With the energy service directive – on track towards mainstreaming energy services in the EU?

Michael Geißler
Berliner Energieagentur GmbH
office@berliner-e-agentur.de

Alexandra Waldmann
Berliner Energieagentur GmbH
waldmann@berliner-e-agentur.de

Ralf Goldmann
Berliner Energieagentur GmbH
goldmann@berliner-e-agentur.de

Keywords
energy services, Energy Services Directive, EPC, market development, balance sheet issues, customer finance, facility management, European Union

Abstract
The Directive on the Energy Performance of Buildings (EPBD) and the Directive on End-use energy efficiency and energy services (ESD) are in force and now are on the way of being implemented.

While this new legislation is in place, providing a clear signal from the EU Commission on the value of energy services to increase energy efficiency, security of supply and at the same time supporting climate protection goals, its value to help mainstream the application of energy services in the European Union remains to be seen. Besides an improved political framework, crucial elements for further market uptake are the creation of demand for energy services on the side of the building owners as well as increased awareness of and responsiveness to the opportunities of energy service projects on the side of the financial institutions.

The paper will discuss, based on past and ongoing work (1) the Market demand for energy services through the expansion of services currently offered, towards more comprehensive refurbishment measures, (2) Facility Management as a possible link to increase the sectoral application of energy services, its role for implementing the EPBD (3) ESCO versus customer financing with a focus on balance sheet issues, and their possible advantages in creating more demand for energy services.

Glossary

[ENERGY SERVICE]
As defined in the energy service directive by the European Commission is the physical amenity for energy end users derived from a combination of energy and energy using technology and, in certain cases, the operations and maintenance necessary to deliver the service (examples are indoor thermal comfort, lighting comfort, domestic hot water, refrigeration, product manufacturing, etc.) meeting quality performance requirements and improving energy efficiency, contracted for a fixed period of time and paid for directly by the customer or agent who benefits from them.

Furthermore the directive also defines Energy service company (ESCO) as a company that delivers energy services, energy efficiency programmes and other energy efficiency measures in a user's facility, and accepts some degree of technical and sometimes financial risk in so doing. The payment for the services delivered is based (either wholly or in part) on meeting quality performance standards and/or energy efficiency improvements.

[ENERGY PERFORMANCE CONTRACTING (EPC)]
An Energy Service Company (ESCO) plans and realizes energy saving measures and operates all energy related plants in a building. The aim is to achieve the guaranteed improvement of results (economic efficiency, energy saving…). The main distinguishing feature is the guaranteed cost savings. The investment is refinanced via the savings achieved through improved energy efficiency within the terms of the contract. The client pays the same energy costs as before or even a smaller

amount, but part of this is the remuneration for the services of the ESCO. The payment is determined in dependence on the savings achieved. After termination of the contract, the entire savings will benefit the client.

[FACILITY MANAGEMENT]

The German Facility Management Association GEFMA (www.gefma.de) defines Facility Management (directive GEFMA 100-1) as a management discipline that combines the supporting (secondary) processes for the core business of a entity. Hence, the main task of FM is "to improve and increase the flexibility of usage, the productivity and the return of investment (ROI) on capital, and the value of the facilities through targeted planning, control and operation of buildings, operations, facilities and services."[1] Typically one differentiates between technical, infrastructural and economic facility management. Work place organisation, value stability and return on investment are leading principles for facility managers.

Introduction

Despite a widespread agreement on an existing 20 % economic (40 % technical) potential for energy savings in Europe's buildings[2], and a given suitability of many of the approximately 160 million buildings in Europe to use energy services for improved building performance, the market for energy services across Europe provides a heterogeneous and by no means very developed picture. In Austria roughly 3 % of all public and private service buildings, related to the useful floor area, are currently under EPC contracts. It is estimated that approximately half of the total useful floor area in public buildings would in principle be suitable for EPC.

