NON-PEER-REVIEWED PAPER

Getting efficiency projects running through performance contracting

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Abstract

SUSI Energy Efficiency AG is a sustainable investment house located in Zurich. Our Energy Efficiency Fund works with an alternative business model to finance energy efficiency projects through contracting solutions. Thereby we consider Energy Performance Contracting as an ideal solution for investors, ESCOs and customers to foster energy efficiency projects.

Our approach is based on energy performance contracting and works in the following way:

- The SUSI Energy Efficiency Fund raises money with institutional investors e.g. pension funds, insurance companies etc. and finances energy efficiency projects in the industrial, commercial and governmental sector. The fund is based in Luxembourg and uses a traditional private equity fund structure but provides debt-like financing to energy efficiency projects.
- SUSI together with selected ESCOs identify projects that save energy and reduce CO_2 emissions. For projects initiated by an ESCO partner usually the measures to be carried out and the associated energy savings already are known. For projects directly initiated by SUSI with facility owners or users there is an open discussion with the customer, which ESCO partner best fits for the development and implementation of the technological solution.
- SUSI focuses on the legal and financial structuring of the projects and provides the financing, while the ESCO partners develop and implement the technical solution. The SUSI Fund finances 100 % of the projects. Besides the traditional financing structure the focus lies on innovative solutions for complex energy efficiency projects.
- The SUSI Fund receives a share of the savings over the contract duration for up to 12 years, while the monitoring and maintenance is conducted by the ESCO partner.
- After the contract termination the facility owner fully owns the equipment and benefits from the entire energy savings.

We believe that our approach offers a lot of potential, especially to get energy efficiency projects on the way that otherwise would not be carried out due to a lack of adequate funding or due to too ambitious payback expectations of the customer. We would like to share our practical experiences and describe some of our typical learning's from projects. Elaborating upon the key points why certain projects succeed and others don't, will provide an interesting starting point for a discussion.

Introduction

Energy efficiency offers a huge potential to combat climate change. Studies show that energy efficiency is more effective at reducing carbon emissions than supply side measures such as investments in renewable energies or a reduced reliance on fossil fuels.[1] Unfortunately the potential of energy efficiency measures has not been fully explored, yet. One of the reasons

1. Commission of the European Communities, 2007.

for this is the lack of financing that is available for energy efficiency projects. A study of Johnson Controls among 3,479 decision makers for real estate portfolios revealed that the availability of capital, respectively, the lack of it, was the number one reason why efficiency measures were not carried out.[2] SUSI Partners through its Energy Efficiency Fund is trying to bridge that gap by providing financing for energy efficiency projects. Thereby SUSI relies on Energy Performance Contracts (EPCs) which are an excellent way to get projects financed, because the infrastructure owners do not have to provide initial cash to finance the project. In addition the infrastructure owners do not bear any technological risks and they benefit from the achieved savings from day one. In an energy performance contract the investor fully pays for the efficiency measures that are being conducted with the customer. In return the investor receives the majority of the savings during the first few years after the investment. The technology partner installs and maintains the equipment and guarantees the minimum energy savings over the contract period. Since not only the infrastructure owner, but also the technology partner (sale of equipment) and the financing party (attractive returns) benefit from this EPC model, a triple-win character is achieved. We therefore believe that this structure has a lot of potential to increase investments in energy efficiency. Below we will discuss our experiences with this approach so far and elaborate on methods to make this model more effective and more popular among customers and technology partners.

SUSI Partners and the SUSI Energy Efficiency Fund

First of all we want to provide you with some background information on SUSI Partners and the SUSI Energy Efficiency Fund. SUSI Partners is a Swiss Fund Advisor that was founded in 2009 with the mission to finance energy infrastructure. After successfully launching the Sustainable Euro Fund I which invests in solar and wind projects in Western Europe, SUSI decided to start Energy Efficiency as second pillar of the company. After two years of setting-up the fund, raising capital and establishing strong ties with technology partners and customers the Energy Efficiency Fund obtained approval from the Luxembourg authorities in autumn 2013. At the beginning of 2014 the fund had reached a volume of 65 m Euro, which already enables the fund to invest 130 m Euro in energy efficiency projects. More than 50 projects have been screened so far and SUSI expects to invest around 120 m EUR in 2014 in energy efficiency projects. Typical projects include lighting retrofits, waste heat recovery installations in energy intensive industrial processes and the financing of combined heat and power stations (CHP). Within the next few years the fund is planned to reach a final volume of 300 m Euro and CHF 100 m to invest in Energy efficiency projects throughout Western Europe. The Energy Efficiency Fund has already carried out a reference project, refurbishing 5 public buildings with the municipality of Monaco.

