

# **U.S. Dept. of Energy's Interests in Hawaii Energy Initiatives**

**HTDC/HREDV  
TechEnterprise 2009  
06/24-25/2009**

**Andrew R Trenka  
VIEX2-CONSULTING**

# ACKNOWLEDGEMENTS

## James Spaeth

- Director of Commercialization and Project Management
  - Golden Field Office
- Office of Energy Efficiency and Renewable Energy
  - U. S. Department of Energy
  - Jim.Spaeth@go.doe.gov

## Dr. L. (Marty) Murphy

Manager, Enterprise Development Program  
303-275-3050

[lawrence\\_murphy@nrel.gov](mailto:lawrence_murphy@nrel.gov)

## Maurice Kaya

Technical Director – HREVD/PICHTR

# **U.S. Dept. of Energy's Interests in Hawaii Energy Initiatives**

**BEST SUMMARIZED BY THE  
MOU BETWEEN THE STATE OF  
HAWAII AND THE U.S. DEPT OF  
ENERGY**

**MEMORANDUM OF UNDERSTANDING  
BETWEEN  
THE STATE OF HAWAII  
AND  
THE U.S. DEPARTMENT OF ENERGY**

**Purpose**

The purpose of this Memorandum of Understanding (MOU) is to establish a long-term partnership between the State of Hawaii and the U.S. Department of Energy (DOE) that will result in a fundamental and sustained transformation in the way in which renewable energy efficiency resources are planned and used in the State. Successful development and execution of the objectives contemplated in this partnership will provide a replicable global model for achieving similar results.

**The MOU also reflects the broader Policy issues associated with the recognition of:**

**Hawaii as an outpost of U.S. interests in the Pacific**

**Hawaii's role in the overall military security of the  
U.S.A**

**Hawaii's opportunity to be a Global Model for the  
export of technologies for environmentally  
sustainable energy needs**

# **Direct Outgrowths from the MOU**

- **Creation of the Hawaii Clean Energy Initiative (HCEI)**
- **Support to the State of Hawaii's effort's to develop a Hawaii Bioenergy Master Plan (HBEMP)**
- **Creation of a series of HCEI Working Groups to aid in the development of the implementation of HCEI and HBEMP objectives.**
- **Provide support via the National Labs (NREL, SANDIA, ORNL, and others) technical and on site expertise.**
- **Introduction to DOE and Industry supported Technology Driven Enterprise & Economic Development (TDEED) Program**

## **Several Legislative Actions and Programs of Potential Interest to this Group**

- **Implementing the American Recovery and Reinvestment Act OF 2009**
- **Technology Driven Enterprise & Economic Development (TDEED) Program**

# **Implementing the American Recovery and Reinvestment Act OF 2009**

**as it can support and strengthen Hawaii's  
efforts**

**Inputs by  
James Spaeth  
Director of Commercialization and Project management**

# The Department of Energy's role is critical

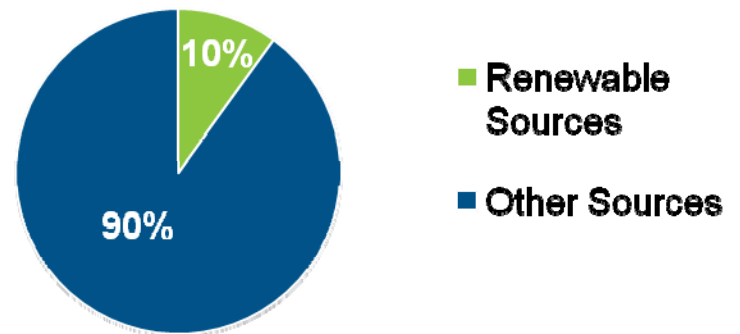
- Transforms the way we use energy
- Helps reduce our carbon emissions
- Creates entire new industries based on our nation's resources, ingenuity, and workers
- Turns economic crisis into an opportunity to build a clean, secure, and prosperous energy future



