STATE OF CALIFORNIA — Public Utilities Commission
San Francisco

M e m o r a n d u m

Date: December 13, 2011

To: The Commission
(Meeting of December 15, 2011)

From: Office of Governmental Affairs (OGA) — Sacramento

Subject: **S. 1914 (Snowe) – To amend the Internal Revenue Code of 1986 to provide a credit for performance based home energy improvements, and for other purposes**
As introduced: November 18, 2011

LEGISLATIVE SUBCOMMITTEE RECOMMENDATION: SUPPORT

SUMMARY OF BILL:

S. 1914, the "Cut Energy Bills at Home Act", amends the Internal Revenue Code of 1986 to provide a tax credit for performance-based home energy improvements. It requires a minimum of 20% estimated energy reductions for a base tax credit of $2,000 and provides for an additional $500 tax credit for each additional 5% estimated energy use reductions, up to a maximum of $5,000 or 30% of the home energy improvement job costs. The credit is applicable to the principal residence of the taxpayer only. The bill sets standards for qualified energy efficiency measures, contractors and modeling software.

SUMMARY OF SUPPORTING ARGUMENTS FOR RECOMMENDATION:

S. 1914 should be supported for the following reasons:

(1) The bill provides essential financial support for deep energy efficiency home retrofits in California and the rest of the United States. In its 'California Long Term Energy Efficiency Strategic Plan' (2008), the CPUC adopted the aspirational target that all California homes reduce energy drawn from the grid by 40% by 2020. The CPUC's 'Energy Efficiency Financing in California: Needs and Gaps' report (2010) estimated that the cost of reaching just 20% energy savings per home by 2020 would require investment of at least $8 billion per year. Since this level of funding cannot be provided via ratepayer funds alone, the proposed federal bill would provide needed financial incentives to homeowners to advance California towards its deep energy savings goals and build the capacity and experience of California's home energy performance contractors.

(2) The bill ensures appropriate contractor qualifications. The bill requires contractors performing the installations to be accredited home performance contractors under: 1) the Building Performance Institute (BPI); 2) the Residential Energy Services Network (RESNET); and/or 3) an equivalent certification program approved by the Secretaries of Treasury and Energy -- potentially the California HERs II Building Performance Contractor accreditation program. BPI and RESNET are leading, respected organizations assessing contractor home performance skills against rigorous standards, and providing for certification and accreditation of qualifying contractors. The extended BPI and RENET networks also provide for quality assurance, training and mentoring for contractors. California's HERs II Whole House Building Performance Contractor accreditation program, established by the California Energy Commission, was launched in 2009 and is growing, with several hundred certified raters across the state currently. It also provides for assessment of contractor skills against strict standards, testing, mentoring, and quality assurance. Qualified contractors have the skills to correctly install energy efficiency equipment in homes, which is necessary in order to achieve the predicted energy savings from installation of the higher-efficiency equipment.

(3) The bill complements California's ongoing whole house energy efficiency program. The proposed bill complements, but does not replace, California's Energy Upgrade California program, jointly administered by the CPUC, the CEC, California's Investor Owned Utilities (IOUs), public utilities (SMUD), and many cities and counties (the latter via federal stimulus funds, through March 2012; IOUs are using ratepayer funds approved by the CPUC in D. 09-09-047). Energy Upgrade California (EUC) as implemented by the IOUs provides between $1,500 - $4,000 in rebates for deep home energy upgrades that reduce a home's energy use by between ten and forty percent. As noted above, under the federal tax credit bill, there are three ways that contractors may become qualified to administered home energy upgrades qualifying for the tax credits: 1) be accredited by the Building Performance Institute (BPI) or a pre-existing BPI accreditation-based state certification program with enhancements to achieve state energy policy; 2) be a Residential Energy Services Network (RESNET) accredited Energy Smart Home Performance team; or, 3) be accredited by an equivalent certification program approved by the Secretaries of Treasury and Energy (such as, in California, the HERs II Whole House Building Performance Contractor accreditation program).