In the future SUSI Partners will focus on the topic of energy storage as third pillar of the company and for summer 2014 the launch of the second renewables fund is in preparation.

2. Institute for Building efficiency and Johnson Controls Inc., 2012.

Energy Efficiency Investments from an Investors' Perspective

In order to finance energy efficiency projects through a fund structure it is crucial to convince institutional investors of the benefits to invest in energy efficiency projects in general and specifically via a fund structure. It is therefore crucial to understand what investors are looking for and how well investments in energy efficient infrastructure are matching these requirements. Figure 2 illustrates investors' requirements and indicates the suitability of individual energy efficiency projects as well as an energy efficiency fund to fulfil these requirements.

Investors are looking for attractive returns, stable distributions, minimal risks, sufficiently large investment volumes, low correlations to other asset classes, liquidity of investments, and a positive sustainable impact.

ATTRACTIVE RETURNS

Energy efficiency investments often have very short payback periods which translate into very favourable risk-return characteristics of these projects to investors. Since short payback periods are decisive to achieve satisfactory returns for investors, projects with long payback periods such as deep retrofits are not well suited for contracting solutions for a fund. Return expectations do not differ between individual investments in energy efficiency projects and investments into an energy efficiency fund. However, as we will see below, risk-return characteristics are better for fund investments due to diversification benefits.

STABLE DISTRIBUTIONS

Since energy efficiency projects are amortized fully over the contract duration they offer stable cash-flows that are comparable to those generated with regular debt instruments. In the energy performance contracting model, the minimum generated energy savings are guaranteed by the technology partner that installs and maintains the equipment. This provides additional stability of cash-flows to the investors. Since an energy efficiency fund can bundle several projects with different payback periods and contract durations, it is possible to structure the portfolio in a way that provides investors with cash-flows that are more stable than investments in individual energy efficiency projects.

RISK MINIMIZATION

Risks to investors in energy efficiency projects through performance contracting solutions are rather low, since the energy savings are guaranteed by the technology partner. Additional security results from the fact that the technology partner takes care of the equipment's installation and maintenance. Further the installed equipment can sometimes be used as collateral to the investors. The biggest remaining risk to investors is the credit risk of the customer and to a certain extent also of the technology partner. If one of these parties defaults the investor will most likely incur substantial losses. Investing in energy efficiency projects through a fund reduces this risk significantly for two reasons. First of all because fund investments offer substantial diversification benefits compared to individual energy efficiency projects. In the SUSI energy Efficiency Fund, individual projects for example are not allowed to exceed ten percent of the Funds' total investment volume. And secondly fund in-

SUSI Partners AG Addresses the Three Main Pillars of Energy Infrastructure

- Measurable impact in tons CO_2 reduced for every investment
- Two topics: Climate Change and Infrastructure
- Minimal correlation to traditional asset classes while generating stable returns for institutional investors

Renewable Energy	Energy Efficiency	Energy Distribution and Storage
SUSI Sustainable Euro Fund I (Solar- and Windprojects in Western Europe; closed) **SUSI Sustainable Euro Fund II** (Solar- and Windprojects in Western Europe, fundraising starts in Q1 2014)	**SUSI Energy Efficiency Fund** (Financing Energy Efficiency measures through a contracting model, presently fundraising)	**SUSI Energy Storage Fund** (Storage capacity for utilities, planned for 2015)

Figure 1. SUSI Partners and the SUSI Energy Efficiency Fund.

What Do Investors Want? – What Do Energy Efficiency Investments Offer?