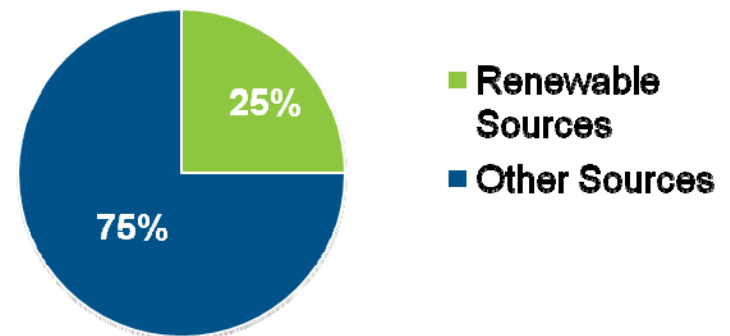
# The Administration's Energy Goals

- Ensure 10 percent of our electricity comes from renewable sources by 2012, and 25 percent by 2025
- Achieve an 80 percent reduction in greenhouse gases by 2050

**Electricity Sources In 2012**



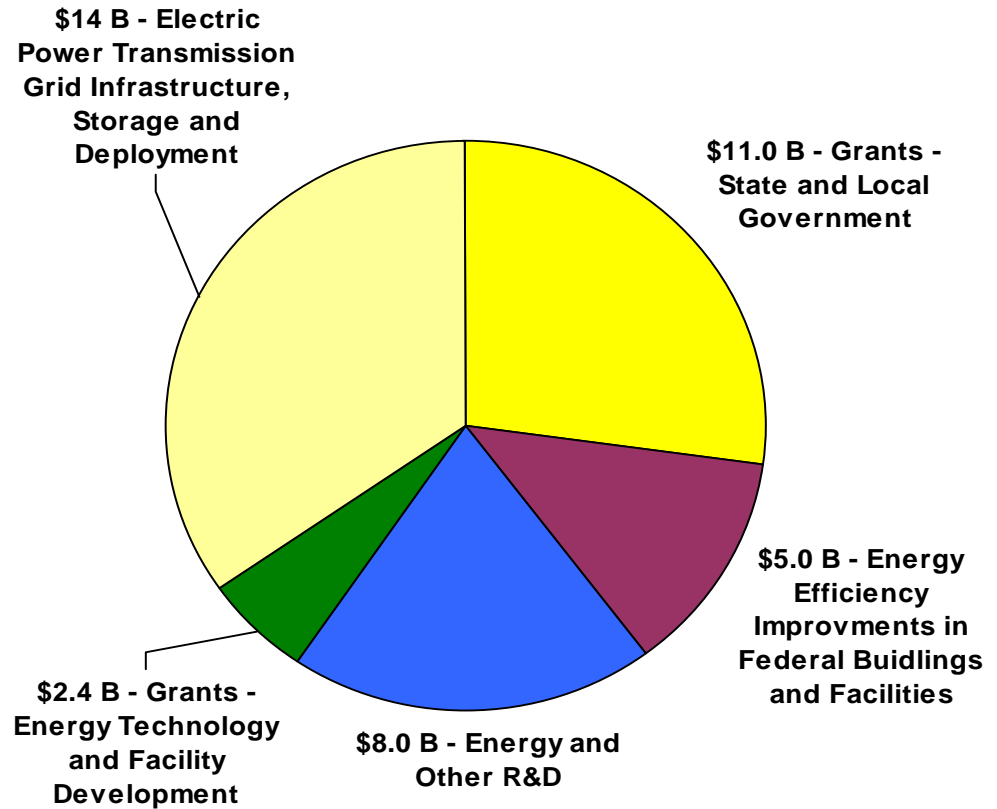
**Electricity Sources In 2025**



# American Recovery and Reinvestment Act of 2009

## Breakdown of Clean Energy Funding

- Over \$40 billion of the \$787 billion recovery plan is allocated for clean energy
- Investment focus:
  - \$16.8 billion for EERE
  - \$14.0 billion for electric power transmission grid infrastructure, storage and deployment
    - incl. \$6 billion for loan guarantees
  - \$9.6 billion for other energy programs
  - Expanding workforce training
  - Promoting Mass Transit Systems
- New and modified clean energy tax incentives are estimated at \$20+ billion



