

Sustainability Investment Report

April 2010

# ENERGY EFFICIENCY

Turning Negawatts into Marketable Securities

equilibrium capital



## About Equilibrium Capital Group LLC

Equilibrium Capital Group is building a portfolio of operating companies managing assets in key sustainability sectors. Each of these companies is charged with executing a unique investment strategy in one of our key targeted areas: green buildings; resource efficiency; energy; water; land; carbon; and food production. We believe that **financial innovation** is one of the key catalysts to the scaling of sustainability solutions and impact.

Bringing together more than 20 years of innovative investment experience, we leverage our collective expertise, passion and connections in the world of impact investing to affect change on a global scale.

For more information, please visit [www.eq-cap.com](http://www.eq-cap.com) or contact Beth Smith ([smith@eq-cap.com](mailto:smith@eq-cap.com)).

## About Equilibrium Resource Management Group (EqRM)

Equilibrium Resource Management is an independent power producer (IPP), providing efficiency energy as a utility-grade resource. EqRM deploys capital through business structures that make existing buildings more energy efficient at no capital cost to the building owner, and that keeps the efficient building operating at design efficiency for the long term. The result is lowest cost energy to utilities, a no-capital solution to efficient buildings for building owners, and investment-grade returns for project equity and debt investors.

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# ENERGY EFFICIENCY

## Turning Negawatts into Marketable Securities

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**This report on the energy efficiency market is a summary of our extensive research and in-depth analysis during the past year. We have researched over 500 sources and conducted numerous interviews with industry and policy experts in the energy efficiency market.**

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## Summary and Conclusions

**Today energy efficiency is the single most productive way to create energy.** There is no form of energy generation that comes close to the low cost of producing it or the environmental benefits. We expect this market to reach **\$170 billion annually in the United States by 2020 and generate investment grade returns.** We predict that by 2015, saved energy – “negawatts” – will be treated like any other energy source in California, New England, the Mid-Atlantic region, and other parts of the country.

The growing concerns about global warming, coupled with the economic crisis around the world, have created a renewed interest in the untapped potential of energy efficiency. Leaders in the public and private sectors are recognizing that energy conservation is a far cheaper and more efficient alternative to reducing carbon emissions and dependence on carbon-intensive resources than building new wind, solar, or other renewable energy resources. In particular, energy efficiency retrofits of existing commercial, institutional, industrial, and residential buildings can reduce energy consumption significantly, while also creating new jobs in the hard hit U.S. construction industry.

McKinsey & Company’s comprehensive study of the U.S. energy efficiency market estimated that the total 2009-2020 present value of energy savings across all U.S. sectors is \$1.2 trillion, on \$523 billion of upfront investment. This translates to \$130 billion in total annual end-use energy savings in 2020. McKinsey also forecasted major environmental benefits, including reducing CO<sub>2</sub> emissions by 1.1 gigatons in 2020.<sup>1</sup>

In the energy efficiency ecosystem, we see four major segments: **utility and energy firms; energy efficiency executors; energy efficiency equipment vendors; and funding sources.** While some of the major players have broad solutions covering multiple segments, including companies like **Johnson Controls, Schneider Electric, Siemens Building Solutions, and Constellation Energy,** we expect to see a next generation of companies that will emerge into big players in energy efficiency. The winners in this space in the long term will not only offer excellent products and services in their core area of expertise, but they will need strong alliances throughout the ecosystem, and also have a thorough understanding of government and regulatory policies in their regions.

***The biggest investment opportunity in this market is innovative financial instruments that can fund energy efficiency building retrofit projects on a large scale, turning negawatts, or saved energy, into marketable securities.***

To-date, most of the revenue in this market has been generated in the public sector. But emerging new business models and approaches for financing retrofits will dramatically increase progress in the commercial, industrial, and residential market segments. Our portfolio company, **Equilibrium Resource Management (EqRM),** is one of four players addressing this major opportunity in the United States, along with **Metrus Energy, Transcend Equity, and E&I Advisors.** EqRM is unique in that it has created fixed-income instruments to invest in and deliver energy efficiency for existing buildings in the commercial and institutional sectors, delivering value of the saved energy to utilities and building owners.

