The Essential Guide to Energy Efficiency Financing
“We believe in creating market structures that will improve opportunities for energy efficiency. The contractors, the technology integrators, technology providers, and vendors – are more powerful, with more opportunities than they perceive. This guide will reveal how financing opportunities can help contractors deliver energy saving solutions, while generating fantastic returns. It’s a win-win, and it’s only getting better.”

Mike Gordon, CEO of Joule Assets, Inc.

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Introduction

The energy efficiency industry has seen immense change over a short period of time. From new technologies like LED lighting, automated building controls or improved heating, ventilation and air conditioning (HVAC), to changes in government regulations, the energy efficiency landscape is increasingly visible and lucrative.

For example, the average price of an LED light bulb would normally cost $20; however, within the past year alone, companies such as Phillips and Manufacturer Cree have developed LEDs with a much lower average price point of $14 or even $10. This type of product development, in conjunction with lower price points, makes energy efficient technologies more desirable and cost effective.

The U.S. Department of Energy reports a steady rise in demand for energy efficiency installations, expecting spending by private businesses and homes on energy efficiency to double by 2025—hitting more than $9.5 billion per year. However, despite the increased demand for energy efficiency (EE) upgrades, not all players have access to the financing needed to execute their energy-saving solutions.

Over the past few months, we've surveyed over 3,000 industry stakeholders, consulted with clients and conducted various webinar sessions: We've found that an increase in demand for efficiency improvements is paired with a widening gap in realization in the number of projects implemented each year. In short, there is market opportunity but the need is not yet being filled, either because of lack of understanding, education and/or access to finance.

In order to help you navigate the complex energy efficiency financial options and close more deals, we've analyzed our survey results, consulted with you, and compiled an essential guide to answer your most frequently asked industry questions. Through this Q&A guide, we aim to create a more comprehensive understanding of energy efficiency financing.
Energy Efficiency, Demand Response & Cleantech

Energy Efficiency (EE) technologies are the products/installations that enable consumers to establish permanent demand reduction in their energy use. Unlike Demand Response, consumers do not need to opt in to participate in reducing energy usage at a given time—the energy reductions are permanent and save the consumer on electricity costs. Energy-saving installations may include: improved HVAC, LED/efficient lighting, building controls and programmable thermostats. These EE installations also support or automate DR to further enhance the value of energy reduction.

Demand Response (DR) programs are used to temporarily cut back energy consumption when there is a high demand for power or a mismatch of resources and loads on the grid. DR programs are critical for stabilizing the electric grid and reducing the need for less environmentally friendly peaking power plants.

When consumers are called upon to decrease their energy consumption during peak demand hours or at various times throughout the year, they can earn money and save energy in return for their demand reduction. This also saves their electricity supplier time, money and energy.

While energy efficiency retrofits and demand response programs fall into the “cleantech” category—clean technologies also encompass clean energy generation technologies which include solar, wind, geothermal, etc. These clean technologies focus on generating electricity with a lowered carbon footprint, whereas EE technology and DR focus on reducing current energy usage.
Is Energy Efficiency Worth it?

Market Potential

The Energy Reduction Asset marketplace is estimated to reach $900B by 2020, according to McKinsey & Co. These energy saving opportunities are worth more than $130B annually to the US economy.

ERAs are generated via energy efficient installations and demand response measures that promote efficient energy use. An ERA is a set of measures installed at residential, commercial or industrial properties that enable a permanent and/or dynamic reduction of the local energy consumption. Combining permanent and dynamic energy reduction assets within a property creates cost-effective synergies for added benefits.

That’s why Joule Assets uses its combined knowledge of EE and DR value streams to optimize the financial output and market benefits derived from these projects.

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<th>Permanent Demand Reduction (EE)</th>
<th>Dynamic / Demand Reduction (DR)</th>
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<td>Energy Consumption Reduction</td>
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Survey Highlights

- $900 billion investment market opportunity*.
- Survey of 3,000 contractors showed that 63% had difficulty finding financing for projects up to $250,000.
- Available financing in the current marketplace is recourse to the end user customer, not the contractor—meaning there needs to be more financing options made available to contractors

We have utilized these results and structured our financing solutions to meet the needs of contractors looking to install energy-saving projects in small to medium-sized businesses.

