FIX
ENERGY FINANCING MIX

Austria

Financing baseline

TABLE OF CONTENTS

1. INTRODUCTION **3**

2. FINANCIAL SECTOR OVERVIEW **4**

2.1. BANKING SECTOR 5

2.1.1. List of Austrian banks 8

2.2. MICROFINANCE SECTOR 10

2.3. LEASING SECTOR 11

2.3.1. Types of leasing 11

2.4. CROWDFUNDING SECTOR 12

2.4.1. Types of Crowdfunding 13

2.4.2. Crowdinvesting regulations in Austria 15

3. ENERGY EFFICIENCY/RENEWABLE ENERGY FINANCE ACTIVITIES **16**

3.1. INTERNATIONAL AND LOCAL FINANCE INSTITUTIONS WORKING IN EE SECTOR 16

3.2. EPC AND ESCO MARKET IN AUSTRIA 19

3.3. CLIMATE FUNDS AND SUBSIDIES 25

3.4. GREEN BONDS FOR RENEWABLE ENERGY FINANCING 28

3.5. CROWDFUNDING FOR RENEWABLE ENERGY FINANCE ACTIVITIES 28

3.6. CITIZEN PARTICAPATION IN RENEWABLE ENERGY FINANCE ACTIVITIES 30

3.6.1. Climate protection projects 30

3.6.2. Citizen participation programs 30

4. CONCLUSIONS **33**

ANNEX: BIBLIOGRAPHY **36**

ABBREVIATIONS **37**

1. INTRODUCTION

This report is part of the baseline analysis of the E-FIX project. The E-FIX project aims at triggering private finance for sustainable energy projects using innovative financing mechanisms. In the target countries of Central and South-Eastern Europe as well as the countries of the Caucasus region there is considerable idle potential for sustainable energy products and services. Both potential energy project developers and financers face diverse financing barriers. An innovative energy financing mix is needed in order to activate new source of finance and facilitate an increased implementation of sustainable energy projects. Accordingly, the objective of the E-FIX project is to facilitate the take up and intensified usage of innovative energy financing mechanisms in the energy sector.

In order to accurately assess the idle potential of both financing sources and energy project implementation in each of the focus countries the E-FIX experts are conducting a baseline study including Gap Analysis. The present report presents one part of the baseline analysis focusing on the financial sector for Austria.

2. FINANCIAL SECTOR OVERVIEW

After the global financial crisis many banks worldwide are returning to a normal state. So, the future brings a lot of questions into the bank world in general. The regulatory framework allows to govern the banking sector, which is a significant sector but not in final frames yet. The business world itself is going into the direction of digitalization which is challenging the finance industry and financial regulation. Bank customers do not have a face to face contact anymore, they rather use mobile or other digital devices. That means financial services are changing to a different level, but not only those services, also the default of the service and providers changed as well.[1]
According to an Austrian economist, Ewald Nowotny, central banks must ensure stability and not be guided by a short- term technical trend. The security would require a long-term orientation which should pay attention to an economic value (growth), customer trends and focus on explaining demands of the future financial system. Those are the main topics of the next steps.

The goal in the next paragraphs will be motivated by the different sectors which are relevant to provide information on Austrian Financing sector. The development of each sector is summarized on two or three pages, to overview banking, microfinancing, leasing contracts and crowdfunding/crowdinvesting. Therefore, it is important to present different types and special requirements regarding those sectors in Austria. In chapter 3 some facts will return within discussion on renewable energy finance activities.

Table 1: Austrians MFIs [2]

Number of monetary financial institutions (MFIs) in the euro area : May 2018

(pure number)

☐ Select all

☐ Belgium	☐ Germany	☐ Estonia	☐ Ireland	☐ Greece
☐ Spain	☐ France	☐ Italy	☐ Cyprus	☐ Latvia
☐ Lithuania	☐ Luxembourg	☐ Malta	☐ Netherlands	☑ Austria
☐ Portugal	☐ Slovenia	☐ Slovakia	☐ Finland	

	Euro area (changing composition)	European Central Bank (ECB)	Austria
1. Total number of MFIs	5,514	1	575
1.1. National Central Bank	20	1	1
1.2. Total number of Credit Institutions	4,715	0	570
1.3. Total number of MMFs	572	0	3
1.4. Total number of other deposit taking corporations	207	0	1