Applied since the early 1990s, the volume of energy services in Europe still has not reached its estimated 5-10 billion Euro of total EU market value [1], not even in markets that can be described as developed, such as Germany and Austria. This low level of implementation holds especially true for Energy Performance Contracting (EPC) that in Germany for example constitutes less than 20 % of energy service contracts. In terms of its sectoral application, EPC is applied mainly in public sector buildings, owing to a series of factors that favour its application in this sector including for example the typically long term stability of usage in public buildings or the fact that the public sector will not cease to exist e.g. through bankruptcy.

With the Directive 2002/91/EC of the European Parliament and of the Council of 16 December 2002 on the Energy Performance of Buildings, EBPD, and the Directive on End-use Energy Efficiency and Energy Services (2006/32/EC), ESD, two directives are in force that acknowledge the savings potential in Europe's buildings (EPBD) as well as the role that energy services can play to achieving the European Union's goals for an increasingly rational use of energy (ESD). These directives represent two approaches of the EU in addressing problems and implementing solutions: demand & control in the case of the EPBD; a legal framework depending on market forces to achieve its goals while setting an indicative framework in the case of the ESD.

AIMS OF THE DIRECTIVES ON THE ENERGY PERFORMANCE OF BUILDINGS AND THE END-USE ENERGY EFFICIENCY AND ENERGY SERVICES (ESD)

The EBPD aims for a common methodology for calculating the integrated energy performance of buildings; it sets minimum standards on the energy performance of new buildings and on existing buildings that are subject to major renovation. Systems for the energy certification of new and existing buildings have to be developed and all buildings over 1.000 m² will need to have a valid certificate. For public buildings, prominent display of this certification and other relevant information is foreseen. Regular inspection of boilers and central air-conditioning systems in buildings and in addition an assessment of heating installations in which the boilers are more than 15 years old are further aims of the directive.

The ESD entered into force on 17 May, 2006. The directive's aim is "not only to continue to promote the supply side of energy services, but also to create stronger incentives for the demand side. The public sector in each Member State should therefore set a good example regarding investments, maintenance and other expenditure for energy-using equipment, energy services and other energy efficiency measures. Therefore, the public sector should be encouraged to integrate energy efficiency improvement considerations into its investments, depreciation allowances and operating budgets. Furthermore, the public sector should endeavour to use energy efficiency criteria in tendering procedures for public procurement, a practice allowed under Directive 2004/17/EC of the European Parliament and of the Council of 31 March 2004 coordinating the procurement procedures of entities operating in the water, energy, transport and postal services sectors , and Directive 2004/18/EC of the European Parliament and of the Council of 31 March 2004 on the coordination of procedures for the award of public works contracts, public supply contracts and public service contracts , the principle of which was confirmed by the judgement of 17 September 2002 of the Court of Justice in Case C-513/99".

SHORT ANALYSIS OF THE DIRECTIVES

The need for certification of buildings (EPBD) will at least have one potential effect on the awareness of building owners (public and private) on the level of costs incurred by the energy performance of their estates. As a basic input the data gathered is also valuable input for the selection of potential energy service projects, and as such synergies could therefore in principal be activated for better buildings. An issue that is not sufficiently reflected in the directive and in the Commission's expectation on its implementation success (compared to other measures such as Energy Services), is the continued lack of incentive for building owners to act on energy efficiency in markets with a higher demand in space (living and office) than availability.

The ESD directive, only proposes an indicative target of 9 % increase of overall energy efficiency (not limited to one instrument) between 2008 and 2017. Member States (MS) will have to make plans how they want to achieve this target. Energy services are one tool suggested. MS have to remove market barriers and ensure that innovative financial instruments such as third party financing or energy performance contracting are

1. Source: German Facility Management Association GEFMA

2. See references in European Green paper on energy security of supply, European Action Plan on Energy Efficiency

possible. Herein lies currently the main challenge in making the directive achieve its set goals: to provide security to the market by providing unequivocal opinions in favour of energy services. In some MS energy services may not become one of the selected instruments for increasing energy efficiency.