Diverse Range of Market Players

This first-of-its-kind survey reached a wide range of EE professionals like yourself, spread across different industry verticals. We captured opinions from contractors, manufacturers, EE trade associations and others, operating across various efficiency verticals such as HVAC, lighting, and controls. Our sample centered on companies’ key influencers and decision makers who were best equipped to understand the financing challenges impeding growth, and to influence the future of the industry.

Our results indicate:

• 48% of respondents said they made the final decisions when it came to financing.

• 40% were actively involved in identifying, evaluating and referring providers.

• Our respondents were dispersed across companies with a wide range of number of employees that performed projects of different sizes; The greatest portion of survey respondents implemented projects in the $50,000 to $250,000 range (57% of the sample).

• Those with an average cost-per-project in the $750,000—$1,500,000 range formed the smallest segment; all other categories had more than 10 respondents.

• Our results give insight into diverse needs across the whole range of project sizes.
We also discovered that respondent views on financing diverged significantly depending on the size of company and the number of projects completed annually. Respondents that experienced the greatest difficulty were amongst companies seeking to implement multiple smaller projects.

The survey results indicate that 67% of EE projects less than or equal to $250,000 lacked access to project financing. On the other hand, larger-sized projects, especially in the greater than $1M range have many opportunities for EE financing. This discrepancy in EE financing indicates a hole in the market; lack of financing for these small-midsized projects inhibits contractors’ ability to close deals and deliver their EE solutions.

Why is access to financing so difficult for projects $250K and under?

These barriers to project financing include:

- More cost-effective to finance fewer, larger projects, compared to many smaller ones with commensurate total capitalization.
- Tracking and measuring is too costly.
- Cost-effective debt collection is a challenge.
- Uncertainty of savings as barrier to selling projects.

What does this mean for ERA markets and EE finance?

Financing is both a challenge and an opportunity. Therefore, we are utilizing this information to work together with contractors in the small to mid-sized range to create a custom fit to fulfill their financing needs.
What Kinds of Energy Efficiency Financing Options are Available?

There are several kinds of energy efficiency financing options, including: loans, leases, MESAs (Managed Energy Services Agreements), ESAs (Energy Services Agreements), and other public or utility based programs such as PACE, Green Banks or on-bill finance/repayment.

**Loans** typically have a heavy underwriting process; they are rarely adapted to contractors’ business needs and customer expectations. In particular, banks provide loans to the customer—on the balance sheet—which creates a barrier to sale and scale. The customer must endure a classic credit check and analysis, which involves a long and heavy underwriting process. Since banks are more likely to provide a loan for larger projects, small to medium sizes are often neglected.

**Leases** are similar to loans in that they are better suited for large projects. Leasing companies typically lease to the customer for a project involving the replacement of a large piece of equipment, as these are generally proven technologies with high capital cost and strong residual value. The project will sit on the balance sheet of the contractor or the customer. There are downsides to leases for this sector because there is no expertise in DR and energy markets, leases don't provide additional value outside of capital, and rarely take performance risk.
Energy Savings Agreements (ESAs) is a contract that permits energy efficiency to be packaged as a service that building owners pay for through savings, and that generally require no (or minimal) upfront cost to the owner. It is an alternative to using equity or a traditional loan to retrofit a building. [Definition taken from http://www.nyceec.com/esa/] ESAs place more responsibility on the customer/building owner, as it requires them to make payments to both the third party financier and their energy supplier.

Managed Energy Savings Agreements (MESAs) on the other hand, take risk away from the building owners. They are considered to be off-balance sheet arrangements, which involve the sale of energy savings as a service. In this case, the building owner/customer makes one bundled payment—combining the portion of shared savings, service fee and energy purchase—to the third party financier who then pays the utility bill. Companies such as Metrus—and Joule Assets—are utilizing aspects of this structure.

Banks, ESCOs and other financing firms offer solutions to fit various aspects of market need. Banks often lack the industry expertise (EE & DR) needed for proper due diligence on the contractor. ESCOs (Energy Service Companies) cater to the smaller loan sizes, typically offering financing from a third party for energy saving installations. Banks often find larger projects to be more cost effective for them, as it takes immense due diligence to finance projects, and would not be as beneficial or efficient for them to focus on small projects.