[1] https://www.oenb.at/en/Media/Press-Archives/2017/20170529.html

[2] http://www.ecb.europa.eu/stats/ecb_statistics/escb/html/table.en.html?id=JDF_MFI_MFI_LIST

Table 2: Austria: Structure of the Finacial System[3]

	December 2003				December 2007				
	Number	Assets (EUR billion)	Percent of total assets	Percent of GDP	Number	Assets (EUR billion)		Percent of total assets	Percent of GDP
Banking Sector	896	605.1	76.7	267.5	870	900.0		77.0	331.3
Joint stock and private banks	63	97.8	12.4	43.2	51	250.9	3/	21.5	92.3
Savings banks	63	215.4	27.3	95.2	56	150.4	3/	12.9	55.4
Rural credit cooperatives	596	144.0	18.3	63.7	558	222.0		19.0	81.7
Industrial credit cooperatives	69	31.9	4.0	14.1	69	69.3		5.9	25.5
State mortgage banks	9	45.7	5.8	20.2	11	87.6		7.5	32.2
Building societies	5	19.2	2.4	8.5	4	21.0		1.8	7.7
Special purpose banks 1/	91	51.1	6.5	22.6	93	87.4		7.5	32.2
Foreign bank branches 2/	0	0.0	0.0	0.0	28	10.9		0.9	4.0
Insurance sector	52	63.5	8.1	28.1	50	82.3	4/	7.0	30.3
Life insurance companies	34	45.3	5.7	20.0	31	59.6	4/	5.1	21.9
Non-life companies	43	15.1	1.9	6.7	42	18.7	4/	1.6	6.9
Health insurance	8	3.2	0.4	1.4	9	4.0	4/	0.3	1.5
Pension funds	20	9.1	1.2	4.0	19	12.9		1.1	4.8
Mutual funds	2,023	111.0	14.1	49.1	2,329	165.7		14.2	61.0
Other managed funds									
Other financial institutions	...	...	...	...	...	...		...	...
Total financial system	2,991	788.7		348.7	3,268	1,047		...	385.2
Memo items:									
Stock market valuation	...	44.8	...	19.8	...	157.8	5/	...	58.1
Bonds outstanding	...	287.8	...	127.2	...	407.5	5/	...	150.0
o/w state and other public entities	...	129.9	...	57.4	...	147.7	5/	...	54.4
Number of bank employees	75,245				79,180				

Source: OeNB.
1/ Includes severance funds, investment companies, and real estate funds.
2/ Foreign bank branches pursuant to Article 9 of Austrian Banking Act.
3/ The changes in the total assets of the joint stock and savings banks partly reflect reclassification among sectors.
4/ December 2006.
5/ November 2007.

2.1. BANKING SECTOR

Political and economic uncertainty led increase fluctuation in international financial markets in 2016. The operating environment for Austrian banks remained challenging at that time, characterized by the long-term period of low interest rates and lower economic growth. In this demanding situation, banks have continued to implement necessary reforms, thereby contributed to stable the Austrian financial market.[4]

Austrian banks' profits increased in the first half of 2016. The rising is affiliate to lower risk provisioning. The decrease in operating profits *OeNB* deemed necessary to restructure and to adjust processes: *"Banks have moved ahead with their adjustments and launched structural reforms to ensure sustained profitability,"* OeNB Vice Governor, Andreas Ittner, pointed out.

[3] https://www.imf.org/external/pubs/ft/scr/2008/cr08190.pdf

[4] 32nd Financial Stability Report, which the OeNB published on Monday, December 5, 2016. (https://www.oenb.at/en/Media/20161205.html)

Over the past few years, reestablishment at individual banks has been a key driver of improvements in the Austrian banking sectors of credit quality. The conclusion is the amount of non-performing loans, which are to a large part in the books of Austrian banks' CESEE subsidiaries. This fact remains as concern to support new lending.

The persistent low interest rate environment reflects the continued weakness of economic productivity as well as the effects of the financial crisis on the real economy and the ensuing low-price pressures.

