How Could a California Green Bank Help Accelerate Renewable Energy and Energy Efficiency?

California has long been a leader in renewable energy and energy efficiency, in large part due to its comprehensive public policies. Right now, revenues from the auction of carbon emissions allowances create new opportunities for leadership in renewable energy and energy efficiency. One way to take advantage of these revenues is to use them to support public financing, risk-bearing and risk-shifting policy mechanisms through an entity like a green bank.

Here, we present promising opportunities for a green bank, identified through stakeholder interviews, a review of other state green bank efforts, and a limited review of relevant literature. We prioritized these opportunities based on a qualitative assessment of potential impact, appropriateness for support through a green bank, and potential cost effectiveness.

This factsheet is intended as a first stab at identifying these opportunities. Further work is needed to determine the appropriate mechanism and institutional framework for addressing each opportunity and to quantify the potential impact and cost-effectiveness of those mechanisms.

It could expand access to cost-saving, home energy efficiency and renewable energy upgrades

Over 15% of homeowners who can get affordable mortgages or car loans can't get financing for energy efficiency and renewable energy upgrades that could lower their total monthly bills due to their credit scores. This is likely due to the lack of data on how energy loans to these homeowners perform. Since these homeowners almost certainly could not finance these upgrades without help, policy support would directly reduce carbon emissions and help meet legislated requirements[1] to aid disadvantaged communities.

- ***A green bank could catalyze lending to these underserved homeowners for energy upgrades:*** A California green bank could offer solar developers and energy efficiency lenders credit enhancements that allow them to extend their programs to homeowners who have lower credit scores, or could offer financing to homeowners directly.[2] For example, a green bank could provide insurance to help developers keep making payments to a bank in the event a homeowner is unable to make some repayments. Over time such a program should provide banks the data they need to make these loans without public support.

[1] SB 535 (de Le) , Section 1(h); see http://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201120120SB535

[2] Hawaii's Green Energy Market Securitization project is currently doing both – see http://energy.hawaii.gov/testbeds-initiatives/gems and http://www.chadbourne.com/jseligman/

A lender can't remove an upgrade if a homeowner doesn't repay the loan: As a result of the higher risk as compared to mortgages and car loans, they charge much higher interest rates. This is true even though the energy savings may in fact lower the homeowners monthly bills overall.

- ***A green bank could help provide the security needed to lower energy upgrade financing costs:*** For example, Property Assessed Clean Energy (PACE) financing partially secures a loan by linking payments to property taxes. The recently announced[3] California loss reserve for PACE financing will most likely need additional funding, which a green bank could provide.

Getting financing and support takes time and effort: Homeowners must navigate the details of incentive programs and technology options; obtaining financing may be time-consuming due to the lack of common applications or standards.

- ***A green bank could provide a one-stop-shop for all of California's energy financing programs****:* It could provide a portal to all existing financing programs and dedicated clean energy financing vehicles, and facilitate common applications and standards across various programs.

It could help California businesses and public entities finance clean energy

California's small businesses and public sector entities may have difficulty affordably financing renewable energy or energy efficiency projects: Banks are unwilling to lend to small commercial properties with existing mortgages, and small businesses often cannot afford the credit evaluation required to receive a loan for a renewable energy project. They are also too small to afford tax equity financing, which allows larger businesses to use federal tax incentives for renewables. Such projects boomed under a Federal Recovery Act program to replace tax incentives with cash, but have slowed since the program expired, effectively putting small businesses at a disadvantage. Schools, municipalities, and non-profit hospitals can't directly use the tax incentives at all – only indirectly through independent energy companies offering PPAs.

- ***A green bank can help level the playing field for small business and public sector energy projects:*** Green Bank engagement could be as a direct lender, or as a credit enhancer for private lenders. It can directly provide low-cost loans or credit enhancements to small business renewable projects or energy efficiency upgrades. Similarly, the green bank can provide financing support to private-sector entities providing energy efficiency upgrades and solar services to schools, municipalities, and non-profit hospitals. It can then aggregate a large number of such projects to allow them to access tax equity financing.