The EUC program currently requires "test in" audits, including modeling of baseline energy use and projected energy savings with installations. It also requires a "test out" assessment of correct installation of measures (and associated decreases in building shell or HVAC system air leakage), as well as a combustion safety test for any gas appliance affected by the installations. These tests must be performed by Building Performance Institute (BPI) certified Building Analysts. However, some 300 contractors in California have already or are in the process of becoming Building Performance Institute (BPI) accredited contractors, which requires that BPI-certified Building Analysts are on staff. These BPI-accredited contractors already will have the qualifications to undertake home energy improvement installations leading to the proposed federal tax

credits and can also participate in California's EUC rebate program if they are not doing so already by completing a daylong EUC program orientation workshop).

As noted above, contractors may also qualify to administer the federal tax credit work if they are a Residential Energy Services (RESNET) accredited Energy Smart Home Performance Team (of which there are not currently many in California), or if they are accredited by a certification program approved by the Secretaries of Treasury and Energy as "equivalent" to the BPI and RESNET programs. In California, an accreditation program likely to be approved as "equivalent," would include the California state Energy Commission-administered Home Energy Rating System (HERs II) Whole House accreditation program. HERS II-accredited Building Performance Contractors may also access EUC rebates.

Therefore, there are three potential pathways for contractors to access the federal tax credits, two of which are already highly integrated with the existing California EUC program (BPI accreditation and HERs II Building Performance Contractor accreditation), and one additional one (RESNET Energy Smart Home Performance Team), that could likely easily become so. These multiple pathways to participation will help maximize contractor participation in both the federal tax credit and the EUC program, contribute substantially to the development of California's home energy performance contractor base, and, most importantly, drive the achievement of deep energy savings in homes in California.

(4) The bill ensures streamlined and sufficient quality assurance. The CPUC believes that BPI and RESNET -- as credible and respected national, voluntary home energy performance accreditation and quality assurance organizations -- have sufficient expertise to provide quality assurance over contractors conducting energy efficiency measure installation work leading to the proposed tax credit. As mentioned above, BPI-accredited contractors in California wishing to also promote available Energy Upgrade California rebates could do so, with a few additional steps. If a homeowner chooses to utilize EUC rebates in addition to the tax credit, California-specific quality assurance oversight, via IOU and public utility EUC rebate program would then be required. If the California HERs Whole House Building Performance Contractor accreditation is approved by the Energy and Finance Secretaries as "equivalent," quality assurance requirements are also in place for that system within California. In sum, in California contractors that access both the federal tax credits and the EUC rebates would have two systems of quality assurance: the existing EUC (and possibly HERs II) system, and additional oversight based on the BPI or RESNET national protocols. If contractors accessing federal tax credits do not access the EUC funds, the BPI and RESNET national protocols will provide sufficient quality assurance for access by these contractors to the federal tax credit alone.

(5) The bill includes only appropriate qualified measures. The bill permits qualified energy savings reductions to be derived only from the installation of heating, cooling, hot water and permanent lighting measures (e.g. fixtures or controls), with an estimated useful life of five years or more. This prevents any tax credits for inappropriate

measures such the installation of easily removed or impermanent measures like CFLs or refrigerators and will help ensure that the energy savings to the home are long lasting. Energy savings resulting from improvements to swimming pools or hot tubs are excluded from the federal bill, as they are from California's EUC program. High efficiency pool pumps are rebated in California under a separate Home Energy Efficiency Rebate (HEER) program, however.

SUMMARY OF SUGGESTED AMENDMENTS:

None. However, there appears to be both a 2006 version (http://www.resnet.us/standards/procedures.pdf) and a 2011 revision (http://www.resnet.us/standards/RESNET_Pub_06-001_errata.pdf) of RESNET Publication No. 06-001 in circulation, and the version referred to in the bill could perhaps be clarified.