"The moderate recovery in the Euro area continued, supported by the Eurosystem's monetary policy measures. This helped strengthen investors' confidence in the markets," as discussed with OeNB Governor Ewald Nowotny.

Austrian businesses have broad liquidity, therefore corporate demand for loans, especially for short-term loans, has remained low. At the same time, however, the volume of long-term loans has expanded, which enabled investment activities. Austrian households' debt remained stable and clearly below the Euro area average in the first half of 2016. Real Estate finance accounts for a large share of household debt, its outstanding volume continued to increase in 2016. For this reason, macroprudential supervisors have been looking better on mortgage lending details. The European Systemic Risk Board (ESRB) pointed to potential risks relating to the Austrian residential real estate market. The OeNB takes a more differentiated approach in its risk assessment. From OeNB's view, the current systemic risks emanating from real estate finance in Austria which are currently limited. Turning to foreign currency loans, their outstanding amount in Austria has been decreasing since 2008 owing to several supervisory measures and this trend continues also in 2016. According to an OeNB survey, risks for borrowers persist, relating to bullet loans which are linked to repayment models which display substantial funding gaps. In most cases, however, such loans have been taken out by high-income borrowers. The capitalization of the Austrian banking sector has improved significantly since the beginning of the financial crisis. This trend continued into the first half of 2016. Still at mid of the represented year domestic banks' capital ratios were still below the European average.

During the mentioned difficult period, the Austrian supervisory authorities have contributed to safeguarding the stability of the domestic financial system, among other things through macroprudential capital buffers, minimum standards for foreign currency loans and loans with repayment models as well as the "Sustainability Package." With those banks it was initiated to push ahead with their efforts regulated by safeguarding profitability, ensuring sustainability in housing finance, reducing the funding gap in outstanding repayment model loans, and improving credit quality and capitalization levels.

The formation of new problem loans has dropped (FINANCIAL STABILITY REPORT 33 – DECEMBER 2017), as the economies in Austria and in CESEE started to recover and the reduction of nonperforming loans made further progress, especially in CESEE. This positive bottom line trend masks a reduce of underlying operating profits, however, as low interest rates and rising operating expenses continue to take their fees. [5]
UniCredit Bank Austria AG restructured its CESEE business and *Raiffeisen Zentralbank Österreich AG* merged with *Raiffeisen Bank International AG*. Furthermore, banks' liquidity position continues to be solid and intra-group liquidity transfers to CESEE have declined further. Real estate-induced systemic has remained subdued for Austrian banks, as lenders have broadly held to sustainable lending standards. Nonetheless, future developments require continued supervisory attention. Finally, the volume of foreign

[5] The OeNB's Financial Stability Report, which is published every six months, contains analyses of financial stability-related developments in Austria and international situation as well as in-depth studies on selected topics. (https://www.oenb.at/en/Media/20161205.html (30.05.2018))

currency loans has continued its long running decline in Austria and CESEE, as policy measures proved effective. Notwithstanding these positive developments, legacy issues continue to be of concern and warrant close monitoring.[6] While long-term loans by Austrian MFIs accounted for almost one-third of all long-term debt financing, short-term bank loans were reduced significantly, as firms continued to have substantial liquidity at their disposal. Household loans expanded at a steady pace, mostly driven by housing loans. Still, housing loan growth remained moderate compared to, e.g. residential property price developments. [7]