Funds are supplemental to annual appropriations

# Energy Efficiency and Renewable Energy (EERE) Recovery Act funding

EERE RD&D		\$2.5B
Biomass	\$800M	
Geothermal	\$400M	
Information & Communications Tech.	\$50M	
EERE Discretionary Funding	\$1.25B	
Energy Efficiency Conservation Block Grants		\$3.2B
State Energy Program		\$3.1B
Weatherization Assistance		\$5.0B
Energy Efficient Appliance and ENERGY STAR Rebates		\$300M
Alternative Fuel Vehicle Grant Program		\$300M
Advanced Battery Manufacturing Grants		\$2.0B
Transportation Electrification Grants		\$400M
<b>EERE Total:</b>		<b>\$16.8B</b>

# Fiscal Year 2009 Budget - \$2,179 Million

# **Competitive funding available from DOE**

- **Contracts, grants, cooperative agreements**
  - To companies, universities, and other entities for research and development, and industrial energy efficiency projects
- **Loan guarantees**
  - To promote the rapid deployment of renewable energy systems that generate electricity or thermal energy, electric power transmission systems, and certain leading-edge biofuel projects
- **Energy grant programs**
  - Administered by state and local governments—Weatherization Assistance Program, Energy Efficiency Community Block Grants Program, and State Energy Program

# How to apply for a grant or loan guarantee from DOE

- Track funding opportunity announcements through:
  - All types—[energy.gov/recovery/funding.htm](http://energy.gov/recovery/funding.htm)
  - Grants—[grants.gov](http://grants.gov)
  - Contracts—[fbo.gov](http://fbo.gov)
  - Loan guarantees—[energy.gov/recovery/funding.htm](http://energy.gov/recovery/funding.htm).
- For first-time applicants, register before submitting applications
  - Register early to be ready when opportunities are announced (process can take 3 days to 2 weeks)
  - Read registration instructions carefully

# Applying for grants administered by states or local governments

- Apply directly to state energy office or local government entity
- Go to [energy.gov/recovery/](http://energy.gov/recovery/) to find link to your state energy office

# EERE Points of Contact

- General Information - EERE Information Center at <http://www1.eere.energy.gov/informationcenter/> or 1-877-EERE-INF  
– (1-877-337-3463)
- Biomass and Biorefinery Systems – Shab Fardanesh, 202-586-7011, [shabnam.fardanesh@ee.doe.gov](mailto:shabnam.fardanesh@ee.doe.gov)
- Building Technologies – Bryan Berringer, 202-586-0371, [bryan.berringer@ee.doe.gov](mailto:bryan.berringer@ee.doe.gov)
- Facilities and Infrastructure – Greg Collette, #303-275-4734, [greg.collette@go.doe.gov](mailto:greg.collette@go.doe.gov)
- Federal Energy Management Program – Brad Gustafson, 202-586-5865, [brad.gustafson@ee.doe.gov](mailto:brad.gustafson@ee.doe.gov)
- Geothermal Technology – Lauren Boyd, 202-287-1854, [lauren.boyd@ee.doe.gov](mailto:lauren.boyd@ee.doe.gov)
- Hydrogen Technology – Sara Dillich, 202-586-7925, [sara.dillich@ee.doe.gov](mailto:sara.dillich@ee.doe.gov)

