

**COMMENTS ON CALIFORNIA ENERGY COMMISSION'S DRAFT ACTION PLAN FOR THE
COMPREHENSIVE ENERGY EFFICIENCY PROGRAM FOR EXISTING BUILDINGS**

By David Gershon, CEO of Empowerment Institute

A tremendous amount of work went into CEC's Draft Action Plan. It is strongest in identifying supply side interventions for upgrading existing building stock in the form of programs, tools, resources and the needed workforce. Where it needs to be more robust, in my judgment, is in generating demand for these interventions by building owners. This has been the single greatest challenge of the Energy Upgrade California initiative and this document, with one notable exception, is proposing more of the same traditional marketing, education and outreach strategies that did not previously move the dial.

There is one aspect of the demand side plan however, that is charting out more innovative territory, namely the use of peer-to-peer methods of reaching potential users of the program. I believe this is a critical component to gaining the kind of traction desired. Another critical component hinted at in the 2013– 2014 Energy Upgrade California Marketing Plan, is “focusing on the needs of the consumer-citizen to whom the behavior is marketed.” To succeed with this approach will require the development of effective intrinsic motivators to complement the extrinsic motivators that are at the core of the current marketing approach.

The behavior change and community engagement work and research our Empowerment Institute has helped pioneer over the past three decades is a peer-to-peer behavior change methodology with a strong emphasis on intrinsic motivators. It starts however with a different premise on what demand side means that is implicit in most of the interventions described. Most programs and interventions that would describe themselves as demand-side are in my opinion actually supply-side interventions. That is they are wishing to sell a person energy efficiency in some form or other and are looking for ways to get the person to buy it. This is fine, if people woke up thinking about how they wish they were more energy efficient and could save money by doing so. But unfortunately this is not the case as anyone in this field knows all too well. What people do think about is more personal. How do I create a better life for my children? How can I increase my social connections so I feel less isolated? How can I feel a greater sense of self-efficacy in my life? How can I find more meaning and purpose?

Further, if we appeal to someone to conserve energy—an intrinsic motivator for the person with this value—conservation is about much more than just being energy efficient, it encompasses his or her entire lifestyle. This person wants to live a green lifestyle or a low carbon lifestyle. This means we need to look at conservation behaviors from their perspective, not that of the supplier of energy efficient solutions. Appealing to this person to just conserve energy does not fully address this larger need that they have.

Of course this bumps up against the single resource bias of most demand-side programs, which in my judgment, is the single greatest constraining factor in the effectiveness of these initiatives. Which brings me back to the notion that they are actually just trying to sell something, supply side if you will, rather than meet a deeper and more personal need in the end-user. As a result I believe this approach is destined, no matter how creative it gets in marketing to have marginal impact in moving the dial on energy efficiency. *Alas energy efficiency is just not something people are very interested in!*

So what are the alternatives? Through using a multi-resource, peer-support group model that appeals to intrinsic motivations working with 20,000 people our behavior change program and community engagement strategy has been able to get an average of 14% energy savings per household (plus many other resource savings), 25% average participation rate per household on a block, with multiple studies indicating that these behaviors persisted over time. The most robust of these independent

studies reported that this approach was “unprecedented in achieving behavior change.”¹

Further, research has demonstrated promising results for overcoming many barriers to getting households to take up retrofits. In a pilot in Marin County 106 households representing 270 people using Empowerment Institute’s Low Carbon Diet behavior change program and peer-support group process of 5 to 8 households called EcoTeams, on average reduced their household carbon emissions by 28% (11,000 pounds) with 41% taking at least one substantive energy efficiency upgrade action. We had similar results with a 205 household pilot in San Antonio, Texas.

Another small pilot conducted in Sonoma with the Low Carbon Diet and EcoTeam peer support group process has also shown promising results. Each of these households participated in Energy Upgrade California’s audit program. They then used this information and impetus to take one or more energy efficiency measures in their homes. Additionally, they invited neighbors to learn about their results and many of them also participated in Energy Upgrade California.

Our analysis on why these results were achieved is that the structured behavior change program combined with the peer support group process enabled three outcomes unavailable when people are approached as single households. 1) It created a sustainability ethic as a new social norm in the group that can be easily emulated. 2) It provided demonstrations by a trusted messenger (EcoTeam member) to help other team members have a direct experience of the new behavior or energy upgrade. 3) And it provided a structured program of actions with support, motivation, and accountability to help team members to take action and follow through.