Authors have argued already in earlier papers [2, 5] that hold-ups in market development for EPC refer to the differing interpretation and application procurement regulations, budgetary rules in the different MS (and even within single MS) that with a lack of clear unequivocal opinion of political decision makers towards the implementation level still represent a core barrier to the wider application of energy services. This has to be seen against legislation that in principal does not pose a barrier to the implementation of energy services.

Besides an improved political framework however, crucial elements for further market uptake are the creation of demand for energy services on the side of the building owners as well as increased awareness of and responsiveness to the opportunities of energy service projects on the side of the financial institutions. One way to help spur market uptake it is argued by authors is the availability of relevant information and support, e.g. through neutral process management and the availability of tested and standardised instruments, (model contracts and other support documents). The a.m. Directive provides a more common framework and supports the authors' argumentation for standard documents. Further market success will however rest with the transposition and the value that the implementation instrument "energy services" is given by MS decision makers.

Based on current experiences, this paper argues that the market also can increase through diversification both in width (sectors) and depth (expansion of approaches) without compromising the quality achieved by the successfully applied models available today. Tested standards and model documents increase legal certainty.

In addition financing of energy services has to be looked at in more detail. Financing has not become an easier exercise but rather more burdensome, increasing overall transaction costs yet again: Market partners reach credit line limits; and credit liabilities burden balance sheets. International accounting guidelines and Basel II regulations[3] also cast their shadows.

Energy Services and Comprehensive Refurbishment

FURTHER MARKET DEMAND FOR ENERGY SERVICES IN THE PUBLIC SECTOR THROUGH THE EXPANSION OF SERVICES CURRENTLY OFFERED, TOWARDS MORE COMPREHENSIVE REFURBISHMENT MEASURES

EPC has been successfully applied in the public sector, health sector, and in industry to modernise the energy system of buildings through an external partner, the ESCO: with guaranteed energy and cost savings, refinanced without own investment capital needs. In many cases this will continue to be the best solution for the implementation of a systematic and systemic implementation of cost effective measures for improved energy efficiency in buildings. There are however also cases where – in addition to the energy savings potential, there is an explicit need for refurbishment of the building shell. Refurbishment refers to the thermal insulation, exchange of windows, etc., hence to measures targeting the energetic upgrade of the building shell. The savings realised via the "classical" energy performance contracting (EPC) project, that mostly focus on the energy system of a building excluding the building shell, are in most cases not sufficient to fully cross-finance refurbishment measures within a feasible contract duration. On the other hand, expanding energy services especially with measures that result in the thermal insulation of the outer walls of a building are highly relevant for the total energy performance of a building and therefore principally desirable to be integrated in any building refurbishment project.

In addition to the advantages of "classical EPC" projects

- Systematic optimisation of the energy system
- Turn key solution
- Guaranteed savings in heat and energy costs
- Guaranteed comfort levels
- Performance based remuneration of costs
  the extended version brings
- Total optimisation of the building shell in combination with the energy system
- Sustainable measures and long term quality based on the long term agreement and quality guarantees

Comprehensive refurbishment typically needs a higher level of investment capital than investments in a classical EPC project. The full refinancing of the measures based on the achieved savings would result in much longer contract durations which only in a minority of cases can be accepted. Therefore the financing model has to be adapted for these cases. Financing will involve the building owner's resources. It can be achieved by full or partial financing of the refurbishment measures by the building owner and it can be either through own funds or supported by available subsidies.

The principal idea[4] is also here to establish a pool of buildings. For comprehensive refurbishment measures to be integrated in a deal, the buildings need to show not only a potential for energy savings but also show a clear need for maintenance & refurbishment investments. Savings resulting from system improvements and related savings in energy consumption can then be used to invest in more comprehensive refurbishment measures that otherwise could not be refinanced within a typical contract period of 8 to14 years.

The capital intensity for the refurbishment measures influences to what extent the energy savings can cross-finance their implementation. Extending the classical EPC model towards a "refurbishment-contracting" model foresees closing the financing gap through funds by the building owner, i.e. for the refurbishment services. The capital would either have to come from

3. Basel II is a set of regulations aiming at an increased stability of international financial markets. Its central topic is the share of equity capital in banks' activities. Basel II results in credits being given out with an increased sensitivity to risks associated with a specific credit.