DIVISION ANALYSIS (Energy Division):

The bill would impact CPUC programs, practice and policy in the following ways:

- **Contractor Qualifications:** The bill complements but does not replace the ratepayer-funded Energy Upgrade California (EUC) whole house program, which offers consumers between $1,000 - $4,000 in rebates for whole house upgrades that save between 10% - 40% of a home's energy usage. Consumers wishing to access both the federal tax credit and the EUC rebates would need to ensure that they engaged a contractor with the qualifications needed for both programs. Contractors qualified to perform work qualifying for the federal tax credit would need to obtain some additional training and/or BPI-certified staff to also access the EUC rebate:

  - A BPI accredited contractor would need to attend an EUC one day orientation workshop
  - A RESNET Energy Smart Home Performance Team contractor would need to ensure BPI certified Building Analyst performed the test –in modeling work and test-out safety assessment, and attend an EUC one day orientation workshop
  - If approved as "equivalent," a HERs Building Performance accredited contractor would need to ensure that a BPI certified Building Analyst performed the test-out safety test, and attend an EUC one day orientation workshop

  These are relatively easy additional qualifications for contractors to obtain, however, and doing so would indicate a deeper business commitment on their part to home energy performance contracting in California. This, in turn, would be beneficial to the achievement of California's energy use reduction goals for the residential sector.

- **Quality Assurance Coordination:** The accreditation organizations indicated in the bill all provide sufficient quality assurance services to ensure quality installations under the federal tax credit, and real energy savings. However, the bill provides that up to four different quality assurance systems could be in operation in California

once the bill is enacted (BPI, RESNET, HERs Whole House, EUC). If this comes to pass, limited additional utility and CPUC staff time will likely be needed to coordinate quality assurance oversight to ensure its smooth operation, appropriate collection of pre- and post-job energy usage data, and to avoid undue customer contact through the various quality assurance systems. Such coordination efforts are already in place in California, however, to coordinate quality assurance oversight of contractors participating in the EUC, and would merely need to be expanded slightly.

- **Impact on Utility "Net" Energy Savings and Estimated IOU Energy Efficiency Potential:** The CPUC and Energy Division policies and practice currently require the determination of net energy efficiency savings attributable solely to investor owned utility (IOU) energy efficiency programs. In 2006-2008, net energy savings were used in determination of the Performance Earnings Basis (PEB), utilized under the "Risk Reward Incentive Mechanism" to determine potential utility payments, or penalties, for net energy efficiency savings achieved. Methodologies to evaluate net savings attributable to IOU programs currently discount savings for which customers indicate "multiple motivations" in addition to the specific IOU program as their reason for installing an energy savings measure that is subsidized under an IOU efficiency program. If Californian consumers actively use both the tax credit and the EUC rebates, it is possible that debate might arise as to whether discounting of energy efficiency savings credit to the IOUs for those customers that indicate a primary motivation for participating in the EUC program as the existence of the tax credit. If this were to become the case, the CPUC might need to consider appropriate attribution of energy savings to the EUC program given the existence of the tax credit. In addition, if consumer use of the tax credit is extremely active, future potential studies estimating energy efficiency savings potential for the IOUs for future program cycles may need to take the federal tax credit into account.

  The CPUC is currently considering whether to continue an energy savings incentive mechanism in Rulemaking R. 09-01-019. If the Commission decides to discontinue a shareholder incentive or modify its rules to not use net energy savings as its basis, then this issue would be less of a factor.

- **Software and Energy Savings Estimates:** Currently, the IOUs are only allowing EUC contractors to utilize Energy Pro software to estimate energy savings and identify rebate levels per household. Under the federal bill, at least four additional software are permitted to be used if they meet the software verification tests indicated in section 4.2.1 of RESNET Publication No. 06-001. Given this, several changes would be needed to support the smooth integration of the federal tax credit bill and the EUC program:

  a) The Energy Pro software, currently the only approved software for the EUC program in California, would need to be assessed against the RESNET verification tests required under the federal bill. In addition, given that the federal tax credit allows a greater diversity of software to be used, the EUC program

administrators (the IOUs, overseen by the CPUC) may wish to consider expanding eligible software for the EUC program.

b) EUC jobs do not currently require software used to be calibrated against sections 3 and 4 and Annex D of BPI Standard BPI-2400-S-2011, as does the federal tax credit bill. EUC jobs wishing also to access the federal tax credits would need to perform this additional software calibration step. CPUC engineers have assessed this calibration methodology and found it largely sound. In general, additional training will be needed for accredited contractor staff to accurately perform this calibration procedure as required under the federal bill. The EUC has not currently budgeted for this additional training cost, but the desirability of doing so could be assessed by the IOU EUC program administrators and EUC stakeholders as part of an ongoing reassessment of training programs offered under the EUC program. Therefore, additional costs related to this element are likely to be low.