Combining these results with Empowerment Institute’s neighbor-to-neighbor block-based recruitment rate of 25% indicates that this approach is capable of achieving up to 10 times the best-case conversion rate of doors knocked on to retrofits installed of 1%. Additionally, because the household recruitment and support is done on a voluntary neighbor-to-neighbor basis, this approach in comparison to major marketing campaigns is very cost-effective. And it is scalable.

If the demand side aspects of CEC’s Draft Action Plan can be aligned with a peer support group behavior change model based on intrinsic motivators there is a chance to create a truly game changing approach that can significantly increase the quantity, quality and speed of participation in Energy Upgrade California.

In this context, I wish to introduce an initiative, the Cool City Challenge, designed to be such a game changer. The plan is to demonstrate this model in three California cities, than scale it statewide, nationally and beyond. A foundational element of the Cool City Challenge is an approach for overcoming the main barriers to getting participation in residential energy retrofits. So let’s start here.

BUILDING DEMAND FOR RESIDENTIAL RETROFITS

Both greenhouse gas reduction and the development of a clean energy economy must pass through the gateway of energy efficiency retrofits. Buildings represent the lion’s share of carbon emissions, expensive renewable energy installations only make economic sense when a building is insulated, and retrofits enable the creation of green jobs and green economic development. As a consequence building retrofits were targeted for ARRA stimulus funding, with single-family homes the priority since they can be as much as 70% of the residential sector carbon emissions.² The logic of this

1. See Leiden study at <http://www.empowermentinstitute.net/index.php/community/behavior-change-research>.

² Lawrence Berkeley Laboratory

strategy, which the Obama administration called “recovery through retrofit,” is illustrated in this schematic figure.

Residential energy efficiency retrofits are a key lever to unlock and enable a clean energy economy



To take advantage of \$146 million dollars of ARRA funding and assist in the implementation of AB 32 and California Public Utility Commission’s “Energy Efficiency Strategic Plan,” Energy Upgrade California was created with a total investment of \$312 million dollars. Its goal was to retrofit 100,000 homes by the end of 2012.

A September 22, 2012 article in the *San Francisco Chronicle* article entitled “Energy Upgrades Fall Short of Goal” by David Baker stated:

“California last year launched an effort to help 100,000 homeowners save energy by providing rebates for new insulation, windows and furnaces. The stimulus money has been spent, but as of July, just 5,130 homes received upgrades or qualified for rebates, according to the California Energy Commission.” Here is what Andrew McAllister, a member of the Commission, had to say in this same article. “California officials want to see roughly 8 million retrofits by 2020. Otherwise, the state will need to build more power plants than are currently planned. And California will have a harder time meeting its goals of cutting carbon dioxide emissions and fighting global warming.”

Energy Upgrade California was reauthorized by the state with a new goal of 8 million household energy upgrades by 2020. This is because of the criticality of this intervention to GHG reduction and the paucity of residential energy efficiency options available.

If we are to unlock the great promise of residential energy efficiency retrofits to enable GHG reductions and catalyze a clean energy economy, we need to understand how to transform the barriers

to participation. The chart below describes four major barriers that exist and suggests how the whole system approach developed by Empowerment Institute can help in overcoming them.

Whole system approach to mitigate home retrofit barriers

Home Retrofitting Barriers	Whole System Approach
(-) Energy efficiency is not a priority for people and as a result it is difficult to interest them.	(+) Provide a program that delivers broader and more appealing benefits (conserving resources for the sake of our children, getting to know neighbors, and creating safer and healthier block).
(-) Traditional approaches of engaging people through advertising and websites are scattershot, costly, and have proven to be ineffective.	(+) Engage people through the trusted messenger of a neighbor who presents the appealing co-benefits described above.
(-) Transaction costs are too steep: time consuming and complicated paper work for rebates, difficulty finding a qualified contractor, disruptions in house and life, making a major cash outlay with a long and perhaps uncertain payback period.	(+) Use EcoTeam to create a new social norm around lowering carbon and environmental footprint to motivate deep retrofit actions. Use EcoTeam to assist in implementation through shared leadership responsibility to reduce the time burden on any one person and bundling audits/ retrofits for contractors to reduce costs.
(-) Retrofits as a stand alone benefit are a narrow basis for expansion and scaling community-wide.	(+) Program's co-benefits appeals to a broader segment of population. Broad community benefits can attract civic, public and private sectors and make going to scale feasible.

As described earlier, research done by Empowerment Institute in Marin County, Sonoma and San Antonio, Texas has demonstrated promising results for overcoming many of these barriers to participation.