With innovative financial instruments available to fund building retrofit projects, we believe the U.S. energy efficiency market will be significantly bigger than McKinsey’s forecast. We also think there will be investment opportunities in other parts of the world, particularly in Asia, as that region expands programs to meet national energy policies and goals.

## Introduction to Energy Efficiency

Energy efficiency is not a new trend in clean energy. The first energy saving initiatives were implemented over thirty years ago in California, and many other states followed California's lead and passed legislation to promote energy conservation. Energy efficiency can be achieved through a wide range of programs and technologies, such as building energy codes for new buildings, combined heat and power, appliance efficiency standards, and incentives to reduce energy consumption. But the energy efficiency approach that has **the biggest long-term impact economically and environmentally is retrofitting existing buildings.**

Twenty years ago, physicist Amory Lovins coined the term “**negawatt**” – a negative watt, or the power saved by increasing energy efficiency or reducing consumption of electricity. This was a powerful step forward in recognizing that energy efficiency is a critical energy resource. Today, many utilities buy “negawatts” in the form of conservation programs, but the current initiatives are only accessing a small part of the market.

The pace of change is accelerating globally and nationally as awareness grows that energy efficiency is the most cost-effective and efficient way to quickly reduce energy dependence and carbon emissions. Negawatts are the most accessible source of energy and they are everywhere – in every home, in every business, and in every public institution. The National Academy of Sciences stated in 2009 that the **full deployment of energy efficiency technologies in buildings alone could eliminate the need to construct new electricity-generating plants in the United States,** except to address regional supply imbalances, or replace obsolete or environmentally harmful sources of electricity.<sup>2</sup>

## Market Opportunity

In his 1990 article, “**The Negawatt Revolution,**” Amory Lovins envisioned “negawatt markets” which would treat saved electricity like any other energy source or commodity. He estimated that energy efficiency ultimately represented a trillion-dollar-a-year global market.<sup>3</sup> Last year, the World Business Council for Sustainable Development estimated in their report, “Transforming the Market,” that the worldwide market for energy efficiency in buildings could be worth between \$900 billion and \$1.3 trillion by 2050.<sup>4</sup>

How long will it take to attain a trillion-dollar-a-year global market? We don't know, but we are confident that it will happen -- and long before 2050. It is very difficult to do an accurate, bottoms-up forecast within one country, no less worldwide, but many trends indicate that energy efficiency has great promise for driving economic growth, and for providing significant environmental benefits at the same time. Over the past two decades, there has been significant progress in developing energy efficiency solutions, especially in Western Europe, but the worldwide potential for saved energy as a resource has only begun to be tapped.

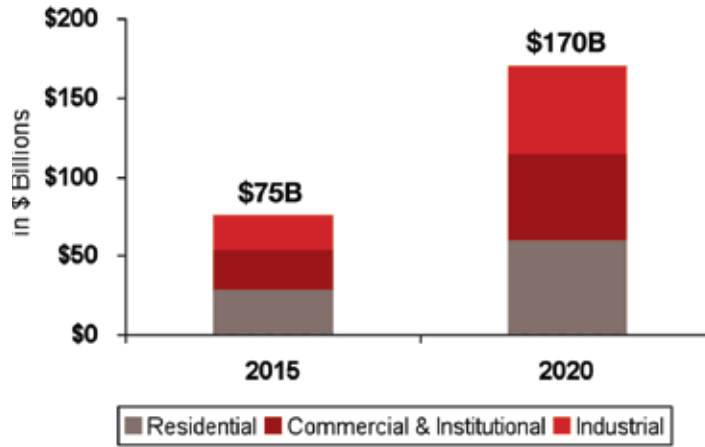
Last year McKinsey & Company conducted a comprehensive study of the U.S. energy efficiency market. The study analyzed the potential of retrofitting buildings by market sector, providing metrics based on the current pace of efficiency investment. McKinsey estimated that the total 2009-2020 present value of energy savings across all U.S. sectors is \$1.2 trillion, representing a 130% return on \$523 billion of upfront investment. This translates to \$130 billion in total annual end-use energy savings in 2020.<sup>1</sup>

The environmental benefits are enormous as well. McKinsey forecasted potential energy savings of 27.5 quadrillion BTUs and CO<sub>2</sub> emissions reduced by 1.1 gigatons in 2020.<sup>1</sup>

These numbers are impressive, but we estimate that the U.S. market will be significantly bigger. The market drivers will be increasing access to capital and utility markets, as well as making it easy for property owners to understand and attain the benefits of energy efficiency retrofits. **Our forecast shows that the U.S. market for end-use energy savings due to energy efficiency will reach \$170 billion in 2020 and generate attractive returns for building owners, energy providers, and investors.**

We also predict that by 2015, saved energy – “negawatts” – will be treated like any other energy source in California, New England, the Mid-Atlantic region, and other parts of the country, raising the total U.S. market to \$75 billion in that year.

