CalCEF

California Clean Energy Fund

PIER – Venture Capital Panel

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The "Standard Model" of Innovation

The components of a healthy innovation ecosystem are known, in theory:

- University/Garage culture of fresh thinking and deep technical competency
- VC or "risk capital" to support these ideas
- Failure tolerance, or even celebration
- IP protection – which can conflict with science processes if badly managed
- Economic exits for investors – IPO, acquisition

But what about after that?

- **The challenge for clean energy is "innovation to infrastructure," which is a very different proposition than the one VCs typically engage with.**

Risk & Opportunity Factors in the Standard Model

From the Standard Model, VCs have developed a three-pronged approach to analyzing risks and opportunities:

- *Team:* Can the entrepreneurs across the table execute on the business plan?
- *Technology:* Is the idea compelling, differentiated and protected?
- *Target:* Where does the business plan aim - at which markets, and in what volumes?

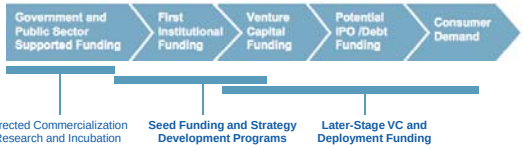
This framework tends to emphasize serial entrepreneurs, revolutionary and not evolutionary technologies, and the economic "home run" returns.

What is the role of the public sector here?

The Continuum of Technology Development

- The Map is easy enough to draw – making it fit the territory each innovation faces is the challenge.
- The "Valley of Death" concept has moved from academic jargon to industry crutch over the past five years.
  - In reality there are multiple valleys of death, each with their own risks, financing needs, regulatory interventions.
    - Stress is evident at the R&D/Seed, Demonstration, and Scale stages.
  - *Each stage entails a revision of the business model for successful innovation.*

CalCEF Strategies and Programs - Close the Gaps in Clean Energy Finance



- **UC Davis Energy Efficiency Center**
- **Clean Tech Open Business Plan Competitions**
- **CalCEF Catalyst incubator**

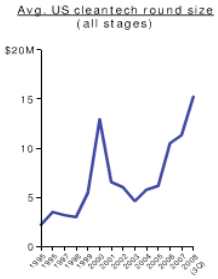
- **CalCEF Angel Fund**
- **CalCEF Innovations**

- **Fund-of-Funds**
- **Infrastructure Models**

US Stimulus Funds in Context - Targeting Key Points in the Technology Continuum

- RD&D Funds - "AARP-E": $150b over 10 years
- Tech-Specific Grants & Tax Credits - Batteries, Smart Grid, Etc: >$4b over 2 years
- Treasury Grants ($32b), PTC/ITC, DoE Loan Guarantees (@$80b)
- No Substitute…? …policy-driven M&A?
- Direct EE spending - $20b for federal building, low-income housing, state block grants.
- To come? - RPS, ERS, LCFS

CleanTech VCs - Moving On Up



- Amounts invested in each deal have steadily increased over the past six years, even as the "imperative of innovation" has been trumpeted.
- Is this because the industry is capital-intensive, market potential huge, and companies prepared to use these funds to achieve liquidity?
- Or are VC funds too big, chasing the same deals and strategies, and leaving fundamental innovations unsupported?

Source: Rob Day/@Ventures - Money Tree

Recent Innovation Funding - Behind the Headlines

First quarter headline numbers for cleantech VC were spectacular - nearly $2.6 billion, just short of the record from 2008.

- But - looking deeper, the trend away from supporting early innovation seems to be strengthening:
  - 93% of Q1 funding went to previously funded companies, leaving new ideas languishing. (Source: GreenTech Media)
- One of two conclusions can therefore be drawn:
  - We have identified all of the clean energy technologies we need to solve climate change and energy insecurity, and we should focus on maturing them; or
  - There is a structural flaw in the market and political framework of innovation in clean energy.

New Models for the PIER Program

- Develop the Technology Plan (IEPR)
  - Identify *sector and technology priorities,* i.e. industries "at risk" under AB32
- Acquire More and Better Market Data
  - Real-time market insights matched to technology categories in the IEPR
  - Regular (i.e. quarterly) feedback to CEC to track program impacts on sectors
- Convene an Investment Committee model for each Plan category
  - Small group, including relevant stakeholders – customers and investors too.
- Develop Funding Models for Developmental Stage
  - Grants, Loans/Guarantees/Enhancements, Insurance, Grant/Equity Hybrids, Silent Equity, Tax Expenditures.
- Create a Demand-Driven Incubation Function
  - Partner to provide business plan development, aligned with the markets and customers the sponsored technology is targeting
- Establish Demonstration Facilities with Local Partners
  - Enable technologies to gather real-world information, enabling iteration and providing critical details to follow-on funders (e.g. AARP-E and Duke Energy).

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Thank You

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