It is important to stress that while these results are promising, they are preliminary and have not fully been put to the test. Also there are a number of other factors involved in making all this work including the quality of the contractors, access to financial incentives, and ease of use of the whole rebate system. The good news is that these components have benefitted from Energy Upgrade California and ARRA Investments and best practices have emerged. Empowerment Institute will be engaging in applied research through the Cool City Challenge to carefully assess this whole system approach for achieving household energy upgrades and deep carbon reduction through a research and evaluation process to be conducted by Lawrence Berkeley Labs. Let's now turn to the Cool City Challenge.

COOL CITY CHALLENGE: A WHOLE SYSTEM SOLUTION

With the long timeframe required to scale up new technological solutions and renewable energy, the world is searching for feasible, scalable and high impact strategies to address global warming in the short-term while we still have the time to take action. Since cities represent 70% of the planet's carbon emissions and citizens' daily lifestyle choices represent 70% of these emissions, helping cities and their citizens reduce their carbon footprint provides the world with an unparalleled opportunity to address climate change. Further, engaging citizens can serve as a demand-side driver to increase the pace of renewable energy, energy efficiency and new technology adoption.

The purpose of the Cool City Challenge is to seize this opportunity by bringing to scale Empowerment Institute's proven behavior change and community engagement methodology to help households achieve deep carbon reduction, create disaster resilient neighborhoods, and catalyze demand driven

green economic development. The strategy is to first demonstrate this methodology in three early adopter California cities and then scale it throughout California, nationally and worldwide. The five city finalists, from which three will be chosen, are San Francisco, Palo Alto, Davis, Sonoma, and San Rafael. The ultimate goal of the Cool City Challenge is to change the game around carbon reduction in cities and provide a viable path forward to address climate change.

As a result of the large carbon footprint of cities and citizens, they provide a key leverage point for addressing the climate change issue. But even though more than 100 local climate action plans have been developed in California alone over the past few years, they often lack implementation strategies and face stiff headwinds in community awareness and acceptance, much less financing. And these action plans tend to focus on high-level targets with no methodology for structured implementation, measurement or verification. Moreover, state and local approaches focus on technology-based solutions and policy adoption but generally lack strategies that include human and social factors that can either drive or hinder technology and policy adoption.

Initiatives for residential energy efficiency retrofitting programs targeting single-family homeowners have not been successful or cost-effective despite hundreds of millions in federal and state funding. Concurrently, personal transportation is the “800-pound gorilla”—the largest source of emissions in many cities—and city officials are largely vexed by this sector, with little in the way of short-term policy fixes and/or affordable technological solutions.

Fundamentally, this is a systems problem spanning multiple issues and perspectives: people’s attitudes and behaviors, how people view and use energy, technology choices and cost considerations, existing policies and incentives, market acceptance, and larger social contexts such as norms and values. Traditional approaches to climate change mitigation that focus on technology, policy, and markets often neglect or underestimate the human and social factors that interact with policy acceptance, technology adoption and market development.

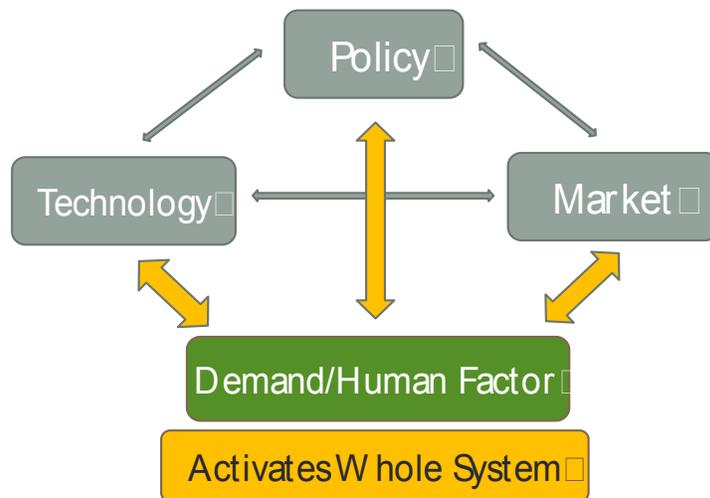
Unlike conventional top down climate action approaches, the Cool City Challenge is designed to work from the bottom up by empowering citizens to reduce their carbon footprint through participation in a structured behavior change program—the Low Carbon Diet—with a peer support group of neighbors called EcoTeams. A full suite of 24 carbon reduction actions is provided including transportation, home energy and food. Empowerment Institute’s behavior change methodology is based on two decades of rigorous research and social learning that has demonstrated how a peer support system combined with recipe style actions set in the context of a structured program and compelling community vision, move citizens to take action.