Financing is more affordable when it can be done in bulk: A large portfolio of similar projects or loans based on standard terms and contracts can be financed at low cost by large investors who could not cost-effectively provide such financing to any individual loan or project. A portfolio containing many projects across a diverse range of stakeholders, markets, and geographies is a less risky investment than an individual project.

[3] See http://pacenow.org/wp-content/uploads/2013/09/PACE-Letter-9.23.13.pdf

- ***A green bank can help aggregate projects to give them access to low-cost private finance:*** It could provide a standard contract for energy-related projects and loans, similar to the NREL SAPC Working Group's standardized Solar PPA and Site License Agreement forms, published in Sept. 2013.. Over time, the bank could collect a large enough portfolio of such loans to give financial institutions confidence in their aggregate financial performance. Several states are already aggregating projects through the Warehouse for Energy Efficiency Loans (WHEEL)[4], with the hope of selling these portfolios to interested investors starting next year. The California green bank could gather loans in its own warehouse and offer them for sale to investors directly or through WHEEL. It could initially offer them with some form of credit enhancement through a guarantee to keep financing costs low, until the market becomes comfortable with these investments. The New York State Energy Research and Development Authority recently took such an approach in issuing $24 million in highly rated, low interest rate bonds backed by repayment of energy efficiency loans from its Green Jobs, Green New York program.[5]

  Note that this approach need not be restricted to small projects; portfolios of utility-scale projects financed by several state green banks could be financed at significantly lower cost if aggregated into funds sizeable enough to attract large institutional investors such as pension funds.

It could help capitalize on California's leadership in clean energy innovation

Ramping up renewables will require rapid scale-up of innovation in electric grid services including electricity storage – a process that will need help from the public sector. California policy requires utilities to procure 1.3GW of electric energy storage by the end of the decade. This mandate will require rapid scale-up of new grid storage technologies. However, investors will be reluctant to finance the first facilities under this new procurement mechanism because they lack historical data on the technical or financial performance of comparable assets.

- ***A green bank can help California achieve its storage mandate by bearing some of the risk of financing the first few storage facilities:*** A financing or risk sharing mechanism, such as construction financing, loan guarantees, or equity contribution, could be sufficient to bring private sector capital to the table to kick-start financing and deployment of energy storage. Technical and financial data from the first few years of operation of these facilities can provide financial institutions the confidence they need to finance subsequent projects cost-effectively in later years.

California leads the world in energy innovation, but faces difficulty in scaling up those innovations within our borders: With the fate of the Department of Energy's Federal Loan Guarantee program uncertain at best, neither state nor federal energy funding programs currently bridge the 'valley of death' between technology demonstration and commercialization at scale. Projects such as BrightSource's Ivanpah would likely not be able to find financing today.

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[4] See http://www.naseo.org/Data/Sites/1/documents/committees/financing/documents/WHEEL_Primer.pdf
[5] See http://www.nyserda.ny.gov/About/-/media/Files/About/NYSERDA-2013A-Final-OS.pdf

- ***A green bank could finance scale-up of innovative energy technologies in California**:* A green bank could leverage the innovation and investment expertise in California's research institutions and entrepreneurial communities to manage the risks of financing innovative energy technology projects at scale. By offering loan guarantees, insurance products, long-term debt, or low-cost equity investment, it could thereby leverage California's innovation advantage into facilities and jobs in California. For example, a focus on building and industrial electrification could catalyze deep carbon reductions needed to achieve our 2050 goals.

Other opportunities for green bank interventions worth considering

In addition to those mentioned, there are other opportunities for a green bank to help California continue its leadership in renewable energy and energy efficiency. While not an exhaustive list, these include:

- Structure financing and incentives to promote deep retrofits by increasing incentives as a function of energy saved. This could be combined with renewable energy when in accordance with loading order (i.e. energy efficiency first, then renewable energy).
- Provide long-term revenue certainty, perhaps through a contract for differences, in the event that the renewable portfolio standard is not extended and long-term Power Purchase Agreements are not as available.

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