# EERE Points of Contact - continued

- Hydropower – Alejandro Moreno, 202-586-8171, [alejandro.moreno@ee.doe.gov](mailto:alejandro.moreno@ee.doe.gov)
- Industrial Technologies – Jim Quinn, 202-586-5725, [james.quinn@ee.doe.gov](mailto:james.quinn@ee.doe.gov)
- Solar Energy – Tom Kimbis, 202-586-7055, [tom.kimbis@hq.doe.gov](mailto:tom.kimbis@hq.doe.gov)
- Vehicle Technologies – William Key, 202-586-3157, [william.key@ee.doe.gov](mailto:william.key@ee.doe.gov)
- Weatherization and Intergovernmental Activities --
  - Ronald Shaw, 202-586-6593, [ronald.shaw@hq.doe.gov](mailto:ronald.shaw@hq.doe.gov) (for Weatherization)
  - Mark Bailey, 202-586-9424, [mark.bailey@hq.doe.gov](mailto:mark.bailey@hq.doe.gov) (Block Grants, State Energy Programs, and Appliance Rebates)
- Wind Energy – Jim Ahlgrimm, 202-586-9806, [jim.ahlgrimm@ee.doe.gov](mailto:jim.ahlgrimm@ee.doe.gov)
- EERE Backup (If the team has questions, any contact is unreachable, or the answer is unresponsive) Michael York, 202-586-5669, [michael.york@ee.doe.gov](mailto:michael.york@ee.doe.gov)

# For more information

- If you have questions about the Recovery Act and the funding allotted DOE, visit [www.energy.gov/recovery](http://www.energy.gov/recovery) or call the DOE's Recovery Act Clearinghouse at 888-DOE-RCVY (1-888-363-7289)

*Technology Driven  
Enterprise & Economic  
Development (TDEED)*

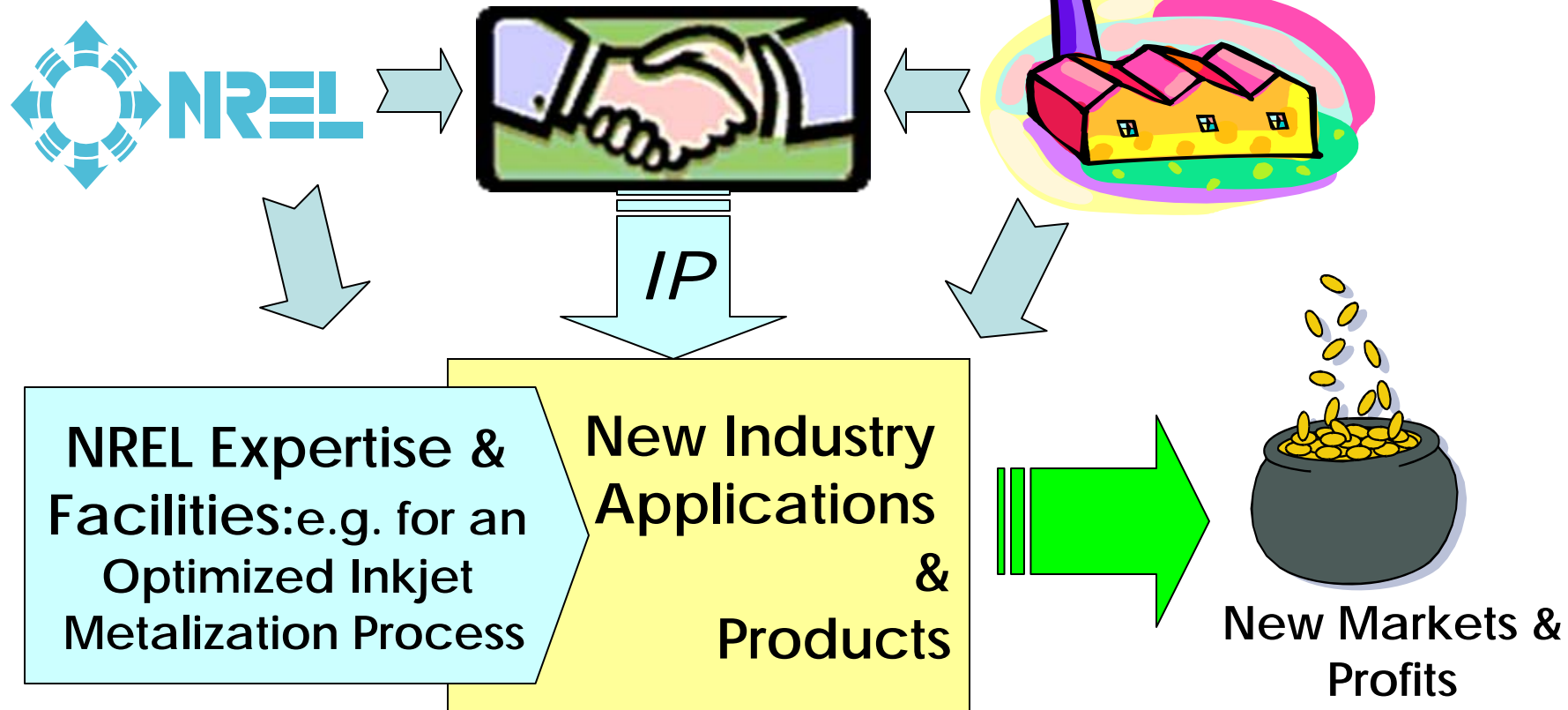
*Inputs by  
L. (Marty) Murphy  
Manager, NREL Enterprise Development Program  
April, 2009*