4. as is currently developed in Berlin

subsidies, or planned and re-channelled investment money on the side of the building owner, re-channelled to the ESCO for the implementation of such measures.

In the model propagated here, the principles of the "classical" EPC still apply: guaranteed energy (and cost) savings, a performance based remuneration for the ESCO (for the improvements in the energy system). What changes is that additional and separate quality guarantees for the refurbishment measures would apply. The guarantees that need to be given by the contractor are ensuring quality in a classical EPC project. For refurbishment contracting they will lead to significant improvements of the quality of the measures. [3]

CONTRACTUAL ARRANGEMENTS

The ESCO, to be selected via a tender procedure, a competition of ideas and best value for money, will be – as in the classical approach – responsible for the system improvements, and give a guarantee on the targeted savings. However, it will also be responsible for the refurbishment, implementation. The main part of the investments in the refurbishment will be financed through the building owner. The responsibility of the ESCO is besides energy saving realisation also the implementation of refurbishment measures and quality insurance so that the overall savings guarantee can be kept. The quality guarantees will be formulated e.g. as product and material quality, but also a definition of a cap on total investment costs for refurbishment and the definition of the (minimum) investment level for energy saving measures. Through the EPBD, most European countries will in the near future have building specific energy indicators that can be used as a quality benchmark, together with comfort level agreements and price caps.

While the contract duration is similar to classic EPC with 8-15 years, the quality guarantees/warranties need to be longer, given the lifetime of refurbishment measures, and will extend to around 20 years.

In case the contractor cannot meet the specified guarantees, the fees for routine services will be reduced according to an agreed penalty scheme; typically the reduction could be equal to the percentage by which the target was missed.

Critical for the implementation of such projects is the preparation of the tender procedure: with more building measures within an energy service project, the applicable procurement rules will differ from a classical EPC project. Are services predominantly or building measures? What is the total price, and as a result, which tender procedure applies? However, critical does not mean that it is impossible or exceedingly complicating issues. The need for thorough preparation of a tender procedure is a need in any project.

FINANCIAL ARRANGEMENTS

The financial arrangements have to consider the increased need for capital and longer amortisation periods for comprehensive refurbishment. This will – as indicated above, be reflected in the contractual arrangements. The need for the financing can be covered either by budgeted maintenance money, additional subsidies are possible or soft loan programmes[5].

Recent years and financial restrictions have resulted in minimum and often end-of-pipe reaction to building maintenance. Badly maintained buildings result in value losses for the owners. Through an expanded model for EPC, synergies can be activated in cases where refurbishment needs have time convergence with a saving potential in the energy system. Through the insulation of the outer walls and windows exchange the overall need for energy per unit of floor space can be reduced, the system requirements are reduced overall. Through the automation of energy controlling, energy consumption can be further reduced, with an effect on the overall maintenance costs. Given the fact that once investments are made e.g. in the system of a building, these measures and installed equipment will be operational for the coming 10 to 15 years. The core advantage is the therefore a cost effective combination of necessary refurbishment with energy saving measures when needs for both arises. Integrating comprehensive refurbishment measures therefore offers an opportunity to implement a total energy management concept.

Basic even a maintenance backlog and resulting degradation of buildings in some cases may have also been a reason to not enter into classical EPC projects. In this way, "refurbishment contracting" offers a model for more building owners to tackle their buildings' performance.

Energy Services and Facility Management

FACILITY MANAGEMENT AS A POSSIBLE LINK TO INCREASE THE SECTORAL APPLICATION OF ENERGY SERVICES, E.G. IN PRIVATE SECTOR BUILDINGS

The implementation and use of energy services for increased building energy efficiency, especially of EPC, is not limited to but is predominantly taking place in the public sector. This situation is due to a number of factors that favour its application in the public sector. Typically in Europe the public sector is seen to be a reliable partner and associated with less risk from an ESCO's point of view. This refers for example to the typically long term stability of usage in public buildings (schools, administrative buildings) or the fact that the public sector will not cease to exist e.g. through insolvency.