Austrian banks reported another increase in profits in the first half of 2017, following major restructurings in recent years. Banks benefited from the favorable market environment and low risk costs. This notwithstanding, raising efficiency continues to be a top priority for banks with a view to increasing competitiveness and safeguarding financial stability over the longer term. The economic recovery has also taken hold in Central, Eastern and Southeastern Europe (CESEE), prompting banks active in the region to increase their lending activities. In this favorable environment, the Austrian economy likewise strengthened further. The exceptionally strong investment cycle increased the financing needs of non-financial corporations. Internal financing remained the most important funding source, but external financing grew markedly in the first half of 2017. Corporate lending by Austrian banks have been expanded, loans with medium-term and longer maturities being highest in demand, which reflected rising investment and historically low interest rates. Austrian households continued to display a strong preference for highly liquid assets in the current low interest rate environment. Bank lending to households continued to increase, with real estate loans still being the main driver of growth. At the same time, the proportions of foreign currency and variable rate loans diminished further. The Austrian banking sector gained not only from the above-mentioned positive developments but also reaped the rewards of major restructurings seen in recent years. As a result, the number of banks (head offices) dropped by almost one-fifth over the past five years, which - to a certain extent – also boosted Austrian banks' operating profits. consolidated profits continued to rise in the first half of 2017, also thanks to persistently low write-downs and credit risk provisioning. Furthermore, the profitability of Austrian banking subsidiaries in CESEE again provided an important contribution. The highest profits in the first half of 2017 were earned by subsidiaries in the Czech Republic, Russia and Hungary. "*Given that their profitability has been on an upward trend in recent years, Austrian banks improved their capitalization further in the first six months of 2017. This, in turn, strengthened financial stability in Austria*," explained OeNB Vice Governor Andreas Ittner. Real estate-induced systemic risks remain subdued in Austria, but close supervisory monitoring is warranted since a rising share of new housing loans to households shows relatively high loan-to-value, debt service-to-income and debt-to-income ratios. These developments underline the importance of the Financial Market Stability Board's communication regarding sustainable credit standards in real estate lending. [8]

Although the recent positive developments, which were supported by several supervisory measures, Austrian banks should use the window of opportunity, which the currently positive market environment provides. Further structural efficiency should be improved to raise their profitability and not taking any excessive risk-[9]

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[6] https://www.oenb.at/en/Services/Sitemap.html

[7] https://www.oenb.at/en/Publications/Financial-Market/Financial-Stability-Report/2017/financial-stability-report-33.html

[8] https://www.oenb.at/en/Publications/Financial-Market/Financial-Stability-Report/2017/financial-stability-report-33.html

[9] https://www.oenb.at/en/Media/20171211.html (30.05.2018)

2.1.1. List of Austrian banks

The following table shows all possible banks in Austria, all states included.

Table 3: Austria list of banks[10]

Alpenbank Aktiengesellschaft
Bank Austria Creditanstalt AG
Bank Burgenland
Bank für Kärnten und Steiermark
Bank für Tirol und Vorarlberg
Bank Gutmann AG
Bankhaus Krentschker & Co. Aktiengesellschaft
Bankhaus Spaengler
BAWAG
Capital Bank AG
Centro Internationale Handelsbank Aktiengesellschaft
DenizBank AG
Deutsche Bank Aktiengesellschaft Filiale Wien
GE Capital Bank GmbH
Hypo Alpe-Adria-Bank AG
Hypo Bank Niederösterreich
Hypo Landesbank Oberösterreich
Hypo Landesbank Steiermark
Hypo Landesbank Vorarlberg
Hypo Tirol Bank AG

[10] http://www.rechtsfreund.at/banken.htm

Investkredit Bank AG

Kathrein & Co. Privatgeschäftsbank Aktiengesellschaft

Meinlbank

ÖKB Österreichische Kontrollbank AG

Österreichische Nationalbank

Österreichische Verkehrskreditbank

Partner Bank Aktiengesellschaft

Porsche Bank

Privatinvest Bank Aktiengesellschaft

P.S.K.

Raiffeisenbank

Steiermärkische Bank und Sparkassen AG

Vakif Bank International AG

Zveza Bank

2.2. MICROFINANCE SECTOR

The Microfinancing sector in Austria is not widely represented, exccept on the national level based on the European Investment Fund for Austrians entrepreneurs.
Offering such small loans is of high relevance in developing countries, supported by non-profit organizations, to give people the opportunity to escape poverty by starting and owning their own businesses. Regulated access to loans provides starting enterpreneurs with additional security from local "loan sharks", those agencies or people charging high interest rates. The best result of micro financing should be economic growth and create new sources of employment.[11]

As already mentioned, the microfinancing sector is not distinct in Austria and there is just one larger programme to mention: In 2016 the EIF and the Austrian Erste Bank have signed a Social Entrepreneurship and a micro-finance guarantee agreement with the goal to support more than 500 micro and social-enterprises in Austria within the EU program for Employment and Social Innovation (EaSi)[12]. The EaSi programme guarantee scheme was launched in 2015 and was founded by the European Commission managed by EIF.