### U.S. End-Use Energy Savings Due to Energy Efficiency

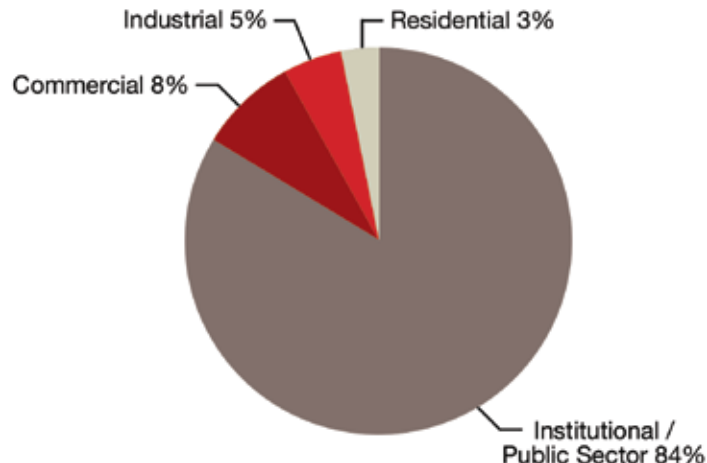


Source: Equilibrium Capital Group LLC

One of the most successful business models created in the 1980's and 1990's to access the energy efficiency market is the Energy Services Company (ESCO) model. ESCOs design and implement energy saving solutions for building owners. Building owners generally pay for these solutions through borrowing or self-funding, and their comfort in doing so is backed by the ESCO performance guarantee – essentially a guarantee that the promised savings will be realized. Variants on the model have the ESCO itself providing or facilitating the capital against a fixed annual payment, which can be characterized as an energy services payment, but which typically is based on design projections, rather than measurements of energy savings.

The chart below indicates the portion of the 2009 U.S. energy efficiency market where most of the revenues currently originate, and where the ESCO approach has not been able to penetrate. The majority of ESCOs' 2009 revenues of \$5.6 billion<sup>5</sup> were from the institutional/public sector, where building retrofits are usually funded by state or municipal bonds. ESCOs may never be major players in the large residential segment, but there is significant room for growth in the commercial and industrial sectors.

### U.S. ESCO 2009 Revenues by Market Segment



Source: Equilibrium Capital Group LLC

## Technology Aspects of the Opportunity

Technology is not a barrier for building retrofits. Remarkable energy efficiency technology is available today, and a wide array of high efficiency equipment from strong, global vendors has been in the market for years. For example, **Johnson Controls** and **Siemens Building Technologies** offer a complete range of building automation & control (BAC) and demand response equipment. **Cisco** has developed a product line which includes integrated building control technologies, networks, and monitoring. The Cisco® Connected Real Estate solution is a framework that positions the “Network as the Platform.”

But there is still some room for product innovation. The energy efficiency market will need a **next-generation of monitoring and verification tools**. As standards such as the International Performance, Measurement & Verification Protocol (IPMVP) gain traction, energy efficiency solutions will be required to embed and leverage these standards to achieve outstanding energy efficiency gains. As soon as utilities are able to monitor and verify building energy savings reliably and accurately on a long-term basis, they will be able to treat energy efficiency as another high-quality energy source.

Technology innovations also are needed for **upgrading and optimizing aging electricity grid infrastructure**. As energy efficiency and demand response programs are expanded, and additional sources of clean energy strain the transmission grid, new solutions will be essential to optimize grid capacities and reduce transaction costs.

