Date of Hearing: April 17, 2012

ASSEMBLY COMMITTEE ON JOBS, ECONOMIC DEVELOPMENT AND THE ECONOMY
V. Manuel Pérez, Chair
AB 2409 (Allen) – As Amended: March 29, 2012

SUBJECT: Energy efficiency

SUMMARY: Requires the California Energy Commission (CEC), in collaboration with the Public Utilities Commission (CPUC), the Treasurer's Office, the State Air Resources Board, and the California Infrastructure and Economic Development Bank, to review and develop emerging technology financing models for purposes of helping California meet its clean technology goals. At a minimum, the CEC must consider the following models:

1) Long-term finance options, including, but not limited to, establishing, facilitating, or improving the ability to issue tax exempt bonds, private activity bonds, or private investment bonds;
2) Potential immediate and long-term financing capabilities for various financing models;
3) Potential for implementing shared savings agreements;
4) Potential for developing a market dedicated to extracting all of the financial values for energy efficiencies and energy management services;
5) Potential market development for energy efficiency financing for state infrastructure, such as building retrofits, as well as purchases of high-efficiency alternatives for equipment that consume energy; and
6) Potential market development for residential and business retrofits, as well as purchases of high-efficiency alternatives for equipment that consumes energy.

EXISTING LAW:

1) Designates the CEC as the state's primary energy policy and planning agency.

2) Directs the CEC to undertake a continuous assessment of trends in the consumption of electrical energy and other forms of energy and analyze the social, economic and environmental consequences of those trends; carry out, or cause to carry out, energy conservation measures; and recommend to the Governor and Legislature new and expanded energy conservation measures as required to meet the objectives of existing law.

3) Authorizes and directs the CEC to collect from electrical utilities, gas utilities, and fuel producers and wholesalers and other sources forecasts of future supplies and consumption of all forms of energy.

4) Authorizes and directs the CEC to carry out, or cause to carry out, under contract or other arrangements, research and development into alternative sources of energy, improvements in energy generation, transmission, and siting, fuel substitution, and other topics related to

energy supply, demand, public safety, ecology, and conservation which are of particular statewide importance.

5) Authorizes and directs the CEC to adopt standards, except for air and water, to be met in designing or operating facilities to safeguard public health and safety, even if those standards are more stringent than those adopted by local, regional, or other state agencies, or by federal agency if permitted by federal law.

FISCAL EFFECT: Unknown

COMMENTS:

1) Author's purpose: According to the author, "AB 2409 simply requests all of the major state agencies currently involved in energy efficiency financing and program management such as the California Energy Commission, California Public Utilities Commission, State Treasurer's Office, the State Air Resources Board, and the California Infrastructure and Economic Development Bank to collaboratively review emerging financial markets and models that have minimal or no public or investor-owned utility financial investment in an effort to procure the capital investment needed to achieve California's aggressive energy efficiency goals.

   California has one of the most aggressive energy efficiency goals in the nation. For example, by 2015, the state wants to reduce energy consumption in existing homes and local governments by 20%. By 2020, the state has set goals for ensuring all new houses constructed in California will reach "zero net energy" (ZNE) performance, reducing energy consumption of existing homes and local governments by 40%, making energy efficiency certification and benchmarking standard practice for businesses, which represent 80% of the industrial sector's energy use, and reducing agricultural sector production intensity by 15% from 2008 levels for non-renewable energy. However, to meet many of these aggressive goals, California will need to acquire approximately $4 billion in capital investment per year, nearly double current investments. Therefore, identifying and procuring cost-effective financing to must increase quickly and exponentially to achieve these goals.

   "Aggressively and collaboratively exploring these existing financing models and, if needed, redesigning them to fit California's needs using the expertise and experience already present in the multitude of state agencies implementing energy efficiency financing and programs is the only practical mechanism for acquiring the financial capital needed to achieve California's efficiency reductions goals, emissions reductions as mandated by AB 32, and to put thousands of Californians back to work."

2) Emerging public finance models for energy efficiency: The following is a sample of emerging public finance models being discussed or deployed in jurisdictions around the U.S.

   a) *The Clean Energy Development Administration (CEDA) or the Green Bank*: The concept of the Green Bank is to establish an independent, government-sponsored bank to support clean technology financing through loan guarantees, credit enhancements, debt instruments, and equity. In practice, the bank would partner with private financial institutions that would not expose themselves to the clean technology sector because of perceived risk. Using guarantees, letters of credit and other credit enhancement tools, the

Green Bank would provide private investors with the security they need to make clean technology investments.

b) *Clean Energy Victory Bonds or Green Bonds*: The Victory Bond concept was used during World War II when the federal government sold bonds to the public to finance the war effort. Green Bonds use a similar model in that they use public bonds to raise capital for purposes of financing clean energy projects. In 2008, The World Bank (Bank), in partnership with Scandinavia, issued $350 million in Green Bonds denominated in Swedish Kronor to fund carbon emission reduction projects in the third world. In 2009, the Bank issued its first U.S. dollar denominated bond which was subsequently purchased by the California State Treasury. Similarly, the European Investment Bank issued €1 billion euros worth of "Climate Awareness Bonds" in 2007 to finance renewable energy and energy efficiency project lending.