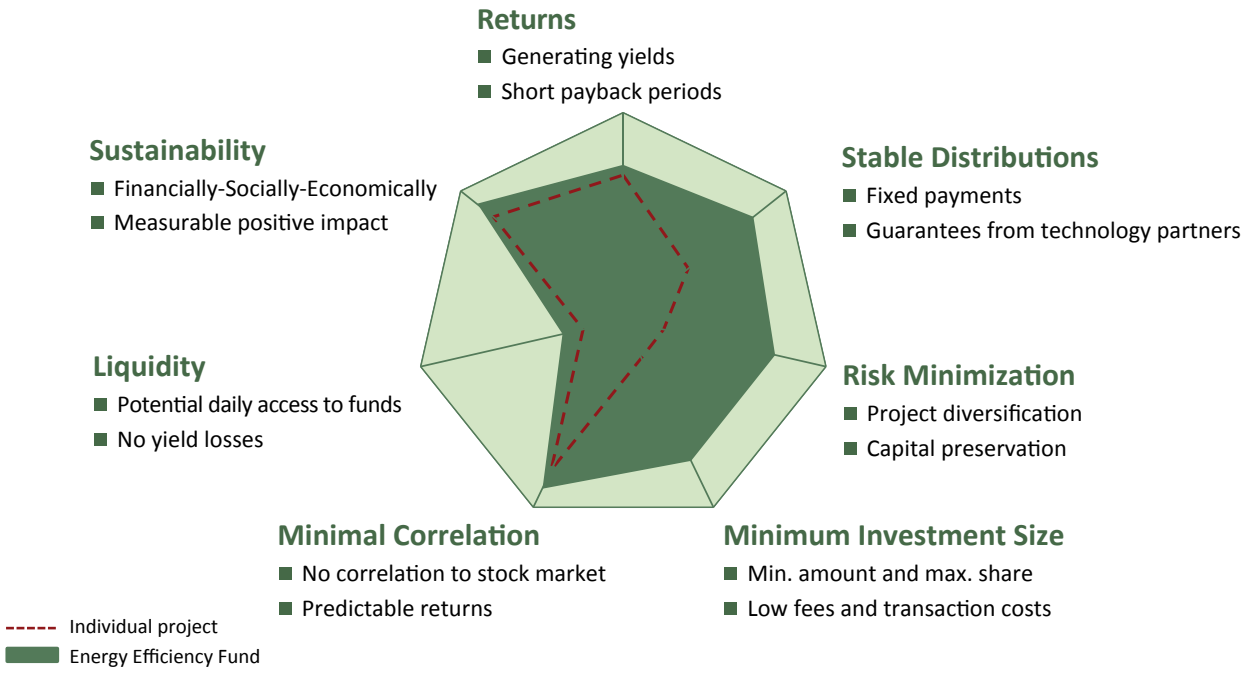

Figure 2. Investor requirements and benefits of energy efficiency investments.

vestments are less risky than investments in individual energy efficiency projects, because fund providers have the capacities and skills available to effectively screen the credit risk of the counterparties. This is usually too costly for investors in individual projects. The fact that the funds are being fully returned to investors over the amortization periods further minimizes risk, since the fund does not incur re-investment or exit risks.

MINIMUM INVESTMENT SIZE

Institutional investors are looking for investments that have a certain minimum size to keep the administrative effort and costs low. Investing in smaller energy efficiency projects is therefore not very attractive to institutional investors. Investing into an energy efficiency fund on the other hand offers the investors the possibility to invest into a whole portfolio of energy efficiency projects at comparably low costs. Typically smaller institutional investors invest 5–30 m tickets into the fund. Since they usually only want to have a maximum share of 10 % of a fund, the minimum fund volume lies in the range of 200–300 m.

MINIMAL CORRELATION

Returns from energy efficiency projects are not directly correlated to stock or bond returns. The returns of the projects are only dependent on the energy savings that are realized. Therefore investments in energy efficiency projects are ideal to diversify the portfolio of institutional investors.

LIQUIDITY

Investments in energy efficiency projects – be it individually or through a fund – are not liquid. Projects have a fixed duration and energy savings contracts cannot be terminated early. Additionally there is no existing secondary market where energy efficiency projects can be sold.

SUSTAINABILITY

Investments in energy efficiency projects generate energy savings that have a positive, measurable effect on CO_2-emissions. Energy efficiency investments result in higher CO_2 reductions per Euro spent compared to other sustainable investments.

SUMMARY

Investments in energy efficiency are attractive to institutional investors but require a vehicle which aggregates sufficient individual projects to reach sufficient investment size and has the knowledge to assess and manage a portfolio of energy efficiency projects. An energy efficiency fund is therefore an ideal solution to make energy efficiency projects investable to institutional investors.