## Key Players in the Energy Efficiency Ecosystem

There are four major clusters of companies in the energy efficiency ecosystem:

- **Utility and energy firms**
- **Energy efficiency executors** – primarily Energy Services Companies (ESCOs) and demand response (DR) service providers
- **Energy efficiency equipment vendors** – Building Automation & Control (BAC) and DR systems
- **Energy efficiency funding sources**

As this industry has matured over the past ten years, **major U.S. players have expanded their product and services capabilities within and across these four market segments**. Companies recognize that expanding their offerings through acquisitions and/or R&D investments is critical for expanding their installed base of customers, especially in the commercial and industrial sectors. The ecosystem map on the following page highlights the breadth of large firms’ energy efficiency solutions. But because this is such a huge opportunity, and regulatory requirements vary from state to state, there are many companies in most of the energy efficiency products and services segments.

## Utilities and Energy Firms

The list of top investor-owned utilities (IOUs) is different for each state in the United States, posing distribution challenges for companies selling energy efficiency equipment and services to utilities. In California, all three of the major IOUs have strong conservation programs – **Southern California Edison (SCE)**, **PG&E**, and **San Diego Gas & Electric (SDG&E)**. In New England, **Connecticut Light & Power (CL&P)** and the **National Grid** are two examples of major IOUs focused on energy efficiency.

There are some energy firms offering energy efficiency services on a national or regional basis, but the list of these players in the ecosystem has shortened during the past ten years. Three large energy firms provide a range of ESCO services, and one player, **Constellation Energy**, also offers demand response services.



# Key Players in the U.S. Energy Efficiency Ecosystem

Utilities & Energy Firms	Energy Efficiency Executors			EE Equipment Vendors		EE Funding Sources (Debt & Equity)
	ESPs	ESCOs	EE Monitoring EE Consulting Eng. Firms Construction*	DR Aggregator/Svc. Providers	Bldg. Auto. & Control DR	
<i>Top 3 IOUs in CA</i> SCE PG&E SDG&E	Ameresco McKinstry					Capital Leases: Bank of America JPMorgan Chase OE Capital
<i>Top 2 IOUs in CT</i> CL&P	Johnson Controls	Schneider Electric/TAC			Johnson Controls	
<i>Top 2 IOUs in MA</i> United Illum.	Siemens Building Solutions	NORESCO (acquired by Carrier in Nov. 2008)				Private Equity: Pegasus Capital Advisors Energy Investor Funds
<i>MA Electric (National Grid sub.)</i> NSTAR	Honeywell Trane	7 ← EnerNOC Comverge		EnerNOC Comverge		Energy Capital Partners Climate Change Capital Project Financing: Hannon Armstrong Capital Forsyth Street Advisors Pareto Energy (Energy Indep. Districts)
<i>Top 3 IOUs in MD</i> Chevron ConEdison	Constellation Energy Chevron Energy Solutions ConEdison Solutions			Constellation Energy CPower BluePoint Energy N.A. Power Partners RTP Controls EnergyConnect	BPE NAP RTP	Third-Party Capital Solutions: Equilibrium Resource Mgmt. (EqRM)
<i>Baltimore G&amp;E</i> Potomac E.P.					Cisco KMC Controls Lutron Electronics	Metrus Energy Transcend Equity E&I Advisors
<i>Top 3 IOUs in PA</i> PPL Electric Utilities West Penna Power	Burns & McDonnell AECOM		There are many Construction Firms			Other Funding Sources: Living Cities (Philanthropic) BEEF Fund (Federal-Level Proposal) LEEF (Lighting Fund – not raised yet) Serraflix (VC, Prog. Mgmt. + Consulting)

## Primary Business Model of Key Players:

- Utility or Energy Firm
- Energy Services Company (ESCO)
- Demand Response Service Provider
- Energy Efficiency Equipment Vendor
- Energy Efficiency Funding Source

## Energy Efficiency (EE) Acronyms:

DR = Demand Response. There are 3 typical DR programs: Aggregator Managed Portfolio (AMP); Base Interruptible Program (BIP); & Capacity Bidding Program (CBP).  
 ESCO = Energy Services Company  
 ESP = Energy Service Provider (ESPs usually offer all of the svcs. offered by ESCOs, plus offer energy supply options, e.g., energy strategy development, energy rate analysis & negotiations on a consulting basis.)  
 IOU = Investor-Owned Utility  
 PPA = Power Purchase Agreement  
 \* Johnson Controls, & probably most/all of the other large ESCOs with engineering services, sub-contract the construction part of EE retrofit projects.