# *TDEED*

## *Fostering Workforce Development through Entrepreneurship*

- **Traditional TTO Partnerships (e.g. CRADAs)**
- **Forums & Linkages with the Financial Ecosystem**
  - A platform for financial other partnerships
  - Investor Directory
  - Colorado Clean Tech Initiative
  - Rocky Mtn. Clean Tech Open and Other venues
- **Clean Energy Entrepreneurship Center**
  - Thought Leadership
  - Content development, and delivery through partnerships for a wide range of educational needs
  - Growing / serving the Colorado Ecosystem

# Example: Partnering with Industry -NREL IP and New Product Development



Partnerships for Innovation and Product Development



# *The NREL Industry Growth Forums*

*- A Platform for –  
Developing Partnerships with the  
Clean Energy Ecosystem*

*What it is and  
How it Fosters  
Partnering  
And  
Entrepreneurship*



## The 21<sup>st</sup> NREL Industry Growth Forum

**FOUNDING**






**PLATINUM**






## The 21<sup>st</sup> NREL Industry Growth Forum

**GOLD**



















## The 21<sup>st</sup> NREL Industry Growth Forum

**SILVER**














## The 21<sup>st</sup> NREL Industry Growth Forum

**SILVER**










**IN KIND**








# *The 21<sup>st</sup> NREL Industry Growth Forum*

## **Metrics from Previous Forums**

**Presenters (138 companies) at Forums 16 through 20  
have (Data from New Energy Finance):**

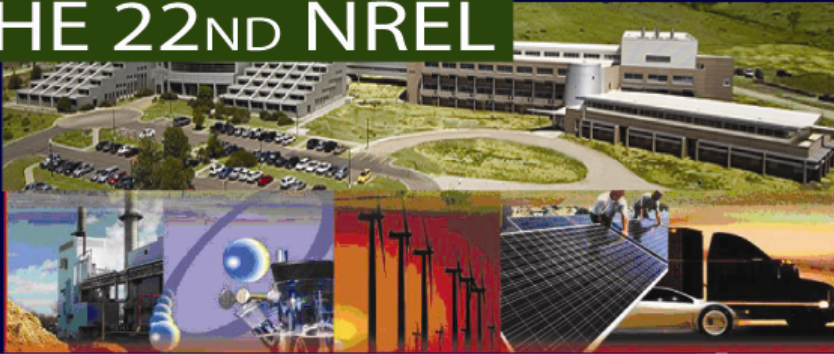
- Raised over \$2.0 B**
  - 96.4% in private transactions**
- IPOs: 5**
- Acquisitions: 6**
- Mergers: 2**

# *Join Us at the Next Forum*



( & Have your client companies apply!!! )

THE 22<sup>ND</sup> NREL



**INDUSTRY  
GROWTH FORUM**

**Denver, Colorado**

*Denver*

*November 3-5, 2009*

[www.cleanenergyforum.com](http://www.cleanenergyforum.com) (currently being updated)

<http://www.nrel.gov/technologytransfer/entrepreneurs/directory.html>



## Working with Entrepreneurs

○ Clean Energy  
Business  
Incubators

○ Industry Growth  
Forums

○ Clean Energy  
Market  
Opportunity

○ Resources for  
Entrepreneurs

▶ **Get Involved**

○ Contact  
Information

○ Upcoming  
Events

### Clean Energy Investors Directory



**Status of this Directory:** This directory is a partial list of investors

interested in clean energy technologies. Please note that this list is not all-inclusive and contains only information provided by the investors. We are currently processing information from additional firms, and will continually update the directory as we receive information from additional investors. We also intend to add more capabilities (such as sorting) at a later date.