Challenges for Energy Efficiency Projects

In the past years the SUSI Energy Efficiency Fund has analysed more than 50 energy efficiency projects throughout Western Europe. These projects cover a wide range of different technologies (LED, CHP, waste heat, district heating, etc. …), different project volumes (ranging from 0.5 m Euro to 40 m Euro) and different counterparties (covering MNEs, SMEs and public entities). We have seen some recurring common problems in all of these projects despite their heterogeneity. Figure 3 summarizes the six most pressing issues that we believe need to be addressed.

COMPLEXITY OF ENERGY SAVINGS GUARANTEE

Often it is not possible to structure the energy savings guarantees which are provided by the technology partner in a simple way. Especially for complex portfolios of buildings and industrial projects savings guarantees become very complex. Additionally customers are sceptical on the effort to manage

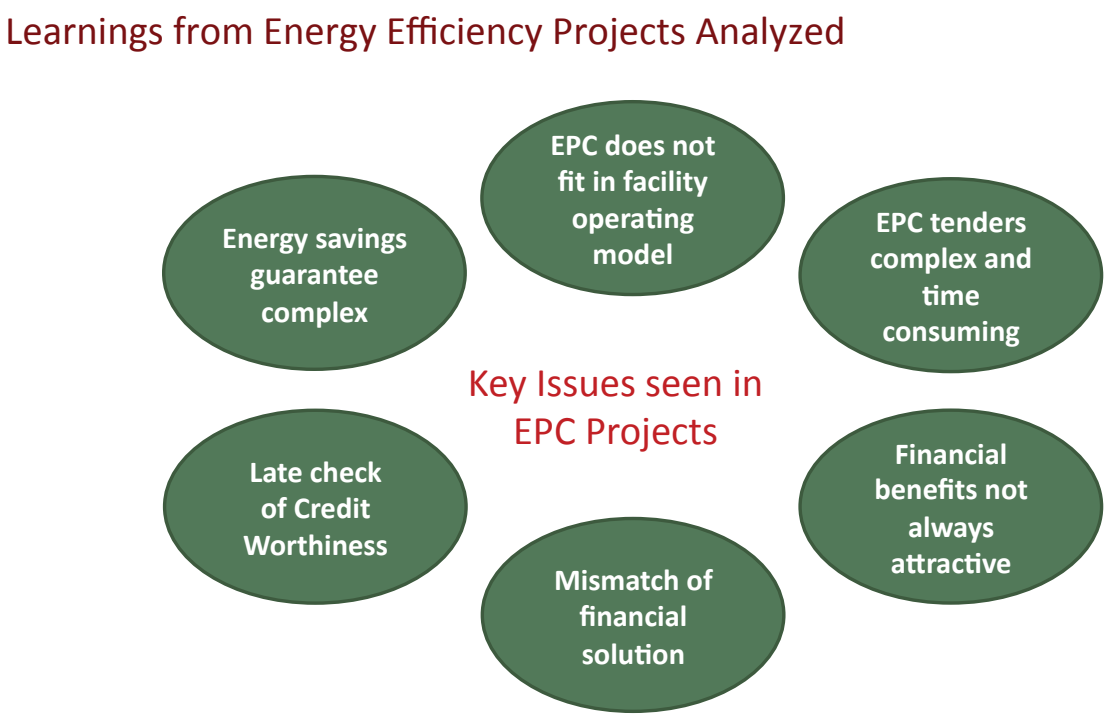

Figure 3. Key challenges in financing energy efficiency projects.

savings guarantees, especially if the demand side is not very stable. Technology partners are fine with guaranteeing the performance of their equipment at delivery, but they are much more hesitant to guarantee the performance of the equipment throughout the entire contract duration. This is understandable, as the energy savings do not just depend on the equipment but also on the utilisation of the equipment through the end-user. Drafting a contract that satisfies the needs of the technology partner, the customer, and the financing partner can quickly lead to a critical level of complexity. It is therefore essential to achieve solutions which are practically manageable. Besides traditional savings guarantees this can imply to only provide solution performance guarantees or more general savings guarantees on a portfolio level.

EPC DOES NOT FIT IN FACILITY OPERATING MODEL

Energy Performance Contracts normally work with own operated facilities quite well. As soon as the owner or user use a third party operating model, e.g. traditional facility management contract, an Energy Performance Contract adds significant complexity to the owner or operator. Additionally traditional EPC contracts don't include potential savings and synergies from energy delivery. Most private customers also would like to tender energy performance projects making it essential to include those in traditional tendering schemes.