Source: Equilibrium Capital Group LLC



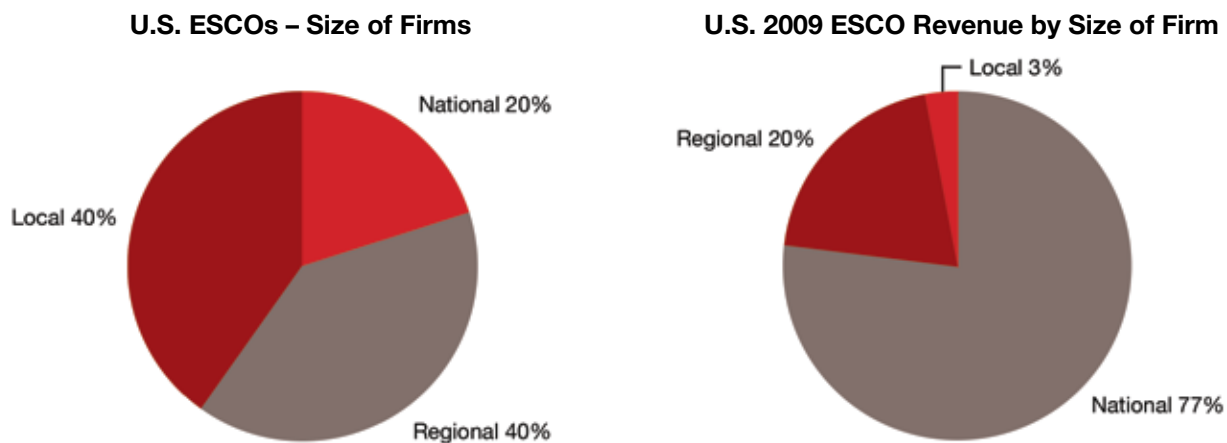
## Energy Efficiency Executors

**Energy Services Companies (ESCOs)** are very important players in the energy efficiency ecosystem, with services usually ranging from design, engineering and construction oversight, to on-going monitoring of building efficiency retrofit projects, so that they can guarantee energy savings with their Energy Savings Performance Contracts (ESPCs). Six major energy efficiency system vendors have entered this segment through acquisition or internal investment in ESCO capabilities: **Johnson Controls; Schneider Electric/TAC; Siemens Building Solutions; Carrier (acquired NORESO in Nov. 2008); Honeywell;** and **Trane.**

Currently, there are only four major independent ESCOs: **Ameresco; McKinstry; Burns & McDonnell;** and **AECOM.** In this context, “independent” means “without a proprietary technology solution.”

Breadth of services and depth of experience delivering on ESPCs determine the winners in each region. In the United States, approximately 20% of the U.S. ESCOs are national firms, who collectively represent over 75% market share.

### Snapshot of the U.S. ESCO Industry in 2009



Source: Equilibrium Capital Group LLC

**Demand response service providers** develop and implement demand response and energy management solutions for power grid operators and utilities, as well as for commercial, institutional, and industrial customers. Demand response means shifting electricity requirements to periods when system demand is lower, thus reducing costs and overall system load. Some of the demand response firms also offer on-going energy efficiency monitoring services for building owners. EnerNOC is an early leader in the large and medium commercial and industrial sectors. Comverge is another leading demand response service provider, focused on smaller customers, including the residential sector. Both of these companies have strong alliances with grid operators and major utilities.

There are a range of other types of energy efficiency executors, such as consulting, engineering, and construction firms. Although there has been consolidation amongst the U.S. ESCO players, these other sub-segments of the ecosystem have remained fragmented. The energy efficiency executors are different in every country. And within each region of most countries, there are often numerous consulting, engineering, and construction firms.

## Energy Efficiency Equipment Vendors

The list of energy efficiency equipment vendors is long, but the most successful players are also increasingly offering ESCO services. **Johnson Controls** and **Siemens Building Solutions** are global leaders in the Building Automation & Control equipment segment with large installed bases. These companies' success stems, in part, from broad ESCO service offerings, providing a “one-stop-shop” for their customers. **Schneider Electric** is an energy efficiency equipment vendor who has some ESCO capabilities and recently announced ambitious plans for the demand response services market.