The European Investment Fund (EIF) is part of the European Investment Bank group. Its central mission is to support Europe's micro, small and SMEs with access to financing. EIF designs, develops venture and growth capital, guarantees and microfinance instruments which are specifically target this market segment. EaSi aims at supporting the EU's mission of high level employment, adequate social protection, fighting against social exclusion and poverty, and improving working conditions. The microfinance and social entrepreneurship of the EaSI programme provides support to financial intermediaries that offer microloans to entrepreneurs or finance to social enterprises. The objective is to increase access to microfinance for exposed groups who want to set up or develop their business and provide micro-enterprises with notably loans of up to EUR 25,000. In addition, for the first time, the European Commission is helping social-enterprises through investments of up to EUR 500,000.

The guarantee agreement above is not the only contract which was signed, recently before that, another EaSi guarantee was endorsed and is exclusive for Austrian SMEs and enhance access: from supporting-borrowers to small innovative midcaps[13], confirmed by the Chief Executive of EIF.
EaSi enable *Erste Bank* to have a total of EUR 10 mil and to provide to over 500 micro and social entrepreneurs, who have no access to loans of traditional financing. Social entrepreneurs and microloan borrowers will be able to benefit from those loans at a reduced interest rate, without providing assurance. This programme is happening in cooperation with the Ministry of Labour, Social affairs and consumer protection of Austria. Many different social groups will benefit from loans on good conditions and probably be able to create their own occupation, which was underlined by Marianne Thyssen commissioner for Employment. According to the *Erste Bank* Austria CEO the cooperation with this microcredit programme social enterprises could profit from a completely new credit line. All branches of *Erste Bank* and *Sparkassen* in Austria provide information points "Gründer Centers" within this programme (Start-up centers of Erste Bank and Sparkassen: www.gruender.at). EIF itself is not providing financial support to

[11] https://www.visionmicrofinance.com/en/about-microfinance/about-microfinance.html

[12] http://ec.europa.eu/social/main.jsp?catId=1081

[13] https://www.ffg.at/programme/risikofinanzierung_kmu (Programme COSME)

enterprises but will implement the service through local financial intermediaries which are active across Europe and additional countries that are participating in the EaSI program.[14]

2.3. LEASING SECTOR

Leasing is one of the best and most popular forms of financing investments in Austria and CEE (Central and Eastern Europe). The combination of tailored structures and certain tax and accounting advantages makes leasing so attractive in Austria.[15] Most of the companies are positioned as universal leasing companies offering the entire product range – motor vehicles, equipment and real estate leasing. All leasing companies act independently from the manufacturer and offer tailored solutions as well as sales finance, besides the typical standard businesses.

In the following section leasing situation is represented by numbers and depending factors on the most valued leasing options in Austria. Equipment leasing constitutes the leasing of equipment forming parts of fixed assets. Any capital good which has economic value and can be separately used and disposed of qualifies for leasing.
The figures were released by the Association of Austrian Leasing Companies (VÖL), which reported that the overall leasing market in Austria grew by 7.4% in 2017- with new lease volumes reaching a record of 6.9 € billion. The conclusion is that business volume in general is now higher than the previous record which was set in 2008 before the global economic crisis. To summarize the Austrian leasing industry, this sector is growing faster than the overall economy, and the car leasing sector is the strongest sector of the whole leasing industry. Aircraft and Real Estate finance are not the main business of Austrians leasing finance would not be elucidated in the presented paragraph but important to mention is The Leasing Group *Raiffeisen*, which is leading the Aircraft financiers in Austria and focused on business jets of well-known and leading manufacturers (within CEE). [16]

Leasing of energy efficient equipement is not common practice. Although energy efficency might play a role for the end producers in equipemnet choice, no specific focus is observed by leasing companies and there are no special conditions connected to energy criteria.