To foster energy efficiency projects, a better integration of Energy Performance Contracts in various facility operating models therefore is essential.

EPC TENDERS ARE COMPLEX AND TIME CONSUMING

Getting energy efficiency projects running especially in the public sector is often hindered by the complexity of public tenders for EPCs. For smaller projects EPC tender processes quickly become too time consuming and make them unattractive for ESCOs. To find simpler tendering processes and especially increase the size of the tendered projects as well as to develop efficient tendering processes for the private sector is essential to foster bigger EPCs.

FINANCIAL BENEFIT IS NOT ALWAYS ATTRACTIVE TO CUSTOMER

Another challenge in getting efficiency projects financed is the fact that these projects are not always attractive to the customer from a financial point of view. Figure 4 illustrates the relationship between the payback of the projects SUSI has analysed and the savings share that the customer receives. In most cases the customer receives around ten percent of the energy savings that are generated during the contract period. The remaining savings are used to pay the financing partner and for operation and maintenance from the technology partner.

As the graph illustrates it is much easier to distribute a larger share of the savings to the customer if the project has a short payback period. The longer the payback of the project the higher is usually the share of the savings that is distributed to the financing partner and the ESCO. Customers are usually not very motivated to move forward with projects that yield them a low percentage of the achieved energy savings for ten years or more before they can fully benefit from the efficiency measures taken. It is therefore important to integrate energy efficiency into more appealing sourcing models as standalone projects normally only are conducted if there is a short term requirement to replace equipment.

MISMATCH OF FINANCIAL SOLUTION

EPC financing may also fail due to a mismatch of the customers' expectations and the financing solution that the Efficiency Fund can offer. Typical issues that lead to problems are for in-

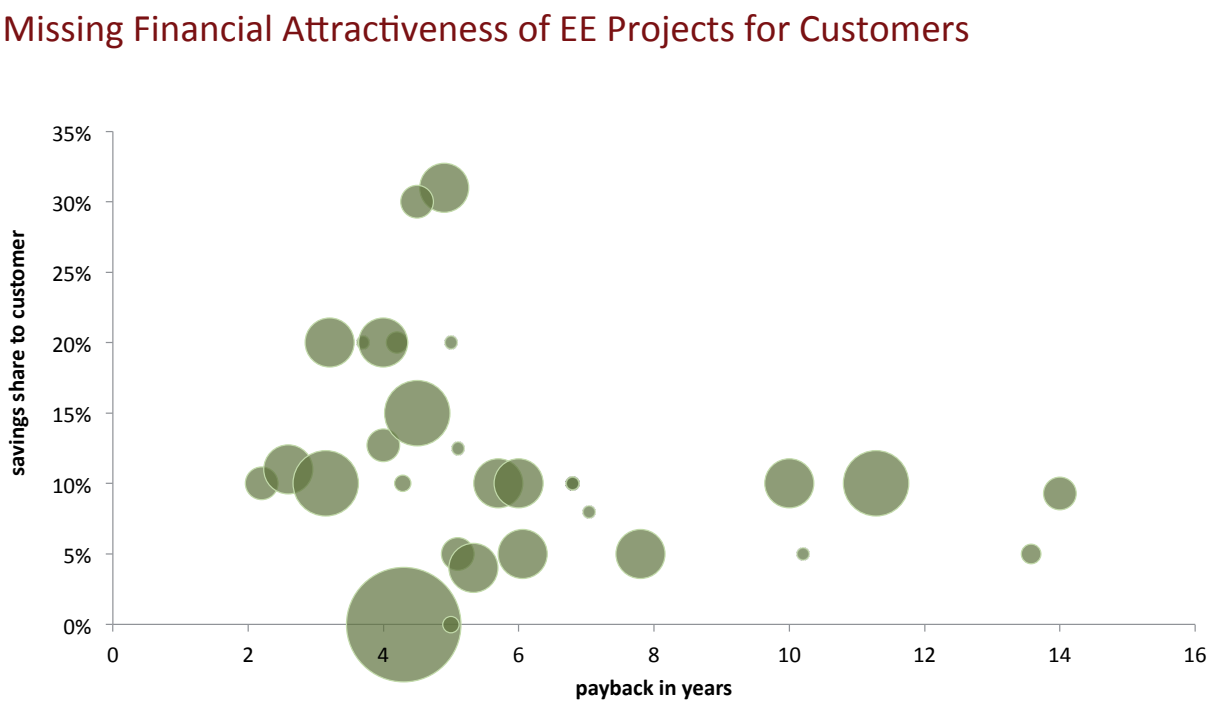

Figure 4. Project paybacks and savings shares to customer.

stance the duration of the EPC contract, the split of the energy savings between customer and fund, or the collateral in cases where the counterparty has a poor credit rating.