**Using this Directory:** Because of binding legal requirements, NREL does not -and cannot - endorse the use of any particular firm. This directory is provided as an information service for our clean energy entrepreneurs and investor colleagues. We encourage all users of this information to perform their own "due-diligence" on potential investment and other strategic partners. This includes working with your own legal, financial, and other expert advisers/counsel to facilitate discussions and negotiations, and making any decisions or selections based on the most complete information. However, we hope this directory will give you a good starting point for your entrepreneurial venture.

**Becoming a Part of this Directory:** If you are an investor and want to be included in the directory, please provide us with your information at the [Clean Energy Investor Contact and Information Summary](#).

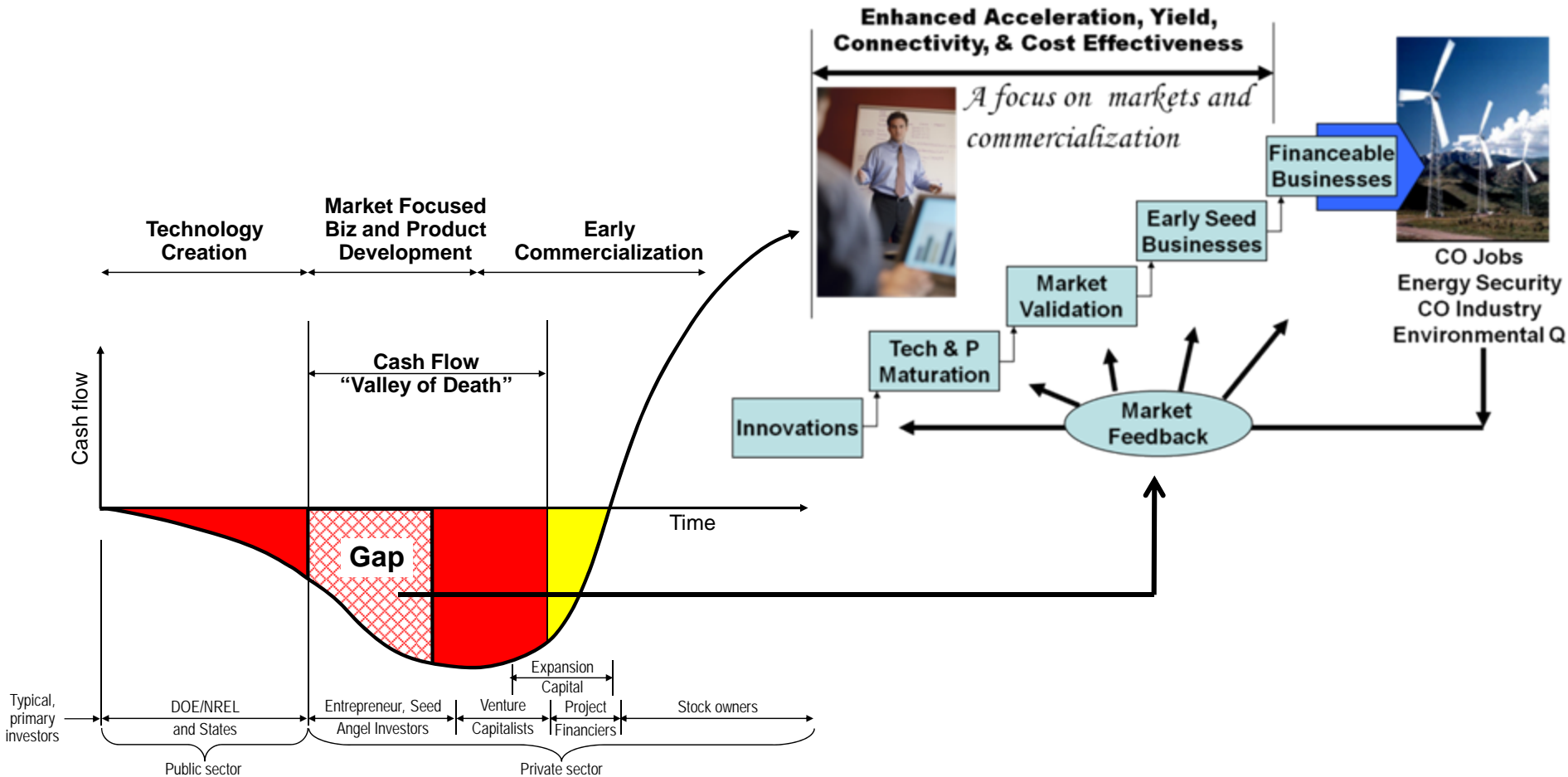
[A-D](#) | [E-M](#) | [N-Z](#)