2.3.1. Types of leasing

The capital invested in the leased item through the leasing charges up to the end of the minimum lease: Known as **full-pay-out leasing** or **residual value leasing.** Lessors and lessees participate in the investment risk which is named **financing - or operating leases** (e.g. rent). [17]

[14] http://www.eif.org/eif.org/what_we_do/microfinance/news/2016/easi_erste_bank_austria.htm (30.05.2018)

[15] https://www.rbinternational.com/eBusiness/01_template1/829189266947841370-829189042804235096_916589479769292954-916589479769292954-NA-2-EN.html

[16] https://www.fleeteurope.com/en/leasing-and-rental/austria/news/fast-growing-austrian-car-leasing-breaks-records

[17] https://www.leasingverband.at/wp-content/uploads/2017/03/V%C3%96L-Brosch%C3%BCre-Leasing-in-%C3%96sterreich-M%C3%A4rz-2017.pdf

2.3.1.1. Financing lease (Fully-pay-out lease)

According to Austrian context of finance leasing, in simple terms, the main risks and rewards of the leased assets are linked to the lessee. The lessor formally pays the invoices for the construction of the leased asset (ownership). These leases are generally designed for full amortization (full-pay-out leasing). In practice, **finance leases** are very similar in terms of interest rates, repayment modalities and flexibility of the instrument as loan agreements.[18]

2.3.1.2. Operating lease (Residual-value lease)

The risk distribution between lessee and lessor in operating lease contracts is more differentiated. This range comes with a real lease (e.g. commercial rental agreements) and is mostly based on corresponding rules.

The term of the contract is generally based on a maximum of 40% and 60% of the normal useful period of the leased property. After the lease period ends, the leasing object is normally transformed to the lessor. Specifically, this means that the lessor (the leasing company) assumes the recovery risk for the asset. Projects that can be realized under operating leases are therefore often realized with assets that have a liquid secondary market. This lease form is suitable to the following sectors: motor vehicles, aircraft and real estate.

2.4. CROWDFUNDING SECTOR

Crowdfunding is a relatively new form of financing, which has been gaining importance in recent years. With this financing option many people collectively participate in the funding of companies or implementation of projects by contributing a small amount. The collection of these funds is usually conducted through platforms on which the operators, projects and companies publish open call for financing. Such a Financing call usually consists of a Minimum funding threshold (= minimum amount that allows for the funds to go through) and a Funding limit (= maximum funding requirement; no further offers more accepted beyond this limit) as well as a maximum Participation amount per investor.

Entrepreneurs and project initiators may use this form of financing but not only to collect the funds necessary for their company/project, but also to benefit in other ways.[19]

The most important tool for the reduction of Investment risk is therefore an investor's viewpoint sufficient diversification, i. a distribution of funds earmarked for crowdfunding to different levels Companies or projects. Specific laws for the Crowdfunding sector have been enacted in Austria and Germany, where companies and platforms have seen strong and steady growth over the last years. [20]

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[18] https://www.klimafonds.gv.at/assets/Uploads/Projektberichte/Smart-Energy-Demo---FIT-for-SET-2.-Ausschreibung-2011/Smart-FinanceFinanzierungshandbuch.pdf