EE Finance Programs

Additionally, government programs such as PACE and Greenbanks offer financing mechanisms for energy efficiency upgrades. Property Assessed Clean Energy (PACE) provides financing to property owners, which is repaid as a property tax assessment for up to 20 years, which makes it easier to transfer payments to new owners over time. Green Banks utilize public and private capital to cover the upfront costs of energy efficiency solutions. The capital is often recycled in the form of a revolving fund in order to expand green investment and reduce market inefficiencies.

Utilities may also offer financing to the customer, who then pays for the installation on their monthly utility bill—a process called on-bill financing. In some locales, utilities may also offer on-bill repayment programs, which allows for financing from a third-party, rather than the utility.

Other companies in the Energy Efficiency Financing landscape include: Noesis uses a platform that is focused on third party financing for projects of $500,000 or larger; Kilowatt Financial focuses on residential EE improvements; Metrus Energy utilizes the MESA/ESA structure to target large-scale projects on commercial, industrial and institutional sites, and Green Campus Partners uses a revolving fund to provide a line of credit (GCP) to public sector clients.
Among these financing mechanisms, Joule Assets is the only one that provides a funding facility/line of capital to contractors to provide them with the capital necessary to produce small to mid-sized EE projects of $1M or less, with a sweet spot of $250K.

The beauty of Joule’s offering is that once a contractor is qualified, he or she can fund projects to increase deal closure rate with zero upfront costs to the customer. Joule manages its own fund—The Joule Energy Reduction Asset (ERA) Fund, which makes the financing process more flexible. It allows our fund managers to work with contractors directly to customize a plan that suits their technologies, market sectors and project structures.

Answering Your Questions

We are always happy to engage with project developers in the EE industry seeking access to project financing. After an industry-wide survey, multiple webinars with hundreds of participants, and countless conversations, we have organized our responses to your most Frequently Asked Questions (FAQs) into the following categories.

• What are typical project qualifications?
• Who do we seek to work with?
• How do we work with you?
• Real world examples?
• Why Joule Assets?
1. Which kinds of projects are you looking to finance?

The projects we are looking to finance range in terms of size, geographic location, and type through our contractor network.

**Size:** We focus on small to mid-sized commercial sites of 50,000 square feet or less and will consider controls-based industrial applications. While willing to look at bigger projects there is less need there. Essentially, we are looking at projects that are less than $1M, with a sweet spot of $250K. We would like to finance contractors who each have multiple smaller projects in order to build a strong pipeline.

**Location:** We are focused primarily throughout the United States and Europe. We are also open to additional geographies—the key being we have to be able to provide additional value to those projects in that locale.

**Type of projects:** Joule is interested in financing proven commercial solutions that save energy or create smarter, more intelligently timed consumption of energy. We finance energy efficiency and controls-based systems. While there is significant activity in renewable energy deployments, we believe there are sufficient funding mechanisms and sources in place to serve those markets. Our primary focus remains in the commercial sector. However, we are evaluating aggregated residential deployments as well. Projects that enable DR through a controls-based solution while achieving energy efficiency and permanent demand reduction are our primary investment targets.

**Performance:** Projects we finance include measurement and verification. We track the performance of the measures installed to demonstrate to the customer, our investors and the contractor that the solution is delivering on its promise.

**Approved contractors:** Our capital is deployed through our approved contractors. Overall, Joule Assets’ financing solutions can finance up to 100% of each project meaning zero upfront costs to the consumer. We finance energy-saving installations such as improved HVAC, LED lighting and demand management controls.
2. What is the length of a typical contract?

Our contract terms are typically between 3-6 years, with the longest terms of these contracts lasting 10 years. Typically, host sites have the opportunity to renew contracts with us and our contractors in exchange for true value, further enhancing the project outcomes—and the investment value.

3. Do you finance only energy efficiency, or other clean technologies as well?

At this time, we are primarily focused on energy efficiency and demand response solutions and are currently evaluating opportunities in the storage sector.

Essentially, we finance energy efficiency and control systems. We are also helping to identify equity for interesting technologies that contribute to energy-savings, but we would not be an investor in the equity. Successful projects for us are those that use proven technologies, achieve attractive retail savings for the customer and generate additional revenues through DR enablement.

Who do we seek to work with?