There are other leading vendors focused on key sub-segments of energy efficiency equipment market. For example, Cisco sells their EnergyWise system, which integrates phones, computers, and building systems into one IP-based energy management platform, in addition to their sales of the Cisco® Connected Real Estate solution.

## Energy Efficiency Funding Sources

Although there is long list of funding sources shown on the energy efficiency ecosystem map, in reality, only a small percentage of potential building retrofit projects are getting funded. Buildings after all are a tool to serve a primary institutional, business, or family need; that primary need will have priority claim on the capital and credit of the building owner. The resulting reality is that building retrofits are seldom a priority investment for building owners.

The problem is not capital availability as such. It is likely to be balance sheet burden generally; that is, solutions that require burdening of the balance sheet with debt (or debt-characterized obligations) restrict a building owner's borrowing capacity for the owner's primary purpose, and/or affect the building owner's critical credit rating, even if the result is expected to be cash flow positive. Such considerations reinforce the priority placed on primary mission activities.

**Off-balance sheet financing solutions are therefore important to building owners.** Traditional forms of off-balance-sheet funding, however, have increasingly been pulled on-balance-sheet by accounting standards. Traditional capital leases, for example, remain an effective tool for reallocating tax benefit and burden, but are treated for accounting purposes like debt on the balance sheet.

**Accordingly, third-party capital solutions are emerging as an important new funding source.** There are four companies in this financing category -- **Equilibrium Resource Management (EqRM), Metrus Energy, Transcend Equity, and E&I Advisors.** There are significant differences between these firms' business models and market focus, but to one degree or another they all share the attribute that the building owner is not charged a capital service charge, but is instead being charged directly for the energy value of the installation provided. This financing approach holds promise to remove a major hurdle for property owners.

Due to the diversity of energy efficiency markets and policy frameworks for energy, international investment strategies are likely best approached on a country-by-country basis. The long-term winners in each country will not only offer excellent products and services in their core area of expertise, but also will have strong alliances with other leaders in the ecosystem and have a thorough understanding of government and regulatory policies in their regions.

## Issues and Opportunities

**Lack of suitable financing business models is by far the greatest barrier for the energy efficiency market, especially in the current economic climate.** Our interviews last year with industry experts underscored several key issues:

- Currently, commercial property owners are only focused on filling buildings/leasing space.
- Large quantities of residential and commercial mortgages are under water, where the owner has more debt on the property than the current market value.
- The typical commercial building has so many owners that ownership behaves more like a mutual fund than a traditional building owner. It is very hard for the syndicated owners to raise new capital.
- Building owners seek a one or two-year payback period for "non-core" benefits such as energy efficiency, a hurdle which is extremely difficult to meet.
- At the same time, building owners are prepared to entertain business model solutions that reduce their operating costs for energy, if that benefit can be provided without countervailing adverse balance sheet effects.
- **If financing for energy efficiency could be packaged and simplified for the building owner in a way that reduces operating costs without compromising the balance sheet, an excellent market entry opportunity exists.**

Alignment of behavior patterns is a major challenge for energy efficiency. ESCOs have the capacity to scale their construction and installation capabilities, but their business model is suitable for only a small portion of the built market. Building owners like lower operating costs, but are not energy experts and are reluctant to assume the risk that energy efficiency retrofits will pay for themselves on their own sites. Large projects require teamwork across multiple disciplines: building owners; ESCOs and other energy efficiency executors; utilities; financing; and government/regulatory bodies. At the end of one of our interviews last year, the industry expert said, *"The group who brings the full range of disciplines together will crack the nut."*

There are also regulatory challenges in the United States, because there is no national policy framework, and energy policies are different in every state. But there are excellent opportunities in states with well-thought out statutes that promote energy efficiency.

During the past year, we worked with our portfolio firm, EqRM, to analyze market dynamics and regulatory policies in 22 states to identify the best market opportunities for energy efficiency retrofits, especially in the underserved commercial sector. While co-authoring a White Paper this spring with the Center for American Progress (CAP), EqRM and CAP refined this analysis to develop the state ranking table shown below. CAP’s statistical analysis showed that no single policy by itself dominates, but there is a strong correlation between the suite of policies and reduced electricity use.