For the management of real estates, single buildings or building sites, and other facilities, facility management (FM) is a growing market. FM continues to grow because the management of facilities in many cases is not part of the core business of the building owner, and because there is a growing need for economic competitiveness that asks for highest efficiency in the core business. At this point unnecessary parts are being outsourced to external expert companies. [10].

The main task of FM is "to improve and increase the flexibility of usage, the productivity and the return of investment (ROI) on capital, and the value of the facilities through targeted planning, control and operation of buildings, operations, facilities and services."[6] Typically one differentiates between technical, infrastructural and economic facility management. The level of outsourcing differs. Three main levels can be distinguished:

5. e.g. the KfW banking group's programmes

6. Source: German Facility Management Association GEFMA

- Complete outsourcing of all three parts (technical, infrastructural, and economic FM) (all parts of FM are handled by an external FM provider),
- Only technical and/or infrastructural FM is outsourced.
- Only parts of technical or infrastructural FM are being outsourced.

Another way to differentiate the level of outsourcing FM is whether the services are procured for single buildings /building sites, or for pools of facilities. Recent analyses could not make about a clear trend as to where the preferences of building owners are. A general observation however is that building owners do tend to keep the economic FM in-house. The reason can be seen in the fear of the client that a FM service provider that evaluates himself bears the risk of reduced overall quality [1, 10].

Technical FM constitutes the largest proportion of energy relevant elements. Generally speaking, FM as Energy Management fosters cost transparency and life-cycle-view of a building. Using a precise model for processes and clearly defined key figures, the basis for optimised operation of available resources is given. As a result, the value of a building or building portfolio is stabilised or actually increased, given the optimisation of costs versus comfort and up-to-date technical standards [9]. In practice, energy management does not receive the necessary dedication among the array of services provided under FM agreements. The focus is many times on the occupancy rates and the immediately related (infrastructure) services to cover the expected service level of occupants. In markets with a higher demand in buildings than availability, the lack of incentive to look at the energy performance of a building will not be increased even with the EPBD in place.

Regularly therefore, large energy savings are not realised when buildings are modernized or even during normal operation and facility management activities. Where the building owners are also occupants of a building, FM is typically not their core business. Given the fact that energy costs often only make up 3-5 % of total costs, the building owners don't see them as a relevant aspect. Even when the FM is outsourced, energy efficiency will be among the core services demanded from the FM provider. In short, a lack of awareness is fact. If the building owners looked closer at the proportion of energy costs within their total operational costs, the resulting figure of around 50 % should result in a different opinion and requests of services from the FM provider.

For those cases where the building owner is not the occupant of a building, to date the so-called "tenant – owner dilemma" is the predominant reason for non action. The owner is not responsible for paying the energy related costs in a building, and would also not profit from reduced energy related bills. His interest is therefore not to spend money on measures that are expenditure but do not constitute an income.

The principles of energy services provide a highly relevant approach to ensure high quality and an increase of value for the building owner. Advantages are similar to total FM, but apply only to the energy relevant issues. The building owner is relieved in his transactions due to energy services being a one-stop-shop service package. The arrangements result in a high incentive for the energy service provider (ESCO) to provide optimisation of costs and keeping the agreed level of quality due to the contractual obligations and the guarantee given. This supports the main aim of FM as mentioned before.

Key factor and challenge is what kind of guarantees can be given that make an integration of the energy service approach with FM feasible. This is especially true for buildings that have frequent changes in occupancy, and also periods of no occupancy. In Germany, building owners using the services of FM providers are, this is the result of a recent poll among FM providers and clients [1], not keen on so called service level agreements, because they find them too imprecise to offer quality. Therefore other solutions need to be found, or solutions need to be designed differently.

Options/ideas on what these could be are for example

- Cap on kWh per unit used floor space (case of office buildings)
- Cap on total maintenance cost at a fixed rate of occupancy
- Cap on total operational costs (including e.g. Infrastructural FM such as security or gardening) at a fixed rate of occupancy

The calculation of a baseline for these kind of caps, to be acceptable, would need to be based on the energy need of a building based on its design.