4. Contractor Qualifications

It is critical to assess your product and service offerings, cost of the installation, and how they mesh with funding solutions. Do you offer lighting, HVAC, control systems, insulation/building envelope solutions, cogeneration or industrial solutions (e.g. variable speed drives)? Generally, there are more funding solutions available in the market for more expensive products, particularly for solutions greater than $1M. Joule is unique in offering a funding solution generally available where the cost of the solution can be as low as $5,000 to as much as $500,000 and up to $1M.

We are focused on projects that offer software and operational processes that can substantially improve energy savings and generate returns for all parties. We are working with contractors to develop their products so that they can effectively reach the ERA market with the same set of value propositions.
5. How to establish credit worthiness and performance track record?

Credit worthiness and performance track record go hand-in-hand, which is why we evaluate them together, based upon the credit of two counter parties: the contractor and the host site.

- Contractor Credit Review Process:
  - Involves the financial review of contractors, which is completed as part of the due diligence process
  - A separate financial analysis is completed based on the project economics to ensure the project will meet energy-saving goals
- Host Site Owner Credit Review Process:
  - Process is similar to the above for contractors with slight variations.

We are in the process of further refining our procedures and developing a transaction requirements grid to be used by contractors to streamline the submission and approval cycles for host site evaluations.

Overall, we are seeking sustainable contractors who are dedicated to seeing their project to fruition. We partner with contractors who:

- Want long term relationships with their customers as opposed to getting paid all up front
- Stand by their performance, i.e. energy-saving performance
- Seek returns over the contract life
- Pursue customer renewals after the end of their existing contract
- Confident in their project delivery because they do have first loss exposure
- Have a measurement and verification process

6. How do we perform measurement and verification (M&V)?

There are two different types of measurement and verification.

- Energy Performance/Demand Response; and
- Assessment of customer comfort and satisfaction—the convenience of the installation, comfort and productivity in the conditioned space, and their satisfaction with the contractor’s user interface and user experience.

M&V can be for performance insurance or customer value and can be for purposes of monetization of additional revenue streams.
M&V is often external, as it can be a state agency, or an independent system operator or a utility. It can be provided by a contracted entity such as a state agency, for instance or by an insurance company, like Energi. It can also be M&V provided by the contractor or Joule. The key is it needs to be objective: EE and controls-based outcomes need to be impartial.

At Joule Assets, we use third-party engineering firms. To the extent that we have large exposure on a single project, we’ll look to retain third party performance insurance as well. We also require contractors to have an M&V process or one is provided by Joule.

**How do we work with you?**

7. How do Joule’s solutions work, and what is our financing structure?

We stand apart from other financing options through our off-balance-sheet service agreement instrument: a low risk yield investment structure.

- Joule offers a line of capital directly to contractors.
- Our terms for financing are 6-10%.
- We provide off-balance-sheet treatment.

Financing rates depend on the geographic area, the contractor and the diversity of projects pursued. Base payments generate base returns on investment of 6-10%. Additionally, our partners defer a portion of their margin up front which is returned through their participation and is in addition to earnings from performance over the term of the customer agreement. Since our contractor’s reserve covers customer default they are incentivized to work with strong customers. Ultimately, this participation creates the loss reserve, providing the Fund with collateral to deploy with confidence.

The base interest rate on capital deployed is 6-10%.

- We tend to be on the bottom end of that spectrum when there are diverse projects, the loss reserve is ample, the experience with the contractor is superb and customer engagement is a critical component of the offering.
- We tend to be on the top end of that structure when the measures and customer engagement are passive and with less diversity.
- The upside that we share with the contractor and the customer comes in the form of conditional cash flows (rebates, demand response, rate optimization, etc.)
8. How do you offer such attractive terms?

Joule offers no upfront payments to the customer, the possibility for off-balance-sheet treatment and we add value to the projects. Our market expertise in ERAs enables us to identify, optimize and deliver overlooked additional revenues in the form of conditional cash flows via

- Permanent demand reduction credits
- Demand response rebates and market payments
- Dynamic pricing tariffs
- Peak demand management etc.

We then share this added value with the contractor and the host site. These shared cash flows enhance returns, creating a win-win-win situation for the contractor, the consumer (Host site), and the investor.

Additionally we’re engaging with our contractors strategically and helping them succeed by introducing them to new potential customers, building their product and building their approach to the market.
9. How do we work with outside financing mechanisms like PACE, utilities, Green Banks etc.?