# *Clean Energy Entrepreneurship Center*

- Thought Leadership for Entrepreneurial Ventures and Entrepreneurship
- Educational content development for technology ventures as well as infrastructure and workforce development
- Accelerator support
- Aligning NREL culture with Strategic Priorities
- Impact within the an Ecosystem and beyond

*Fostering Workforce Development  
Through Education and Entrepreneurship*

# Traversing the Gap & Getting Technologies into Market Focused Products and Businesses



# Achieved Results\*

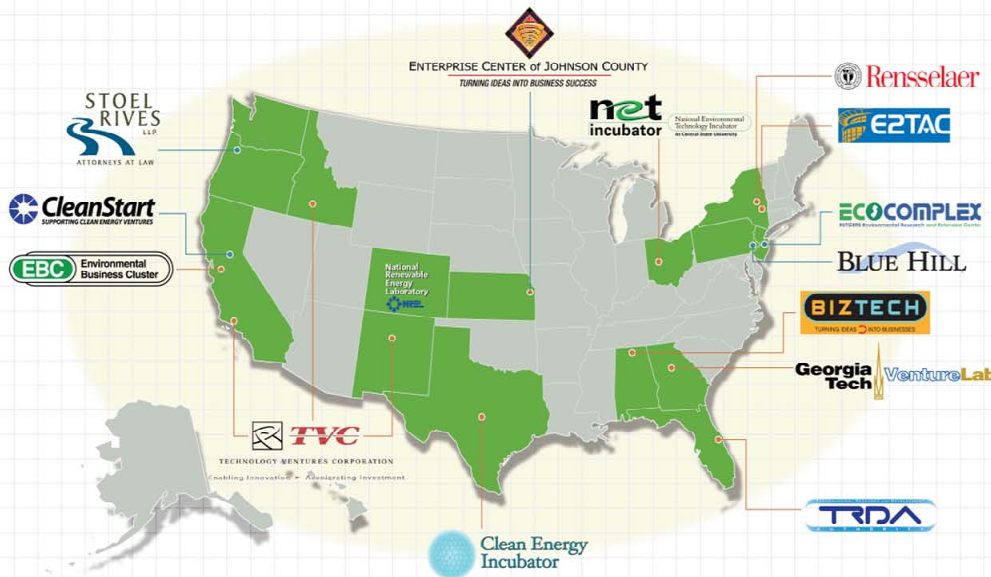


A DOE/NREL investment of about \$2.5M, in a select group of the nation's top incubators, has catalyzed:



## The Alliance of Clean Energy Business Incubators

Type of Membership: ● Existing Members ● New Members



- 94 Graduate companies \*(c)
- 185 Technologies commercialized \*(c)
- \$269 million in capital raised by companies \*(c)
- \$280 million in revenues \*(c)
- \$17 million in state money \*(c)
- \$30 million in other leveraged funds \*(c)
- 92 Clean Energy company clients now in Incubators
- 2,287 employees (Jobs!!) in the companies