Another key factor to a possible successful integration of energy services in FM is the definition of appropriate and exact interfaces between the two. Data management is one key word here. Building control system for the energy relevant data needs to be compatible to other data management of FM e.g. Computer Aided Facility Management Software.

Among the barriers to foster the attention to energy in FM and to foster the integration of energy service in FM activities is the low attention given to the percentage that energy related costs constitute in overall operational costs. The energy performance of a building, with view to the EU energy policy goals – and the high energy consumption in the building sector, will be able to influence the future market value of buildings. To date it already influences the basic evaluation of a building based on its maintenance level. It does not yet however, influence to a large part the behaviour of the building occupants nor does it influence the selling and buying strategies (which are aimed towards profit) of large real estate companies to a noticeable level[7]. The buying and selling cycle is considered also a barrier to enter into contracts with durations of typically over five years as is the case for EPC. The clear definition of guarantees given (examples given above) provide deals that can in principle be handed over easily to a new owner, if their cost effectiveness has a essential influence on the value of a building and therefore is able to give a positive outlook on expected profits.

Building owners and investors are increasing their portfolios[8]. The number of owners is reduced; or the number of buildings under control is increased. At the same time, the EBPD demands energy certification for the buildings' energy performance. Within larger portfolios the sum of energy related costs will become more visible. Cost sensitive large real

7. own exchange with Property representatives

8. Tageszeitung, 12th April 06, Financial Times Deutschland, 24th April 06

estate companies will then need to consider the issue to a larger extent. When the energy service market is able to offer tailored services, a larger number of buildings can create a positive movement. The level of pressure on the market that the EPBD is able to create is however the critical factor.

Increased portfolios carry one potentially negative issue: the number of tenant's increases, and therefore the tenant-owner dilemma potentially increases, with a negative effect on the building performance including energy efficiency. Cost sensitive tenants will - also based on the energy certification, hopefully mature in their demands. Again, as has been stated before, in markets with a higher demand than availability, the tenant's argumentation will have a limited effect.

Europe's total of 160 million buildings in 1997 were responsible for a total of 379,2 Mtoe[9] This amounts to approximately 41 % of Europe's total final energy consumption. If it is assumed that about 10 % of these would integrate energy services with a conservatively estimated savings potential of 15 %, approximately 6 Mtoe could be saved.

Financial Re-orientation?

ESCO VERSUS CUSTOMER FINANCING

In Europe the uptake of energy services, especially EPC, is mainly founded on customers' lack of the necessary investment capital (or access to that capital) to implement energy efficiency upgrades of their building stock. For the public sector especially among the requirements for ESCOs to win a tender was and in most cases still is therefore the ability of the ESCO to organise the financing for the project. This is why in some European countries; EPC is used as an equivalent to 'Third Party Financing'.

ESCOs that organise the financing for an energy service project currently have to take debts, which burdens their balance sheet. Therefore especially smaller ESCOs will reach their credit line limit and will lose manoeuvrability on the market. The Austrian market already today sees a slow down in new projects, because of this. Burdened balance sheets - and the resulting bad equity-debt ration, increases the difficulties to obtain further loans, besides increasing the cost of obtaining investment capital (and thus increasing overall project costs. For the ESCOs, this is even more the case under the Basel II set of rules that are in force since the beginning of 2007 and the increased sensitivity of banks towards risks associated with credits.

ESCOs are not banks, therefore they would like to pass on financial risks in an energy services project, and only take those risks that are connected to their core competencies – technical ones. During a business start up phase they have accepted the need to take also the risk of pre-financing, but are based on the difficulties less willing to do so. From a market development point of view it is equally undesirable to hamper new projects because of difficult funding conditions.

For the building owners the advantages to have the financing organised through the ESCO lie in the recourse on the ESCO through the principle of performance based payments and the ESCO's incentive to perform with view to its need of refinancing the debt.