At its core, the Cool City Challenge is bringing to scale citywide Empowerment Institute’s proven behavior change methodology and community engagement systems. Centered on household level GHG reduction, it uses the existing social infrastructure present in neighborhoods, community organizations, educational institutions and businesses.

To further the social learning and accelerate the ability of the Cool City Challenge model to diffuse to other cities, analysis and quantification of the carbon impact of these efforts will be done utilizing technologies in home energy management and personal vehicle data collection, as well as comprehensive “carbon calculator” tools.

The Cool City Challenge initiates a new paradigm in addressing climate change: coupling state-of-the-art behavior change and community engagement strategies with deep data collection and analysis, and enabling technology adoption, policy implementation and market development. See schematic below.

Whole System Approach to Carbon Reduction



Cool City Challenge

Focusing solely on policy, technology and markets—the traditional supply-side approach to carbon mitigation, is an incomplete strategy without including the human factor. This is because households represent the most immediately accessible and largest carbon footprint and because behavior change activates the whole system by driving demand for new technology, policy adoption and market creation.

If the early adopter cities targeted by this initiative are able to achieve significant carbon reduction they will serve as role models and teaching cities to the many communities throughout California and across America looking for a cost effective and replicable climate change solution.

Empowerment Institute has assembled a world-class team to support the implementation, research and scaling of the Cool City Challenge including Lawrence Berkeley Labs, Stanford, UC Berkeley, UC Davis, and World Wildlife Fund. This team will support each city to achieve the following goals over a three-year period.

COOL CITY CHALLENGE GOALS

1. Engage a minimum of 25% of each city's households to reduce their carbon footprints by 25% or more with a minimum of 40% of doing home energy retrofits.
2. Redeploy the social capital generated by block-based teams to increase the individual and collective resiliency of residents in neighborhoods to address climate-related risks and enhance overall sustainability and livability.
3. Develop a green economic development strategy around the increased residential demand generated by the campaign for energy efficiency retrofits and renewable energy.

4. Create a whole system solution through engaging and developing synergy between the local government, community-based organizations and businesses. This approach will not only enable the campaign to accomplish its EcoTeam recruitment goals, but leave a legacy of enhanced community leadership, strengthened community partnerships, and a deepened environmental stewardship ethic.
5. Help each city deploy the political will of its engaged and carbon literate citizenry to assist it in developing a carbon neutral city strategy.
6. Document, measure and evaluate the GHG reductions, retrofits, community participation levels, economic and social outcomes, and community engagement processes to optimize the learning and assist with the future dissemination of the Cool City Challenge.
7. At the completion of the three-year Cool City Challenge disseminate this methodology throughout California, nationally and internationally.

CONCLUSION

Achieving CEC's goal of 8 million home energy retrofits by 2020 will be enormously difficult without a proven, mature and potentially game changing social innovation or several such social innovations that are ready to be brought to scale. Even then, it will be a herculean task to get that kind of uptake. The place where the greatest potential exists for implementing these types of social innovations are California's many progressive communities because they are bubbling with talent in the form of creative people, community-based organizations, small businesses, and local governments ready and willing to take action. And by bringing all these sectors of a community together many new points of intersection can occur and as a consequence more effective solutions can be generated. These are also the communities with the climate action plans in search of resources and a strategy to help implement them.

I believe a social innovation with the greatest potential to enable this kind of social change and the consequent uptake of household retrofits and carbon reduction is the Cool City Challenge. I also believe the social change operating system that powers the Cool City Challenge has the potential to spawn many complementary transformative social innovations. With the pull of CEC's 8 million household retrofit goal and the state's ambitious carbon reduction goals, it is time for innovative thinking, action and leadership. The world is watching and Californians are ready.

David Gershon, one the world's foremost experts in behavior change, community engagement and large system transformation is the author of eleven books including the award-winning *Social Change 2.0: A Blueprint for Reinventing Our World* and best-selling *Low Carbon Diet: A 30 Day Program to Lose 5,000 Pounds* being used in over 300 cities in six countries. He has lectured at Harvard, MIT and Johns Hopkins and served as an advisor to the White House and United Nations on issues of behavior change and community engagement. David is CEO of Empowerment Institute and co-directs its School for Transformative Social Change. For more information about the Cool City Challenge and the community-based whole system solutions described in this paper contact David Gershon dgershon@empowermentinstitute.net or visit www.coolcitychallenge.org.