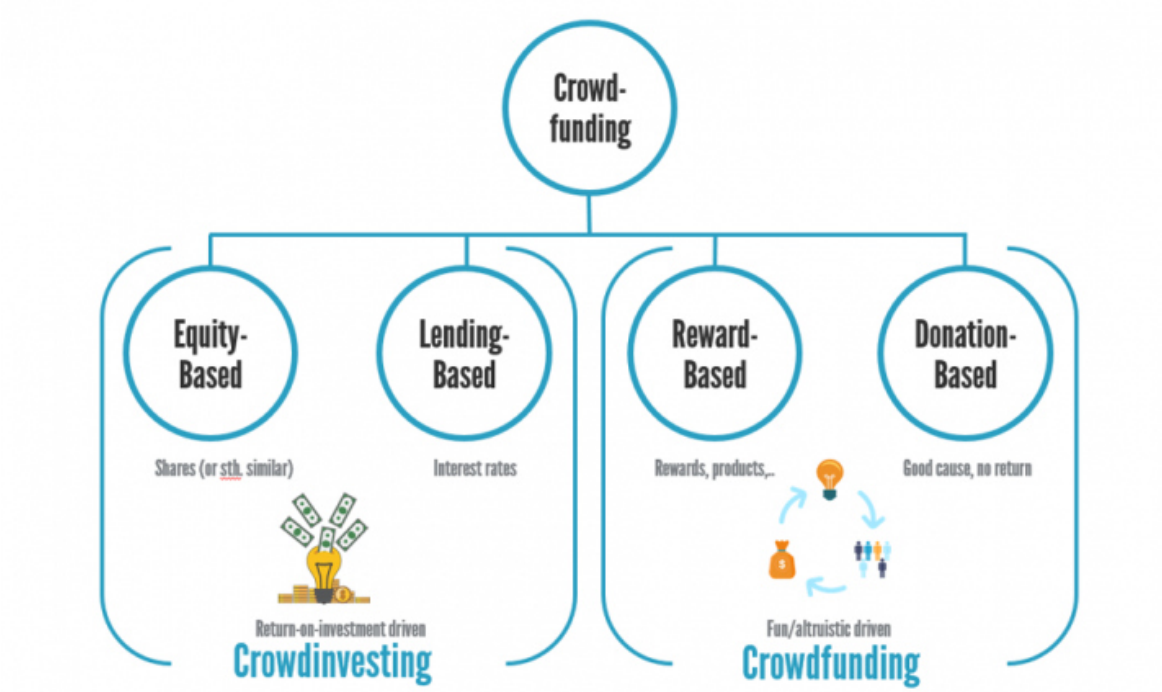
[19] https://www.klimafonds.gv.at/assets/Uploads/Projektberichte/Smart-Energy-Demo---FIT-for-SET-2.-Ausschreibung-2011/Smart-FinanceFinanzierungshandbuch.pdf (Seite 41, 30.05.2018)

[20] see ibid. page 42

2.4.1. Types of Crowdfunding

Several terms and expressions referring to crowdfunding may cause confusion and should be used with care (and perhaps explained). A clear distinction in the media between "crowdfunding" und "crowdinvesting" is not always made and some overlaps occur as it is possible to run diverse types of funding initiatives, where the capital required is provided by a large group of sponsors (the "crowd"). Whereas "crowdinvesting" usually refers to equity-based and lending-based crowdfunding, where monetary returns are a primary motivation for the investment. The operational transparency, legal certainty, secures and reliable handling of payments and data protection are also a success factor for the numerous platforms as well as the ease of use.[21]

Table 4: Types of Crowdfunding[22]



2.4.1.1. Donation-based crowdfunding

Money is obtained on a donation basis from several individuals and businesses but nothing is returned to those who give the money. The big difference to conventional donations, however, is that the donor (here called backer) is informed in detail about the project and the use of the funds. Often donation crowdfunding is most successful among charities and non-profits. Some services invite people to donate to projects for the pleasure of giving. Philanthropy based services usually have other benefits such as tax credits or rebates.

[21] https://www.crowdfundport.eu/minimum-platform-standards/ page 12

[22] CONDA AG, "Crowd investing: alternative ways of financing"

As this sort of crowdfunding is predicated on donations, funders do not obtain any ownership or rights to the project, nor do they become creditors to the project. Typically, the online service providers take a 5%-10% fee of all donations. [23]

2.4.1.2. Reward-based crowdfunding

In Reward-based crowdfunding, individuals pay for a project or business with the expectation of receiving a non-financial reward in return, such as goods or services at a later stage. A common example is a project or business offering a unique service (rewards) or a new product (pre-selling) in return for the pledge. This form of crowdfunding allows companies to launch with orders already on the books and cash-flow secured (a major issue for new business) and gathers an audience before a product launch. Key features: Funds given don't have to be repaid; you just deliver the service or the goods promised. Orders are secured before the launch of a new product, and the crowdfunding campaign allows you to build your customer base as you raise funds.
You are obliged to deliver on your promises on schedule. It is a popular option for Start-ups and entrepreneurs as it provides a way to fund the launch of new companies or products. It is particularly suitable for products and services that or is innovative or garners high levels of consumer attention. Complicated concepts or products are less suitable for rewards crowdfunding. There are two types of terminology general identified: "Keep-it-All" (KIA) (also called flexible funding) where the firm sets a fundraising goal and keeps the entire amount raised regardless of whether or not they meet their goal. The target sum has to be reached in order to distribute the funds to the project "All-or-Nothing" (AON, also called fixed funding) where the entrepreneurial firm sets a fundraising goal and keeps nothing unless the goal is achieved. The target amount should be reached in order to distribute the funds to the project.[24]