A common re-financing instrument that is used by the ESCOs to ease this burden is **forfeiting** (or cession of claims). The "receivables" from a project i.e. the part of the contracting rates paid by the client to the ESCO covering the (hard ware) investments, are sold to a bank. In return, the ESCO receives the sum of the receivable sold at once and has the possibility to partially recover investment costs. The bank is repaid in equal trenches directly by the client. In other words, the part of the contracting rate that covers the hard ware costs is re-directed to the bank. This approach usually comes with an agreement between the bank and the customer with a quit claim deed. This fact makes the deal more a loan-like transaction, and can, in the case of public sector clients, count towards the overall debt of the state. For this the Maastricht criteria define a limit of overall state debt to be not exceeding 3 % of GDP.

Searching for new options to overcome balance sheet issues and credit line limitations, **leasing** models are currently being tested and adapted for energy service projects. However, for pure EPC projects the prerequisites on what are lease-able goods make this financing option not an obvious one. In cases where energy supply is part of a project, it becomes an interesting instrument, not the least for its typically off-balance sheet character. Hence the balance sheet of neither the ESCO nor the client is burdened. And in the public sector, this approach avoids that the investment counts towards the municipality's debt (Maastricht). The applicability in EPC projects needs further opinion on the side of the decision makers.

The public sector in recent years shows a tendency to reorganise the facility/building management under a more centralised structure. Public real estate management companies are formed. Or as for example in the case of Finland, these already exist for a longer time. These public real estate bodies are typically run as a private company. Looking further on the financing of EPC projects, loans taken by such companies for EPC projects or payments made towards an ESCO in the form of contracting payments, these do currently not count towards the Maastricht criteria. The principal difficulty to obtain loans however remains. And - profit expectations manoeuvre them into the tenant - owner dilemma. During the transition or restructuring period, a hold up of the market is a likely.

RETHINKING FINANCING?

From a debtor's perspective, it is desirable to base any debt service on the project cash flow as opposed to basing it on the customer's creditworthiness (the current main approach for energy service projects). Debt should be repayable from future project income. EPC projects in principle offer that – a guarantee of income through the energy savings guarantee given by the ESCO to the client. The energy cost savings in the case of EPC projects are cash flow. In other words, EPC is a way to unlock dead capital.

However, the creditworthiness of the debtor (i.e. in most cases to date still the ESCO) is usually the most important factor for a bank when evaluating a project. The change needed on the side of financial institutions is that the cash flow from the energy savings in a project receives greater attention and an increased value for project evaluation. Independent expert opinions, best practice examples, data on key factors for suc-

9. Energy in Europe – European Union Energy Outlook to 2020", Sonderausgabe November 1999, Shared Analysis Project, Europäische Kommission

cess, benchmarks are seen as useful support tools[10]. To date, however, the savings generated are not acknowledged as cash flow and therefore not counted as collateral. In order to make this approach of real project financing more feasible a few ideas would be, also in the sense of the ESD:

- Transaction cost facility for quality project management as an incentive for projects (e.g. Facility could be limited to r ten years, and set up as a revolving fund to at least regenerate the second five years partly from income during the first five years. Hence public input into the fund could decrease after five years by say 10 % yearly.) to spur interest!
- Risk guarantee for smaller private clients of energy services > to reduce direct financing costs
- Global loans for energy service projects, guarantee/standard approach as pre-requisite to access improved loan conditions (e.g. model approach results in 0.25 to 0.75 % less interest rate or the loan volume is increased at the same conditions)

Project finance for EPC would help balance sheet issues as described above. This is due to the fact that project financing typically has an off-balance structure. Authors believe that standardisation of project development procedures and standard documents such as model contracts help. Where standard documents are used, transparency is increased for both sides. And a positive effect on transaction costs can be achieved. With regard to the financial side, such standards in project development process are a quality-ensuring instrument whereas a standard contract model used is also a risk mitigation instrument.

If project finance for EPC were common practice, this could make client based financing more attractive. And make projects overall more attractive (reduced transaction costs on side of ESCO, i.e. reduced project costs also for customer.) This does not take into consideration the transaction costs for the set up of project implementation structure to make project financing possible.

