

Thanks to the OECD and the sponsors of this workshop for the opportunity to be here, speak and to learn.

I have some general comments I would like to make, but first, staying in line with earlier presentations, I would like to mention two financing mechanisms that may be of interest to the this audience – PACE and OBF.

I want to start off by mentioning that in the United States there are dozens and dozens of clean energy financing mechanisms that are in place or being tested. At the State and Federal level a wide range of offerings exist. As just one example, under the federal Stimulus better buildings programs, USD 485 M went into 34 programs, most of which have a financing focus.

Property Assessed Clean Energy (PACE)

PACE financing programs, introduced in California in 2008, use special assessment districts to finance energy efficiency and renewable energy projects on private property, including residential, commercial and industrial properties. Historically, special assessment districts financed projects such as street paving, parks, open space, water and sewer systems, and street lighting. A local government creates an improvement district; a bond, secured by real property within the district, is issued; and the bond proceeds are used to fund renewable energy and energy efficiency projects. Property owners, who participate on a voluntary basis, then repay the debt service on the bond in fixed payments as part of their property tax bill – usually with a long-term, low interest rate.

On Bill Financing:

An On-Bill Financing (OBF) program helps qualified commercial or residential customers pay for energy-efficient business improvements through their utility bill. OBF works in conjunction with other rebate and incentive programs to provide, typically low or no interest financing option. The loan is repaid as an add-on to the utility bill. On-bill financing, particularly when structured as a tariff-type program in which the repayment obligation passes from one household occupant to the next, is one of the few financing mechanisms that has been shown to serve the rental housing market.

Now to get to general points and observations, starting with barriers.

With respect to barriers to increased adoption of clean energy and climate mitigation actions, I am going to specifically speak to end-use energy efficiency, which is my specialty. When coming to investment and policy I like to describe efficiency as the first mentioned and the first forgotten. Although glad to hear earlier today that at least one fund focuses on EE. Much of my comments will focus on just getting the price correct, does not solve the problem.

Efficiency suffers from a version of the “tragedy of the commons” ; Efficiency is a great cost-effective mechanism for society to save energy and reduce GHGs, but...there is a paradox in that it is not necessarily the choice that individual energy users make because of various market barriers.

Specific barriers to the consumer include:

- *Front-end investment requirements*
- *Principal agent problem (landlord/tenant)*

- *Lack of information and understanding of benefits (and risks)*
- *Transaction costs*
- *Lack of knowledgeable contractors, suppliers, etc.*
- *Uncertainty in documenting benefits and a lack of trust in the resource*

Furthermore, with respect to efficiency as a GHG mitigation strategy efficiency suffers from the:

- *Diffuse nature of efficiency*
- *Only very large efficiency projects and aggregations can obtain a meaningful amount of economic (total dollar) value from GHG reductions*
- *Indirect nature of efficiency's GHG reduction benefits - which are not necessarily accruing to the consumer versus the emissions generator*
- *The potential economic value of energy efficiency as a GHG mitigation strategy depends heavily on regulatory mechanisms*

In terms of public and utility policy, issues faced, at least in the US, include:

- *With respect to codes and standards: lack of consistent, aggressive building codes and equipment standards, and/or lack of enforcement*
- *Utilities: efficiency not always considered a real resource, the regulated business model emphasizes earnings on rate-based assets, marginal sales are profitable, revenues tied to sales, and a resistance to short term energy cost impacts; and in developing countries highly subsidized energy costs, fixed costs irrespective of consumptions, and of course "non-technical losses"*
- *The economy: either an inability to borrow money (in particular since so many commercial buildings are under water) or a reluctant to make further investments in a down economy*
- *From an advocacy perspective, EE's strength is that is very diffuse with companies and workers in every legislative district throughout the world and the weakness is that is very diffuse, generally small companies, and has not been able to organize for advocacy and economic concentration that tends to draw investment – I can talk about this extensively, as it is a focus of my organizing time.*

And then for the financing community observations I have are that:

- *Private capital preference for big, secured deals. Efficiency programs need to be very large (\$150-500+ million), diversified, or easily scalable to attract large institutions with attractive terms.*
- *Payment risk: Financing does not eliminate the cost or risk of projects, it just spreads it out. The money still has to be paid back. While the public policy sector wants assurance that energy efficiency funding is achieving energy savings cost-effectively, the financial sector is chiefly concerned with credit risk and securitization. Financiers know and like balance sheet financing.*

- *Better real estate valuation leads to more demand. Higher rents and real estate values for efficient buildings could create incentive for earlier and more comprehensive retrofits or more efficient new construction. Thus the importance of labeling.*
- *The Commercial Sector is not necessarily constrained by lack of financing but rather by the lack of a compelling value proposition. This sector is generally offered energy efficiency, funded by various forms of debt, under either a conventional contracting model or the energy services/performance contracting (ESCO) model. However, energy costs typically represent only 2-4 per cent of an operating budget and commercial enterprises generally prefer to reserve the use of debt (access to which is limited by the strength of the balance sheet) to initiatives that support the core business (e.g., manufacturing widgets, providing a service, etc.). Consequently, clean energy projects rarely win the competition for an enterprise's limited capital or interest in taking on more debt.*

In summary, there are multiple markets and multiple barriers, some of these barriers vary with time in importance, and thus there are no single answers, but multiple solutions for these multiple market and multiple barriers – consisting of a combination of voluntary actions that are incented and mandatory actions, which are, well, mandatory. Thus, while financing solutions and private capital are critical to accelerating efficiency and increasing market penetration, they need to be implemented with other market-based and policy solutions in order to access all market sectors.

Lastly, some general commentary:

1. *Our goals should be related to transformed markets and transformed markets for clean energy can be defined as markets in which investment in clean energy is either standard practice or required by codes or standards. To get there requires a continuum of actions, that repeats itself, starting with RD&D, moving to deployment and adoption, and then resulting in transformed markets for successful technologies, strategies, etc. Our challenge with increasing needs for energy and climate change mitigation is to accelerate this continuum.*

Thus, sorry to disagree with the future Senator from NH, but a price on Carbon alone will not solve all, as it will not address market barriers, as clean energy and carbon free offerings have shown that only receive a few percent of participation. It was Henry Ford and his brethren that brought us the auto, but it was the government that built the roads and established the roles of the road that allowed us to use our automobiles. Energy is a heavily regulated industry and while the govt cannot fund a clean energy “redo”, there is a critical role for govt. I do agree though that better understanding and addressing of the consumer perspective is necessary.

2. *From a public policy perspective, my experience, and some research indicates, that the most important element is consistent policy, consistent messaging, and consistent support – the TLC mentioned earlier today. Perhaps even more important than the specific requirements is that the message is sent to the business sector and consumers that a clean energy infrastructure is inevitable and thus worth long-term investment. “New” policy initiatives should be made with serious consideration of disruption in the market place – in contrast a new minister's statement of “I support stability in the marketplace and as soon as I change everything we will have stability” is not necessarily a helpful approach.*
3. *My last major point is about capacity building. Working in both a developed country, the US, although some here today may wish to debate that designation for the US, and developing countries; I want to emphasize the fundamental importance of training, that is human capacity building. Without the people to do what needs to be done (in all aspects from engineering to accounting and everything else) the best of programs will have small penetration rates at best and flounder at worse, poisoning the well for the future.*