Especially smaller ESCOs have the problem of insufficient balance sheet to cover long term savings guarantees. In this case it is normally difficult to provide a third party financing solution if no external insurance can be provided.

LATE CHECK OF CREDIT WORTHINESS

As Figure 5 indicates, poor credit ratings of the customer pose significant risks to investors. If the rating underscores a certain limit, then default risk increases exponentially and financing costs become prohibitive. In case of the Energy Efficiency Fund this limit is set at an investment grade rating (BBB-) of the customer.

Often ESCOs develop project for customers with insufficient creditworthiness and are afterwards surprised no financing is available.

It therefore is essential to assess the creditworthiness at the start of an EPC to assure no time is wasted on customers a financing solution is not feasible. In the initial assessment and discussion with the customer it is important to address the issue of creditworthiness and to have an open discussion on possible guarantees and collaterals.

As can be seen in the table the default probability increases significantly over time making it is easier to finance projects with shorter durations if the counterparties' credit worthiness is questionable.

The Future of Energy Efficiency Projects

In summary we can conclude that EPC are a very effective tool in order to get energy efficiency projects running. Investments into energy efficiency offer substantial benefits to institutional investors, especially if they are conducted through a fund structure. They offer attractive returns at limited risk, provide stable debt-like cash-flows, and are a great way for investors to diversify their portfolio. Customers can benefit from a model whereby they need to provide no initial cash to finance the energy savings measures and whereby they can save energy costs from the first year on. And technology partners have an additional channel to support their sales.

Despite all these benefits that the EPC model offers to all involved parties, there are still significant challenges that need to be addressed until EPC will get widely spread. From SUSI side we see mainly four areas to improve EPC to make it more attractive to facility owners and users:

- **Integrated sourcing models:** Energy efficiency needs to be integrated in the various operating models for different customer segments. Especially the integration into facility management contracts as well as the combination with energy delivery contracts to fully exploit demand management driven savings can provide significant benefits to customer segments that prefer outsourcing solutions.
- **Adequate guarantees:** For facilities with unpredictable demand fluctuations, for complex portfolios of smaller buildings and for industrial energy efficiency projects new sufficiently easy to handle energy savings guarantee models are required which balance risks adequately between customers and ESCOs.

Financing Costs Become Prohibitive at Lower Credit Ratings

Cumulative default probability according to S&P (%)*			
Rating	**1 year**	**3 years**	**5 years**
AAA	0	0.04	0.12
AA	0.02	0.09	0.39
A	0.07	0.28	0.59
BBB	0.20	0.81	1.73
BB	0.71	4.29	8.05
B	5.10	16.04	22.04
CCC+	20.26	36.53	43.77

Customer Credit Rating

- The customers' credit rating has direct impact on the financing costs
- For projects with low credit rating additional collaterals are required
- Conducting a credit rating early in the project development process avoids unnecessary work
- Reducing the contract duration significantly reduces the probability of default and the associated credit risk costs

*Figure 5. Default probabilities and associated financing costs. * Source: S&P Capital IQ Credit Analytics.*

- **Scalable contracts for big portfolios:** To generate a larger impact with energy efficiency projects scalability is necessary. Only with EPC contracts for large commercial real estate portfolios and for corporates with large multisite facilities bigger projects volumes are possible. This requires corresponding reference projects and track record of ESCOs.
- **Innovative financing solutions:** Financing of standard EPC contract is quite known in the market. For more complex contracts and integrated sourcing models as well as for old topics like split incentives, financing is still a challenge and new innovative financing solutions are required.

We believe that the EPC model offers an excellent chance in increasing the amount of energy efficiency investments, especially if the above mentioned challenges are addressed in a timeline and effective way. In that way investments in energy efficiency can become an important lever in reducing CO_2 emissions and in tackling climate change.

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