c) Energy savings under the EUC program are currently modeled and estimated on a BTU site energy percentage basis, i.e., modelers project the total gas and electric savings for the home using site-based energy usage estimates to produce percentage-based energy savings estimates (in BTUs). A projected 10% energy savings merits a $1,000 rebate under the EUC program, up to a 40% energy savings meriting a $4,000 rebate. The federal tax credit requires estimating total energy cost savings via a simple division of total actual energy bills for 12 months by total units of each fuel type in use at a residence. While Energy Pro software now used by EUC can accommodate this approach, the different approaches of estimating energy savings by costs and energy savings by BTUs may be somewhat confusing to consumers. (In addition, given California's tiered energy rates, the approach taken under the federal bill is likely to somewhat underestimate potential cost savings to consumers).

In 2012, the California Energy Commission and CPUC evaluators will be assessing actual energy savings from the EUC program against modeled and projected savings used to award rebates upon time of an EUC job's approval. This evaluation work will inform improvements to the Energy Pro software to improve its energy savings projections and could also be designed to reduce any customer confusion on the different approaches taken under the federal and state programs.

LEGISLATIVE HISTORY:

None.

FISCAL IMPACT:

Minor and absorbable.

STATUS:

S. 1914 is awaiting consideration in the Senate Committee on Finance.

SUPPORT/OPPOSITION:

Support: Efficiency First
RESNET
The Natural Resources Defense Council
The Alliance to Save Energy
The American Council for an Energy Efficient Economy (ACEEE).

Opposition: None on file

STAFF CONTACTS:

Nick Zanjani, Legislative Liaison-OGA (916) 327-1418 nkz@cpuc.ca.gov

BILL LANGUAGE:

S.1914 -- Cut Energy Bills at Home Act (Introduced in Senate - IS)
112th Congress
1st Session
S. 1914

To amend the Internal Revenue Code of 1986 to provide a credit for performance based home energy improvements, and for other purposes.

IN THE SENATE OF THE UNITED STATES

November 18, 2011

Ms. SNOWE (for herself, Mr. BINGAMAN, and Mrs. FEINSTEIN) introduced the following bill; which was read twice and referred to the Committee on Finance

---

A BILL

To amend the Internal Revenue Code of 1986 to provide a credit for performance based home energy improvements, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE; ETC.

(a) Short Title- This Act may be cited as the `Cut Energy Bills at Home Act'.

(b) Amendment of 1986 Code- Except as otherwise expressly provided, whenever in this Act an amendment or repeal is expressed in terms of an amendment to, or repeal of, a section or other provision, the reference shall be considered to be made to a section or other provision of the Internal Revenue Code of 1986.

SEC. 2. PERFORMANCE BASED HOME ENERGY IMPROVEMENTS.

(a) In General- Subpart A of part IV of subchapter A of chapter 1 is amended by adding at the end the following new section:

`SEC. 25E. PERFORMANCE BASED ENERGY IMPROVEMENTS.

`(a) In General- In the case of an individual, there shall be allowed as a credit against the tax imposed by this chapter for the taxable year for a qualified whole home energy efficiency retrofit an amount determined under subsection (b).

`(b) Amount Determined-

`(1) IN GENERAL- Subject to paragraph (4), the amount determined under this subsection is equal to--

`(A) the base amount under paragraph (2), increased by

`(B) the amount determined under paragraph (3).

`(2) BASE AMOUNT- For purposes of paragraph (1)(A), the base amount is $2,000, but only if the energy use for the residence is reduced by at least 20 percent below the baseline energy use for such residence as calculated according to paragraph (5).

`(3) INCREASE AMOUNT- For purposes of paragraph (1)(B), the amount determined under this paragraph is $500 for each additional 5 percentage point reduction in energy use.

`(4) LIMITATION- In no event shall the amount determined under this subsection exceed the lesser of--

`(A) $5,000 with respect to any residence, or

`(B) 30 percent of the qualified home energy efficiency expenditures paid or incurred by the taxpayer under subsection (c) with respect to such residence.