\* As of November, 2008

\*(c) = cumulative results 2002-2008

## **CLOSING COMMENTS**

- I have tried to provide you with both a broad view of the overall U.S. policy perspective of the importance of Hawaii's role as well as some specific information which I hope will be of help to you in developing sound sustainable and economically viable projects

## **CLOSING COMMENTS - CONTINUED**

- I leave you with the observation that Policy is essential for stating and guiding goals and analysis provides for evaluating implementation strategy, BUT the 'proof of the pudding' is in the operating system....
- **YOU ARE AT THE NEXSUS OF THE 'VALLEY OF DEATH' AND WITH OUT YOUR VISION, RISK TAKING AND DEDICATION TO THE EFFORT NO POLICY WILL SUCEED.**

**GOOD LUCK IN YOUR EFFORTS**

# Additional Slides

- To be used ONLY if time and interest dictate.

# Tracking our progress

The American people want to know who is receiving the money, and they want to know they are receiving value for their hard-earned tax dollars

Everything we do will be transparent:

- Posting weekly updates on the Web site
- Upgrading the Web site and setting up a call center to handle the activity

Visit [recovery.gov](http://recovery.gov) or [energy.gov/recovery/](http://energy.gov/recovery/) to stay informed



# Recovery Act - Tax Credits Modifications

The Production Tax Credit (PTC) Modifications:

- **Generally** - Extensions and expansions for existing PTC for renewable energy systems plus new tax credit alternatives
- **Wind PTC** - Placed in Service Extension | 12.31.12
- **Municipal Solid Waste, Qualified Hydropower, Biomass Geothermal Facilities** - Placed in Service Extension, 12.31.13
- **Marine and Hydrokinetic** - Placed in Service Extension, 12.31.13
- **PTC to ITC Election** - Taxpayers eligible for PTC to make irrevocable election to take the Investment Tax Credit (ITC) [30%] for property placed in service in 2009-10.

# Tax Benefits - Residential & Business

- **Generally** - Provides greater tax credits for clean energy projects at homes, businesses and manufacturers of clean energy technologies
  - **Tax Credit Increase** - Increases 10% tax credit for homeowners' energy efficiency improvements to a 30% tax credit
  - **Itemized Credit Elimination** - Eliminates improvement-specific credit caps (e.g. windows and furnaces)
  - **Elimination of Aggregate Credit Cap** - Replaces itemized cap with an aggregate cap of \$1,500 for all improvements placed in service in 2009 and 2010 (except biomass systems, which must be placed in service after the Act is enacted)
  - **Qualifying Spec Enhancements** - Enhances energy efficiency specs for property to qualify for tax credit eligibility

# Tax Credits Residential & Business

- **Grant in Lieu of ITC** - New program established by Recovery Act. Treasury will allow taxpayers to apply for a grant instead of claiming the 30% ITC (which may originally stem from a renewable system eligible for a PTC).
- **Removal of Tax Credit Cap** - Qualified solar energy systems, geothermal heat pumps, small wind turbines placed in service before 2017. [Fuel Cell retains it's cap at \$1,667].
- **Subsidized Financing** - No longer variable when calculating tax credits for qualifying energy property.
- **Clean Fuel Refueling Systems** - Provide bonus to homeowners or business owners installing at their homes or businesses
  - *Businesses:*
    - Credit increased from 30 to 50%, except hydrogen refueling property.
    - Increased maximum credit from \$30,000 to \$50,000. Hydrogen is increased to \$200,000.
  - *Homeowners:* Credit doubled from \$1,000 to \$2,000

# New 30% tax credit to encourage new manufacturing facilities

- Encourages investment in the manufacturing facilities that help make such clean energy projects possible. Available for projects that establish, re-equip, or expand manufacturing facilities for:
  - Fuel cells
  - Microturbines
  - Renewable fuel refineries and blending facilities
  - Energy-saving technologies
  - Smart-grid technologies
  - Solar, wind, and geothermal technologies
- Applies to the manufacture of plug-in electric vehicles and their electric components, such as battery packs, electric motors, generators, and power control units