**Criteria for Ranking States**

- Power costs
- Electricity demand forecasts for total electricity demand and renewable energy
- Energy efficiency in a state’s Renewable Portfolio Standard (RPS)
- Energy efficiency in a state’s Renewable Energy Credit (REC) statute
- No geographic restrictions within the region for a state’s RPS and REC statutes
- Energy-efficiency-specific utility purchase standards
- Unbundled utility structures, in which energy transmission and distribution utilities are separated from power generation companies
- Decoupled utility rate structures – “decoupling” utility revenues (and shareholder returns) from the volume of electricity or natural gas sold
- Other alignment of meeting energy efficiency goals with utility companies’ shareholder benefits
- Penalties for non-compliance with energy efficiency standards
- Regulatory cost-benefit tests that focus on utilities’ real costs
- Availability of Property Assessed Clean Energy (PACE) financing structures
- The number of hospitals and colleges – used as a proxy for sizing the market opportunity

Based on our analysis, California, New England, the Mid-Atlantic region, and New York are in the lead, but all 22 states in this study have taken important steps to promote energy efficiency. Across the country, building retrofits are viewed as an effective way to reduce energy consumption and create new jobs in the hard hit construction industry.

**Ranking Leading States for the Commercial and Institutional Building Retrofit Markets**

- |                   |                |
|-------------------|----------------|
| 1. Connecticut    | 12. Hawaii     |
| 2. California     | 13. Michigan   |
| 3. Maryland       | 14. Maine      |
| 4. Massachusetts  | 15. Nevada     |
| 5. Pennsylvania   | 16. Delaware   |
| 6. New York       | 17. New Mexico |
| 7. Texas          | 18. Florida    |
| 8. North Carolina | 19. Illinois   |
| 9. New Jersey     | 20. Utah       |
| 10. Ohio          | 21. Oregon     |
| 11. Virginia      | 22. Washington |

There are a number of other states on our “watch list,” and a number of states are in the process of introducing new programs and statutes, so our rankings will invariably change over time.

Other organizations and companies focused on the residential sector have different approaches. The American Council for an Energy-Efficient Economy’s (ACEEE’s) state ranking scorecard, for example, factors in variables such as building codes, appliance standards, and transportation, but it excludes market dynamics, such as power costs, electricity demand forecasts, and the size of the market opportunity in each state. Despite the difference in the methodologies, there is a lot of overlap between ACEEE’s and our rankings.

**ACEEE’s 2009 State Energy Efficiency Scorecard <sup>6</sup>**

- |                  |                 |                   |                    |
|------------------|-----------------|-------------------|--------------------|
| #1 California    | #7 Washington   | #13 New Hampshire | #19 Hawaii         |
| #2 Massachusetts | #8 Minnesota    | #13 New Jersey    | #20 Idaho          |
| #3 Connecticut   | #9 Rhode Island | #15 Pennsylvania  | #20 Delaware       |
| #4 Oregon        | #10 Maine       | #16 Colorado      | #20 Washington, DC |
| #5 New York      | #11 Wisconsin   | #16 Nevada        |                    |
| #6 Vermont       | #11 Maryland    | #18 Iowa          |                    |

## The Big Unmet Need and Opportunity in Energy Efficiency

### ***The big need is for innovative financial solutions for energy efficiency building retrofit projects.***

Equilibrium Resource Management (EqRM), Metrus Energy, Transcend Equity, and E&I Advisors are the U.S. players offering new solutions for this unmet need.

EqRM creates fixed-income instruments to invest in and deliver energy efficiency for buildings in the institutional and commercial sectors. They address this large “negawatt” opportunity through the use of energy efficiency Power Purchase Agreements (the eePPA<sup>TM7</sup> structure), which enable public and private capital resources to invest in measurable and durable efficiency cash flows. By aggregating portfolios of retrofit projects and providing both continuous commissioning and measurement and verification systems on a long-term basis, EqRM offers a low-cost energy resource as a commercial product, to utilities and to building owners. EqRM provides the capital as an investor in energy efficiency “generation.” The system is analogous to other forms of energy generation that provide two forms of energy and two income streams. For example, as in co-generation, EqRM pays owners for the privilege of building an “efficiency generator” in their buildings through a site host lease, while it supplies needed negawatts to the host. This aligns the interests of building owners, utilities, and the energy efficiency investor (EqRM), as well as its public partners and private investors.