`(5) DETERMINATION OF ENERGY USE REDUCTION- For purposes of this subsection--

`(A) IN GENERAL- The reduction in energy use for any residence shall be determined by modeling the annual predicted percentage reduction in total energy costs for heating, cooling, hot water, and permanent lighting. It shall be modeled using computer modeling software approved under subsection (d)(2) and a baseline energy use calculated according to subsection (d)(1)(C).

`(B) ENERGY COSTS- For purposes of subparagraph (A), the energy cost per unit of fuel for each fuel type shall be determined by dividing the total actual energy bill for the residence for that fuel type for the most recent available 12-month period by the total energy units of that fuel type used over the same period.

`(c) Qualified Home Energy Efficiency Expenditures- For purposes of this section, the term `qualified home energy efficiency expenditures'--

`(1) means any amount paid or incurred by the taxpayer during the taxable year for a qualified whole home energy efficiency retrofit, including the cost of diagnostic procedures, labor, and modeling,

`(2) includes only measures that have an average estimated life of 5 years or more as determined by the Secretary, after consultation with the Secretary of Energy,

`(3) does not include any amount which is paid or incurred in connection with any expansion of the building envelope of the residence, and

`(4) does not include improvements to swimming pools or hot tubs or any other expenditure specifically excluded by the Secretary, after consultation with the Secretary of Energy.

`(d) Qualified Whole Home Energy Efficiency Retrofit- For purposes of this section--

`(1) IN GENERAL- The term `qualified whole home energy efficiency retrofit' means the implementation of measures placed in service during the taxable year intended to reduce the energy use of the principal

residence of the taxpayer which is located in the United States. A qualified whole home energy efficiency retrofit shall--

`(A) be designed, implemented, and installed by a contractor which is--

`(i) accredited by the Building Performance Institute (hereafter in this section referred to as `BPI') or a preexisting BPI accreditation-based State certification program with enhancements to achieve State energy policy,

`(ii) a Residential Energy Services Network (hereafter in this section referred to as `RESNET') accredited Energy Smart Home Performance Team, or

`(iii) accredited by an equivalent certification program approved by the Secretary, after consultation with the Secretary of Energy, for this purpose,

`(B) install a set of measures modeled to achieve a reduction in energy use of at least 20 percent below the baseline energy use established in subparagraph (C), using computer modeling software approved under paragraph (2),

`(C) establish the baseline energy use by calibrating the model using sections 3 and 4 and Annex D of BPI Standard BPI-2400-S-2011: Standardized Qualification of Whole House Energy Savings Estimates, or an equivalent standard approved by the Secretary, after consultation with Secretary of Energy, for this purpose,

`(D) document the measures implemented in the residence through photographs taken before and after the retrofit, including photographs of its visible energy systems and envelope as relevant, and

`(E) implement a test-out procedure, following guidelines of the applicable certification program specified under clause (i) or (ii) of subparagraph (A), or equivalent guidelines approved by the Secretary, after consultation with the Secretary of Energy, for this purpose, to ensure--

`(i) the safe operation of all systems post retrofit, and

`(ii) that all improvements are included in, and have been installed according to, standards of the applicable certification program specified under clause (i) or (ii) of subparagraph (A), or equivalent standards approved by the Secretary, after consultation with the Secretary of Energy, for this purpose.

For purposes of subparagraph (A)(iii), an organization or State may submit an equivalent certification program for approval by the Secretary, in consultation with the Secretary of Energy. The Secretary shall approve or deny such submission not later than 180 days after receipt, and, if the Secretary fails to respond in that time

period, the submitted equivalent certification program shall be considered approved.

`(2) APPROVED MODELING SOFTWARE- For purposes of paragraph (1)(B), the contractor shall use modeling software certified by RESNET as following the software verification test suites in section 4.2.1 of RESNET Publication No. 06-001 or certified by an alternative organization as following an equivalent standard, as approved by the Secretary, after consultation with the Secretary of Energy, for this purpose.

