry
- Focus on new home market and affordable housing
- Focus on performance
- Focus on leveraging more energy efficiency

# Massachusetts Program: Focus on Economic Development

## ***Sustainable Energy Economic Development Program (SEED)***

- Provides flexible capital to early-stage companies for new RE related product development
- Company must not have received private institutional equity financing
- Up to \$500,000 per company per 12 months
- Requires 1:1 match with SEED award from external sources
- Funding mechanism is a convertible loan
- Prime + 2%, 5 year balloon
- Company must be based in MA, completed basic research but not commercialized the product
- Since 2004, \$2.5 million invested in eight RE companies
- E.g., support for engineered seed designed for low-cost ethanol production and photo-biological production of hydrogen; support for PV to hydrogen catalyst

# Effective State Loan Program

- **Key Elements**
  1. Low Interest Rates
  2. Longer Amortization
  3. Low hassle and administrative fees
  4. Unsecured Loan
- **Types of Loans**
  1. Direct Loans
  2. Matching Loans
  3. Interest Rate Buydown
- **Administrative Considerations**
  1. Loan Administration Plan
  2. Model Program cash flow



# Oregon Energy Loan Program

- Oregon Small-Scale Energy Loan Program (SELP): promote energy conservation, sustainability and renewable energy resource development in Oregon. The program offers long-term, low-interest loans for projects to:
  1. conserve energy
  2. produce renewable energy
  3. use recycled materials to create new products
  4. promote use of alternate fuels
- Staff: Administrator, Loan Officers, CFO/Bond Specialist, Accounting, Technical Energy Analyst
- Project financial review, documentation and loan servicing
- Technical support for project review and selecting energy measures, developing demonstration projects and trouble shooting existing projects
- Citizen Advisory committee reviews larger loans

# Oregon Energy Loan Program

- 1980 Article XI-J. Constitutional amendment. Allows general obligation bond sales to fund projects
- Program issues State general obligation bonds (taxable, tax exempt, private activity)
- Loans from \$20,000 to \$20 million
- Terms from 5 to 20+ years
- Construction/ Take Out Package
- Loans are secured
- No cost to taxpayers—borrower fees/interest pay program costs

# State Clean Energy Program Recommendations

- **No Single Program is Optimal:** Use “portfolio” approach with multiple program designs and funding tools
- **Program Sustainability:** Use one-time ARRA monies to create long-term state programs
- **Smart Program Strategy:** Use a market-driven investment model
- **Goals Should Drive Program Design:** Link program design & fund allocation to strategic plan goals
- **Discretion & Flexibility Can Enhance Success:** Capitalize on rapid learning about how best to support clean energy markets
- **Joint Activities:** Establish multi-state investment activities to reach scale

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