Conclusions

Market development for energy services in the European Union is dependent on demand and appropriate responses from the supplier side including the financial sector.

Existing models for Energy Performance Contracting offer the chance to be easily expanded to allow for an integration of more comprehensive refurbishment measures. Expanding energy services especially with measures that result in the thermal insulation of the outer walls of a building are highly relevant for the total energy performance of a building and therefore principally desirable to be integrated in any building refurbishment project. This would be following the (potential) demand especially in new MS where refurbishment needs are in many cases as urgent as are system improvements for the energy performance of buildings. Another option to expand market application is the integration of energy services with facility management which currently is not successful due to a lack of awareness and willingness on the side of private sector building owners to have a closer look at energy related costs of operation.

Both the directive on the energy performance of buildings and the directive on the end-use energy efficiency and energy services provide a further supportive framework for energy efficiency in Europe's buildings. Inherent is the possibility to support market development of energy services. However, factors determining the success or failure for the development of energy services lie within the Member States. Main reason is that energy services are just one of a list of measures, not a must; and – with view to the alternative of buying energy efficient equipment (instead of buying energy savings) a strong argumentation is needed to mobilise the many decision makers to realise the advantages of system improvements via energy services versus easy to buy energy efficient technologies that while valuable within their own rights, will block investment for system improvements in many buildings where this could be cost effectively done.

Here the argumentation of authors is that more targeted financing possibilities for energy services are needed. These need to help decrease transaction costs and allow for a pure project financing approach to EPC, accepting the guaranteed savings as what they are: cash flow, unlocked previously dead capital. The issue needs more attention, and support from decision making levels. Leasing companies have realised the potentials in the market for energy service projects with a focus on energy supply contracting offering specialised packages and contractual arrangements making projects in many cases an off-balance sheet transaction. This could be an incentive also for other financial institutions to follow suit and offer tailored energy services financing packages.

The ESD provides a good framework and has the potential to foster a higher market volume for EPC, but its success relies on proper implementation in MS and specific support for energy services as one of the directive's core implementation mechanisms used; this is to date not clear and needs an unequivocal mandate from decision makers, as well as targeted information towards the financial sector. The ESD alone will not not suffice to provide a market uptake for energy services.

References

[1] Altmannshofer (2006): Fehlendes Know-how und Akzeptanz. In: Der Facility Manager, November 2006, Heft 11, Jahrgang 13, pp. 40-43

[2] Geißler, Waldmann (2006): Market Development for Energy Services in Europe. AC3E Summer Study 2006 proceedings.

[3] Bleyl, Schinnerl, Kuhn (2007): EUROCONTRACT - Comprehensive Refurbishment of Buildings with Energy Services, Draft version, yet unpubl.

[4] Grim (2006): Energy Performance Contracting: An opportunity for the private service building sector, or a tool for public buildings only?. Light&Building, 2006

[5] Waldmann (2005) Eurocontract -Guaranteed Energy Performance, Standardised Energy Services for Europe in: Faktor! Contracting 11/2005.

10. Interviews on EPC know how with financing institutions in the frame of the EUROCONTRACT project Dec. 06

[6] Weller (2006) FM-gerechte Energieversorgung beim Klinikneubau. In: Der Facility Manager, November 2006, Heft 11, Jahrgang 13, pp. 52-54.
[7] Directive 2002/91/EC of the European Parliament and of the Council of 16 December 2002 on the Energy Performance of Buildings.
[8] Directive 2006/32/EC of the European Parliament and the Council on 17 April 2006 on end-use energy efficiency and energy service.
[9] Stau, Lang, Frey (2001). Facility Management und Energieeffizienz – Analyse und Empfehlungen. Studie i.A. Des Bundesamts für Energie der Schweiz.
[10] FM Trend Monitor 2006. In: Der Facility Manager, Heft 10, October 2006, pp. 26 ff.
[11] European Commission (1999) Energy in Europe – European Union Energy Outlook to 2020“, Sonderausgabe November 1999, Shared Analysis Project.