EE financing is a multi-player field and Joule complements state and local agencies to incorporate policies that further the EE finance landscape. Whenever we can, Joule incorporates programs such as PACE (Property Assessed Clean Energy), plans from Green Banks, utilities and on-bill programs.

**PACE** is a lower rate and a longer term but there’s a hole in the PACE process: it doesn’t cover financing in the construction phase. We can finance the construction phase to help contractors commence their deal and shorten the sales cycle. Once the project is installed and operating, Joule’s construction financing is taken out, and the financing obligation transfers to the customer through the PACE financing mechanism.

**Green Banks**—We will cover a revolving loan structure and management for the Green Banks. Sometimes Green Banks will enhance the security of our investments allowing us to offer lower rates for our capital.

**Utilities**—We incorporate incentives from utilities and work with others who have unique deals to integrate them into project economics. Often, utilities create their own marketplace of energy efficiency vendors and we are happy to help utilities create that marketplace or work with ones they’ve created.

**On-bill Repayment/Financing**—We are interested in expanding on-bill repayment opportunities where utilities offer it. On-bill Repayment is when a third party provides financing for EE improvements—the repayment is on the customer’s utility bill, but goes back to the third party financier. On-bill Financing is when the utility provides financing for energy efficiency upgrades directly to the customer, who then pays for the service on their utility bill. Joule would not be involved in the on-bill financing model; however, we are interested in on-bill repayment when it is an option.
10. What is the funding process and speed? Describe the ERA Fund/how it works?

Joule Assets, Inc. is the fund manager of the Joule Energy Reduction Asset (ERA) Fund, which is the source of capital for project financing. This private equity fund, initially targeting $100M is open to private investors and family foundations.

The fund is structured in order to provide secure foundational return on investment, via cost of capital rates of 6-10%. The base returns are secured via cash collateral, contract step-in rights and ownership of the equipment during the financing term. We have created added value in the form of conditional cash flows called active returns, which are captured through DR, rebates, market revenues, etc, and/or activist returns—Joule’s influence in the regulatory realm to create policies that will better enhance returns. Both active and activist returns build an upside on investment beyond mid-teens.

Essentially, the Fund is designed to provide funding to contractors, so that contractors can provide to their customers a no upfront-cost solution. Our process moves quickly, enabling contractors to get to term sheet within one to two weeks, and then another couple of weeks to get to a master agreement, once the initial process is completed.

Real World Examples

Joule is working with dozens of contractors to provide financing solutions as described here. Read more about how project financing is helping contractors deliver their energy solutions on our website.

Client Snapshots

Company A
• A company that monetizes large commercial and industrial electrical loads via real time demand response to help the grid operate and earn revenue for the host facilities

Company B
• A Nest-like company that provides programmable thermostats—making Demand Response more accessible to utilities, competitive retailers and power consultants

Company C
• A company that targets the SME market by applying a basic BMS with control over HVAC and lighting measures, while deploying its SaaS continuous commissioning oversight to provide EE and ADR value
Conclusion: Benefits of Energy Efficiency Financing

Why Joule?

Joule Assets’ goal is to empower EE professionals with the financing and insurance options they need to realize their tremendous potential.

Joule Assets is able to remove the barriers to project completion.

- We structure financing solutions for EE and DR initiatives and projects.
- Customized financing options include performance-based financing with zero upfront costs and off-balance sheet accounting.
- We can incorporate additional cash flows that are inaccessible to traditional financing institutions, such as DR, rebates & incentives.
- We leverage our proprietary database, software and extensive industry expertise to expand commerce and reduce barriers in these complicated markets by creating transparency and identifying cash flows.
- We offer performance guarantee insurance to back energy savings.

We offer:

- A pool of available capital to contractors, with freedom to disseminate to projects within the investment parameters—all under their own name.
- Automated deployment process—contractors don’t have to go through extensive bureaucracy for every project.
- Market expertise to gain substantial additional value for every project completed via enhanced cash flows.

Joule Assets emphasizes the importance of ERA financing as a process that creates a win-win situation for contractors, financiers, investors as well as end-users (host-site). We are the only financing firm in our target landscape that combines the MESA structure with a low-risk yield investment fund to offer a direct financing facility to contractors to fund energy saving installations.

For more information, connect with us on Twitter, LinkedIn or via e-mail: info@jouleassets.com