c) *General Federal Bonds:* The Federal government offers several flavors of bonds that award bondholders tax credits partially or fully in lieu of interest payments. Two classes of these bonds, Clean Renewable Energy Bonds (CREBs) and Qualified Energy Conservation Bonds (QECBs), have been used with considerable success to drive clean technology investments. CREBs were created by the Energy Policy Act of 2005 to finance certain renewable energy and clean coal facilities. To date, over 900 clean-energy projects have been financed with $1.2 billion in CREB proceeds. QECBs were launched in 2008 and are extremely versatile instruments that can be used to fund projects ranging from green-building technologies and mass-transit improvements, to conversion of agricultural wastes and even marketing campaigns to promote energy efficiency.

d) *Federal Loan Guarantees*: Established in 2005, the U.S. Department of Energy's Loan Guarantee Program guarantees loans for a range of clean-energy related projects. The program has come under considerable criticism given its decision to fund Solyndra, a California-based developer of thin-film solar products that has since declared bankruptcy.

e) *City Funds*: A relatively new model, U.S. city-administered loan funds have been emerging across the country, including Berkeley, Portland, Cambridge, and Boulder. Under this model, a city raises capital through municipal bond issuances and then uses the capital to offer moderate-sized loans (between $5000 and $25,000) to homeowners for purposes of financing home energy improvement upgrades.

These are just a few financing models that AB 2409 envisions CEC exploring, in concert with other agencies, with the goal of identifying the models that are best suited for California.

3) Relevant State Reports on Energy Efficiency and Financing: In 2005, the CEC released a report on potential energy efficiency measures that could be adopted in existing commercial and residential buildings. The report found that cost effective energy efficiency measures could reduce statewide consumption of electricity and natural gas by 15 to 18%.

In 2009, the State Legislature enacted AB 758 (Chapter 470, Statutes of 2009) directing the CPUC to investigate the ability of electric and gas utilities to provide energy efficiency

financing options to their customers. In its report to the Legislature, the CPUC concluded that:
"Achieving levels of efficiency consistent with California's goals will require a capital investment of approximately $4 billion per year. However, current levels of energy efficiency investment in California appear to be approximately one-half that amount. Consequently, the rate of adoption of energy efficiency technologies and the capital to finance that up-take, must increase for California to achieve its goals. Along with other market solution mechanisms, appropriate cost-effective financing for energy efficiency can play a significant role in achieving these investment goals."

4) Primary clean technology financing asset classes: Investments in the clean energy economy can be organized into four primary categories: venture capital and private equity (VC/PE), public markets, asset finance, and merger and acquisition activity (M&A).

The VC/PE category represents all monies invested by venture capital and private equity funds in the equity of private companies engaged in the clean energy economy. The public markets, on the other hand, captures all monies invested in the equity (individual stocks) of publically traded companies engaged in the clean energy economy. The third category, asset finance, represents all monies invested in large-scale renewable energy generation projects like wind and solar farms. This category encompasses balance sheet investments from corporations, and debt and equity financing. The fourth category, M&A, is distinct from the first three in that it does not represent investments in new technologies, but rather the transfer of existing technologies from one market actor to another. Clean technology M&A is, however, an extremely important indicator of market demand for clean technologies and, by extension, directly drives the ability of private equity and venture capital firms to sell their positions in clean technology companies and generate returns for their investors.

5) The clean technology financing landscape: California does not have the public resources to independently finance the level of energy efficiency projects required for the state to meet its renewable energy goals. As such, California must proactively lure investment capital from around the world. To assess the ability of the state to do that, we must first understand the clean technology investment landscape.

Investments in clean technologies reached a record high in 2011with $260 billion invested worldwide, a 5% increase compared to 2010 and a fivefold increase over the $53.6 billion invested in 2004. Geographically, 2011 saw the reemergence of the U.S. as the leader in clean technology investments, moving past China for the first time since 2008, according to an analysis by Bloomberg New Energy Finance.

At a regional scale, the U.S. secured $4.9 billion in clean technology venture funding in 2011. This figure was down 4.5% compared to 2010, but represented a 29% increase from 2009. Among U.S. states, California continued to lead the nation in attracting cleantech venture funding with $2.8 billion secured. In the fourth quarter of 2011 alone, California secured $629.5 million in venture funding across 26 deals, representing 67% of all cleantech dollars invested in the U.S. according to an analysis by Ernst & Young.

Similar to past years, the largest source of capital for clean technology investments in 2011 came from asset finance, with $145.6 billion invested, representing a 5% increase over 2010. Of note, 2011 saw a 36% jump in solar investments in this category with $136.6 billion

invested, two times the level of investments secured for wind projects, a category that saw a 17% drop in invested dollars with $74.9 billion invested in 2011.