EqRM’s business model and other third-party capital solutions will create new market opportunities, turning negawatts into marketable securities. These financial tools can be key enablers for dramatically increasing the number of energy efficiency building retrofit projects in the commercial, institutional, industrial, and residential sectors.

As mentioned earlier in this report, there also will be global opportunities for innovative, robust technology solutions in every aspect of building management and design. Many of these technologies already exist: ***with a finance solution that can scale, all such markets will also scale.*** These technical solutions, enabled by finance solutions and regulatory policies that treat energy efficiency like any other form of energy, will mark the true beginning of the Negawatt Revolution.

## End Notes

<sup>1</sup>“Unlocking Energy Efficiency in the U.S. Economy,” McKinsey & Company, July 2009

([www.mckinsey.com/client-service/electric-power-natural-gas/downloads/US\\_energy\\_efficiency\\_full\\_report.pdf](http://www.mckinsey.com/client-service/electric-power-natural-gas/downloads/US_energy_efficiency_full_report.pdf))

<sup>2</sup>“America’s Energy Future: Technology and Transformation,” Committee on America’s Energy Future, National Academy of Sciences, National Academy of Engineering & National Resource Council of the National Academies, The National Academies Press, 2009.

<sup>3</sup>“The Negawatt Revolution,” by Amory B. Lovins, *Across the Board*, Vol. XXVII, No. 9, September 1990.

([www.thewindway.us/pdf/E90-20\\_NegawattRevolution.pdf](http://www.thewindway.us/pdf/E90-20_NegawattRevolution.pdf)) Note: Amory Lovins is Cofounder, Chairman & Chief Scientist of the Rocky Mountain Institute (founded in 1982).

<sup>4</sup>“Energy Efficiency in Buildings: Transforming the Market,” World Business Council for Sustainable Development, April 2009, p. 11 ([www.wbcsd.org/Plugins/DocSearch/details.asp?DocTypeId=25&ObjectId=MzQyMDQ](http://www.wbcsd.org/Plugins/DocSearch/details.asp?DocTypeId=25&ObjectId=MzQyMDQ))

<sup>5</sup>“U.S. Energy Service Company Market to Increase 250% by 2020,” Pike Research press release, 1/6/10

([www.pikeresearch.com/research/the-u-s-energy-service-company-market](http://www.pikeresearch.com/research/the-u-s-energy-service-company-market))

<sup>6</sup>“The 2009 State Energy Efficiency Scorecard,” American Council for an Energy-Efficient Economy (ACEEE), Oct. 2009, pp. iv & v ([www.aceee.org/pubs/e097.htm](http://www.aceee.org/pubs/e097.htm))

<sup>7</sup>eePPA is a trademark of Equilibrium Resource Management Corporation.

## Glossary

<b>ACEEE</b>	American Council for an Energy-Efficient Economy
<b>BAC</b>	Building Automation & Control
<b>BTUs</b>	British Thermal Units
<b>CAP</b>	Center for American Progress
<b>CO<sub>2</sub></b>	Carbon Dioxide
<b>DR</b>	Direct Response
<b>EE</b>	Energy Efficiency
<b>eePPA™<sup>7</sup></b>	Energy Efficiency Power Purchase Agreement
<b>ESCO</b>	Energy Services Company
<b>ESP</b>	Energy Service Provider
<b>ESPC</b>	Energy Savings Performance Contract
<b>IOU</b>	Investor-Owned Utility
<b>IPMVP</b>	International Performance, Measurement & Verification Protocol
<b>IPP</b>	Independent Power Producer
<b>PACE</b>	Property Assessed Clean Energy
<b>PPA</b>	Power Purchase Agreement
<b>PUC</b>	Public Utilities Commission
<b>RE</b>	Renewable Energy
<b>REC</b>	Renewable Energy Credit
<b>RPS</b>	Renewable Portfolio Standard




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Equilibrium Capital Group is building a portfolio of operating companies managing assets in key sustainability sectors. Each of these companies is charged with executing a unique investment strategy in one of our key targeted areas: green buildings; resource efficiency; energy; water; land; carbon; and food production. We believe that **financial innovation** is one of the key catalysts to the scaling of sustainability solutions and impact.

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