Supporting Clean Technology Breakthroughs

PRESENTED TO:

Senate Environmental Quality Committee,

Honorable Ben Allen, *Chair*

PRESENTED BY:

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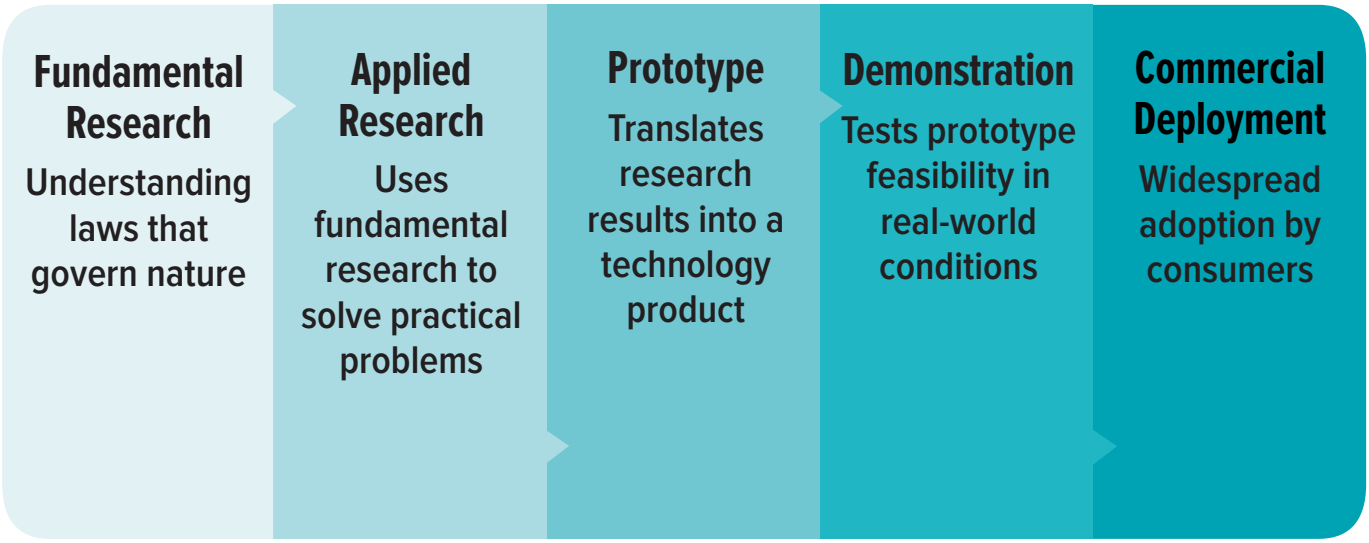
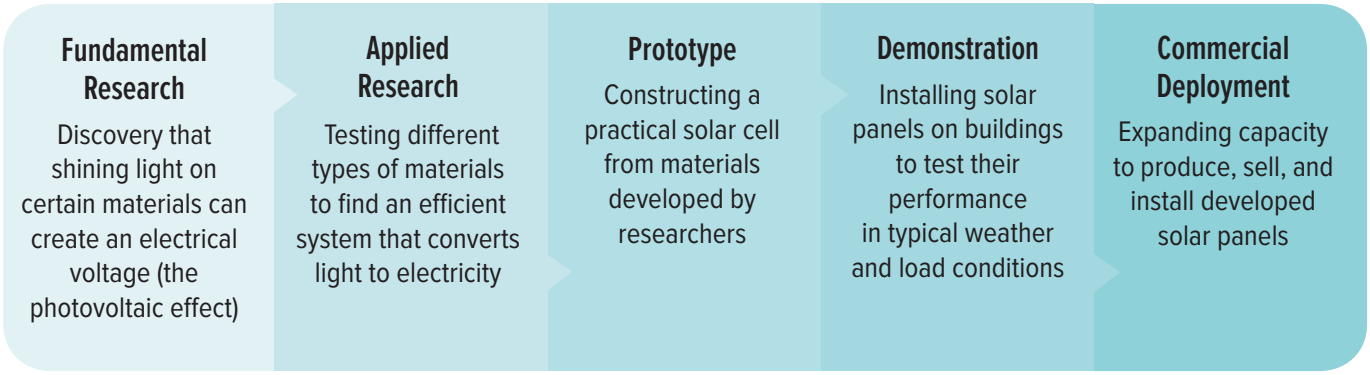
SENATE OFFICE OF RESEARCH

Clean Technology Development Pipeline



Solar Panel Example



Clean Technology Development Challenges

- Higher risk compared with other investment options such as software and pharmaceuticals
- Longer timelines to realize real-world applications prevent early venture capital investment
- High capital costs require larger private investments
- Unclear, inconsistent, or inefficient intellectual property (IP) policies discourage private investment
- Cumbersome and inconsistent research contracting procedures can discourage some of the best research talent from applying for state funds
- Difficult for researchers to navigate the entrepreneurial space
- Permitting and regulations for demonstration and commercialization projects

State Investments in Supporting Clean Energy and Transportation Technology

Estimated Fiscal Year 2018–19 Funding Levels ($ in millions)

Technology Category	Fundamental Research	Applied Research	Prototype	Demonstration	Commercial Deployment
Renewable Energy	$0	$20	$20	$90	$420
Energy Efficiency	$0	$20	$20	$80	$930
Clean Transportation	0	<$2	<$2	$50	$1,080

- Funding levels for 40 existing state financial incentive programs that primarily support clean energy or transportation technologies

- Where programs overlap on the pipeline, category funding levels were determined by consultation with the administering agencies

Key Issues

State Investments in Clean Technology Focused on Commercial Deployment. Technological breakthroughs are more likely to occur in the earlier stages of the pipeline, and experts recommend having a balanced approach to supporting technology development with both "pulling" (commercial deployment) and "pushing" (research through demonstration) strategies. Overinvestment in pulling strategies could result in the large-scale deployment of inefficient technologies.

Program Overlap. Overlap is likely among financial incentive programs supporting the commercial deployment of clean technologies targeting energy efficiency, heavy-duty vehicles, electric vehicle infrastructure, and low-income consumers. There also may be overlap with other non-technology-specific state financial incentive programs, as well as with federal and local programs. Program overlap can lead to inefficiencies, difficulty in coordination across the administering entities, and confusion for consumers.

No Statewide IP Policy. Current state agency IP policies regarding research are inconsistent. Additionally, unclear policies and royalty requirements have likely discouraged some venture capital investment in clean technology. Multiple studies suggest that the primary goal of IP policies should be removing barriers to the rapid commercialization of technology.

Inconsistent Research Contracting Procedures. State agency research funding procedures vary dramatically within and across agencies. Templates required to be developed by the Department of General Services are rarely used (AB 20 (Solorio), Chapter 402, Statutes of 2009, for CSUs and UCs; SB 1629 (Speier), Chapter 256, Statutes of 2006, for federal labs). Research granting agreements need consistent, flexible, and efficient processes to encourage the best research talent to apply for state grants.