



SECURITIZED ENERGY SAVINGS

A New Asset Class to Solve the Energy Efficiency Market



ECOLOGIE ASSETS



MBA 2013



An Efficiency Asset Class

Introduction - “Fruit on the Ground”

There is a large and fundamental misalignment in the capital markets in energy efficiency (EE) market. Stephen Chu, Secretary of Energy, describes energy-efficiency technology as the “low-hanging fruit” so low that “it’s on the ground.” Despite existing EE technology with extraordinary returns, the EE sector only receives a small fraction of the investment into the cleantech sector¹. Despite low returns and a host of negative externalities, for examples, biofuels received four times more investment than the entire EE sector in 2006. This misalignment continues today; many well-established products and technologies such as energy controls, HVAC, and efficient lighting have little risk and dependable return. Due to cross-incentives and market specific barriers, however, capital does not flow to EE retrofit projects as it should.

Securitized Energy Savings (SES) is a system to create fungible efficiency assets that align incentives and catalyze the larger EE and renewable sector. In brief, we plan to aggregate utility-management agreements across a wide base of building owners using an innovate type of contract (a “Right to Install”). This creates a diversified flow of income backed by proven technologies, and is reliable as long as building users need electricity and water. Properly tranching, SES Bonds can be created with a risk profile comparable to existing corporate debt but with considerably higher return. SES Bonds could also be potentially rated by a credit agency, confirming their safety and establishing an investment asset highly attractive to institutional investors, especially those with long-term obligations. For investors with higher risk appetites, SES Equities can also be created. Ecologie Assets would serve as an investment vehicle, asset originator, and broker.

As returns are based on already-existing technologies and energy demand, an investment vehicle of SES Bonds could be launched virtually immediately with relatively minimal amounts of funding; an example retrofit project would need a commitment of roughly \$10M. Unlike usual fund investments, this capital would only be callable when a retrofit project of specific risk and return is found.

Innovating Past Market Barriers

We find the EE market to be burdened by several specific barriers. Some of the larger issues include: an “accounting gap” in how EE projects are financially recorded as well as a “measurement wall” in how savings are proven.

By proper accounting standards, the accounting return for EE is always zero, no matter how high the economic returns are for a piece of EE equipment. This is due to the nature of EE returns as a reduction of a future cost. Since not spending a million dollars does not mean a company has a million dollars, today’s accounting rules lock out energy efficiency technology. From an accounting viewpoint, a dollar spent saving a hundred is still only worth one dollar. Because of this accounting mismatch, overall sales and actual return for EE providers are driven lower across the industry.

Another fundamental market barrier inherent within the current ESCo industry is the “measurement wall”. As there is no ability to compare a client building installed with the EE technology to a theoretical case of itself without the technology installed, the economic value of ESCo-financed installations is often subject to disagreement. Due to this uncertainty of return, the risk of traditional energy savings contracts is increased.

Financial innovation can address both of these issues. Rather than a complicated leasing contract or physically monitoring loads affected by the building retrofit, we enter into an agreement where the building owner promises to pay a fixed percentage of his or her utility bills in return for the EE/renewable retrofit. In addition, we also seek the right to install future products and technologies on equivalent terms. Thus, as a larger client pool is aggregated, bargaining power increases towards installation contractors and technology providers, adding to return. This client pool could also be potentially cross-marketed to LEED consultants and solar PPA providers as well.

Investment Structure: Project Finance to Investment Security

Ecologie is not the first to create financial innovations in energy efficiency. To our knowledge, however, it is the first to take EE and renewable building retrofits out of the traditional project-financing model, and to view utility bills as the basis of a new standardized asset class. This is in distinct contrast to a more traditional ESCo financial structure, and even newer recent approaches by firms such as Metrus. In contrast to traditional ESCo funding, SES securities does not concentrate the financial risk of multiple projects on a single retrofit installer or bank. Instead, it diversifies such risk across a potentially unlimited pool of investors, and separates operational risk (the ESCo going bankrupt), technology risk (the ability of the retrofit to generate return), and

non-savings returns (tax credits, carbon, and certain subsidies) to investors best fit to hold them. For an analogy with the real estate market, Ecology's goal is not to create another real estate developer, but to instead create the first REIT.