`(3) DOCUMENTATION- The Secretary, after consultation with the Secretary of Energy, shall prescribe regulations directing what specific documentation is required to be retained or submitted by the taxpayer in order to claim the credit under this section, which shall include, in addition to the photographs under paragraph (1)(D), a form approved by the Secretary that is completed and signed by the qualified whole home energy efficiency retrofit contractor under penalties of perjury. Such form shall include--

`(A) a statement that the contractor followed the specified procedures for establishing baseline energy use and estimating reduction in energy use,

`(B) the name of the software used for calculating the baseline energy use and reduction in energy use, the percentage reduction in projected energy savings achieved, and a statement that such software was certified for this program by the Secretary, after consultation with the Secretary of Energy,

`(C) a statement that the contractor will retain the details of the calculations and underlying energy bills for 5 years and will make such details available for inspection by the Secretary or the Secretary of Energy, if so requested,

`(D) a list of measures installed and a statement that all measures included in the reduction in energy use estimate are included in, and installed according to, standards of the applicable certification program specified under clause (i) or (ii) of subparagraph (A), or equivalent standards approved by the Secretary, after consultation with the Secretary of Energy,

`(E) a statement that the contractor meets the requirements of paragraph (1)(A), and

`(F) documentation of the total cost of the project in order to comply with the limitation under subsection (b)(4)(B).

`(e) Additional Rules- For purposes of this section--

`(1) NO DOUBLE BENEFIT-

`(A) IN GENERAL- With respect to any residence, no credit shall be allowed under this section for any taxable year in which the taxpayer claims a credit under section 25C.

`(B) RENEWABLE ENERGY SYSTEMS AND APPLIANCES- In the case of a renewable energy system or appliance that qualifies for

another credit under this chapter, the resulting reduction in energy use shall not be taken into account in determining the percentage energy use reductions under subsection (b).

`(C) NO DOUBLE BENEFIT FOR CERTAIN EXPENDITURES- The term `qualified home energy efficiency expenditures' shall not include any expenditure for which a deduction or credit is claimed by the taxpayer under this chapter for the taxable year or with respect to which the taxpayer receives any Federal energy efficiency rebate.

`(2) PRINCIPAL RESIDENCE- The term `principal residence' has the same meaning as when used in section 121.

`(3) SPECIAL RULES- Rules similar to the rules under paragraphs (4), (5), (6), (7), and (8) of section 25D(e) and section 25C(e)(2) shall apply, as determined by the Secretary, after consultation with the Secretary of Energy.

`(4) BASIS ADJUSTMENTS- For purposes of this subtitle, if a credit is allowed under this section with respect to any expenditure with respect to any property, the increase in the basis of such property which would (but for this paragraph) result from such expenditure shall be reduced by the amount of the credit so allowed.

`(5) ELECTION NOT TO CLAIM CREDIT- No credit shall be determined under subsection (a) for the taxable year if the taxpayer elects not to have subsection (a) apply to such taxable year.

`(6) MULTIPLE YEAR RETROFITS- If the taxpayer has claimed a credit under this section in a previous taxable year, the baseline energy use for the calculation of reduced energy use must be established after the previous retrofit has been placed in service.

`(f) Termination- This section shall not apply with respect to any costs paid or incurred after December 31, 2016.

`(g) Secretary Review- The Secretary, after consultation with the Secretary of Energy, shall establish a review process for the retrofits performed, including an estimate of the usage of the credit and a statistically valid analysis of the average actual energy use reductions, utilizing utility bill data collected on a voluntary basis, and report to Congress not later than June 30, 2014, any findings and recommendations for--

`(1) improvements to the effectiveness of the credit under this section, and

`(2) expansion of the credit under this section to rental units.'.

(b) Conforming Amendments-

(1) Section 1016(a) is amended--

(A) by striking `and' at the end of paragraph (36),

(B) by striking the period at the end of paragraph (37) and inserting `, and', and

(C) by adding at the end the following new paragraph:

`(38) to the extent provided in section 25E(e)(4), in the case of amounts with respect to which a credit has been allowed under section 25E.'.

(2) Section 6501(m) is amended by inserting `25E(e)(5),' after `section'.

(3) The table of sections for subpart A of part IV of subchapter A chapter 1 is amended by inserting after the item relating to section 25D the following new item:

`Sec. 25E. Performance based energy improvements.'.

(c) Effective Date- The amendments made by this section shall apply to amounts paid or incurred for a qualified whole home energy efficiency retrofit placed in service after December 31, 2011.