Some of the more notable projects receiving asset financing dollars included the 288 Mega Watt (MW) Amrumbank West wind farm off the coast of Germany, a $1.3 billion project; the first and second phase of the 272MW Seigneurie de Beaupre wind farm in Canada, a $756 million project; and the 92.5MW Hanas Ningxia Yanchi Gaoshawo solar thermal plant in China, a $354 million project.

A closely related category of investment, the finance of distributed renewable power technology, particularly rooftop photovoltaic applications, also saw a record level of investment with $73.8 billion invested in 2011, a 22% increase over 2010.

Investments by the public markets fell by 16% in 2011 with $11.9 billion invested. Notable public offerings included Sinovel Wind Group, China's largest developer of wind turbines, which raised $1.4 billion on the Shanghai Stock Exchange; Huaneng Renewable Energy, a subsidiary of China's state-owned Huaneng Group, which raised $800 million on the Hong Kong Stock Exchange; Gevo, a venture-backed producer of biobutanol from starch-based feedstock, which raised $107 million on the NASDAQ; and Solazyme, a venture-backed developer of algae-based renewable oils and green byproducts, which raised $227 million on the NASDAQ.

It should be noted, however, that while investments in the public markets did fall relative to 2010 levels, when the right opportunities presented themselves, the public markets show a strong willingness to invest in clean technologies. In fact, during the first two quarters of 2011, the public markets invested $7 billion in clean technology companies, a 53% increase over the same period in 2010.

Venture capital and private equity investments in the clean energy economy reached $8.9 billion in 2011, a 4% increase over 2010. Notable deals in this category included the $112 million Series B round for U.S. electric vehicle company Fisker Holdings; a $143 million expansion capital round for U.S. biomass and waste-to-energy specialist Plasma Energy; and a $445 million round for agri.capital, the German Biogas specialist.

Corporate merger and acquisition (M&A) activity in the clean energy economy took an increasingly prominent role in 2011, with M&A activity reaching a staggering $41.2 billion, a 153% increase over 2010, according to an analysis by the Cleantech Group. This was the highest level of corporate M&A in the sector since 2008, indicating a strong appetite for clean technologies acquisitions by corporate entities. Notable deals in the category included Toshiba's $2.3 billion acquisition of Switzerland's Landis+Gyr, a leading developer of advanced electricity metering solutions, and Dupont's $6.3 billion acquisition of Denmark's Danisco, a leading industrial biotechnology company.

6) AB 2409 and the Clean Technology Financing Landscape: California leads the nation in securing venture capital funding. In 2011, the state secured $14.5 billion or nearly five times the amount secured by the number two ranked state, Massachusetts, at $3 billion. Moreover, California leads the nation in securing cleantech targeted venture capital financing. In 2011, the state secured $4.9 billion in cleantech targeted financing, again over five times the

amount secured by the number two ranked state for cleantech targeted financing, Massachusetts, at $460 million.

7) Author's amendments: Staff understands that the author will be taking amendments to authorize the CEC to establish an investment advisory group consisting of private and public investors, as well as clarify and make other conforming changes to the bill.

8) Related legislation: Below is a list of bills related to this measure from the current and prior sessions:

   a) *AB 758 (Skinner) Energy: energy audit:* This bill directed that directed 1) the California Energy Commission (CEC) to develop a comprehensive program to achieve greater energy savings in the state's existing residential and nonresidential building stock, and 2) the CPUC to investigate the ability of electric and gas utilities to provide energy efficiency financing options to their customers to implement the program to be developed by the CEC. Status: The bill was signed by the Governor (Chapter 470, Statutes of 2009)

   b) *AB 2678 (Nunez) Energy: energy audit:* This bill required the CEC to establish an ongoing proceeding to develop requirements for time-of-sale energy-efficiency audits for residential and commercial buildings. Due to the complex nature of imposing an additional significant requirement on realtors and lending institutions at the time of sale of residential and commercial buildings, this bill was amended and struck the required time-of-sale audits. Status: AB 2678 was held in Senate Appropriations Committee 2008

   c) *AB 14X1 (Skinner) Energy: energy upgrade financing*: This bill authorizes the California Alternative Energy and Advanced Transportation Financing Authority to provide financial support to lenders to facilitate projects for energy and water conservation and renewable energy. The fund source is $50 million originally appropriated in SB 77 (Pavley), Chapter 15, Statutes of 2010. Status: The bill was signed by the Governor (Chapter 9, Statutes of 2011-12).

9) Double Referral: The Assembly Rules Committee voted to refer this measure to JEDE and the Assembly Committee on Natural Resources. Should the measure be approved at the April 17, 2012 hearing, the bill will be referred to the second policy committee for consideration.

REGISTERED SUPPORT / OPPOSITION:

Support

None Received

Opposition

None Received

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