Ecologie also has no asset management fee. In contrast to even specialized funds such as Metrus, Ecologie aims to take EE financing one step beyond alternative investments and help establish a tradable market for efficiency-backed assets. In this vein, Ecologie tranches incoming utility income such that the most senior claim is comparable to highly rated corporate debt. This claim is given to investors either directly or through a fund administered by Ecologie. As Ecologie is paid only through the most junior tranches, Ecologie is paid nothing unless the client first receives his or her return. To help establish a centralized trading platform, future sales of such assets are required to advertise (but not necessarily to sell) with Ecologie through an inheritable clause.

Scale & Impact: A 1.3 Trillion Dollar Market

According to a report by McKinsey & Co., energy efficiency represents a significant market opportunity, with an estimated size of \$1.3 trillion². Current EE technology already has the potential to reduce the United States' overall energy usage by 25%, or the carbon-emissions equivalent of taking every single motorized vehicle in the country off the road. The creation of efficiency-backed assets has the potential to greatly impact the market adoption of existing technology, and has the advantage of being easily quantifiable; the savings income of an SES Bond is directly related to kWh saved. Just as importantly from an impact perspective, however, is the ability to install future products for an existing client base. By providing an instant customer base to new technologies and cleantech startups, Ecologie could potentially increase the speed by which new technology is brought to market as a whole. More speculatively, we also see no reason why the SES structure could not be implemented in other countries as well.

Another advantage of the SES approach to alternative asset and PPA-style funds is its ability to scale. Since savings returns are paid directly from the client to the investor (or an SPV), a purchase of an SES security is not a bet on a specific fund manager's ability or skill. Instead, it is a new approach that once established, can be replicated by any company selling a product that reduces a customer's utility bill. In fact, companies financing sales in this way would be providing an origination service to Ecologie.

Longer term, benefits from scale also accrue with the growth of a liquid market. Such a trading platform would reduce the liquidity premium needed for all previously created assets, and would increase their value to institutional investors. This in turn allows a larger pool of capital to directly invest in energy efficiency. In such an environment, the residential market may also be served as well, as it represents a virtually untouched market with an energy bill of roughly \$300 billion a year.

Example Investment & Returns

With the current long-term yield of Aaa debt below 4%, we are confident that we can provide an SES Bond with comparable risk but with a substantial premium. As an example candidate for inclusion for an SES Bond, we use a university with low credit risk, a mild climate, and a preference for zero capital investment. On the project side, we assume that the technology portfolio contains a single, commercially established, turn-key solution for efficient HVAC management³.

We also make the following assumptions: 1) the university receives a quarter of the generated savings in return for permission to improve its buildings, and 2) that the seasonal volatility of the school's utility bill is roughly equal to energy demand in California. In this case, we find that a conservative 8% return is reasonable. In terms of safety, monthly utility usage would have to collapse by 50% from its lowest historical point to endanger cash flow. In addition, non-electrical returns, such as hot water, gas, and tax incentives are ignored.

Risks & Team

Nonetheless, there are still risks associated with investment into efficiency-backed securities. Outside of traditional default risk by building owners and clients, the government may reduce tax credits and subsidies, though this is not a primary driver of return. There is also risk of equipment failure in an installed retrofit project, which would reduce savings cash flow. Contractor and manufacturer warranties, however, help mitigate this risk.

Team members include entrepreneurs in both consumers and providers of energy efficiency. One member has worked in large governmental agencies and healthcare, while another previously negotiated with the Malaysian federal government for a prototypical SES-type investment in 2008. He has also spoken at Lawrence Berkeley Labs on the topic of efficiency finance.

Appendix

¹For example, in an opinion piece published in *The Times of London*, Secretary of the U.S. Department of Energy Stephen Chu wrote the following: “The quickest and easiest way to reduce our carbon footprint is through energy efficiency. Energy efficiency is not just low-hanging fruit; it is fruit that is lying on the ground.” (See <http://www.energy.gov/news2009/7429.htm>.)

²McKinsey & Company. (2009). *Unlocking Energy Efficiency in the U.S. Economy*, 13.