2.4.1.3. Equity-based crowdfunding

This crowdfunding type is an investment with financial consideration. A large number of people invest in a company and are thereby involved in the success of the company. Investors usually acquire equity interests in companies in which profit from the annual profit and the increase in the company's value. This new and alternative form of corporate finance combines the benefits of crowdfunding with those of equity capital. Most equity-based Crowdfunding uses shares or stocks, however the using of mezzanine instruments such as profit-participating subordinated loans, which are structured like equity is possible in Austria and Germany.
For the investment in the form of a subordinated loan, equity-based crowdfunding is a part of mezzanine capital; the crowd gets an annual fixed interest rate. The investor's claim for repayment of the loan is subordinated to other creditors of the company: in the event of insolvency or liquidation of the borrower, the loan falls behind the other claims of the respective company. This form allows participation financing for the early-stage financing of start-ups or for innovation projects in small and medium-sized enterprises (usually starting at around 100€).[25]

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[23] https://www.crowdfundport.eu/minimum-platform-standards/

[24] https://www.crowdfundport.eu/minimum-platform-standards/

[25] see ibid. page 10

Young companies in particular are often faced with difficulties in getting capital to finance their business adequately. A crowd investing campaign can be used to raise the necessary capital, which in turn facilitates follow-up financing by banks or funding agencies.

2.4.1.4. Lending- based crowdfunding (crowd lending)

This is a kind of a private microcredit for projects and companies. Several private sponsors (the crowd) lend their money through a platform to a borrower: a person or company of their choice. The platform Intermediaries serve as online credit marketplaces, which usually receive a fee for their mediation activities. The crowd lending is primarily based on the idea of allowing people and companies to borrow that do not see any or little chance of obtaining a bank loan. Crowd lending can be divided as follows: A Person-to-person lending (Peer-to-peer lending, P2P lending). Both the lenders and the borrowers are individuals. A Person-to-business lending (peer to-business credit, P2B lending): In this case the lenders are peers to companies.

2.4.2. Crowdinvesting regulations in Austria

To supplement the existing supervisory rules such as the Capital Market Act (KMG; Kapitalmarktgesetz), a specific legal framework has been put in place for the purposes of providing small and medium-sized Enterprises with finance via crowdinvesting financing models. The Alternative Financing Act (AltFG; Alternativfinanzierungsgesetz) was enacted in September 2015 and was put into place to provide easier access to the capital markets to these companies. Additionally, the Act also introduced minimum standards for the operators of crowdfunding platforms.
Compliance with the provisions of the AltFG or of any regulation originating from AltFG is not supervised by the Austrian Financial Market Authority (FMA). Punitive action in the event of any administrative offence is taken by the responsible district administration. Consequently, any interpretation issues regarding the provisions of AltFG do not fall within the remit of the FMA.

- The company seeking to collect funds must adhere to specific information requirements if a Funding limit of EUR 100,000 is exceeded
- Beginning at EUR 1.5 mio, a capital market prospectus “light”. This type of prospectus is unique to Austria and ungoverned by EU prospectus law. It may not be passported to another Country.
- Fundings from 5,0 mio require a full capital market prospectus in accordance with harmonized European Union prospectus directives.

3. ENERGY EFFICIENCY/RENEWABLE ENERGY FINANCE ACTIVITIES

National and international financial institutions (IFIs) play a crucial role as a source of financing for EE projects. Finance is either provided as credit lines from local FIs, from IFIs through local FIs or directly to larger projects or industries. IFIs often offer concessional terms, combined with consulting and technical assistance (TA), and/or packaged with other types of incentives for the borrower.

The following sub-sections give an overview about i) local traditional banks and MFIs that already offer EE/RE lending and, ii) international development banks/funds that provide EE finance facilities.

3.1. INTERNATIONAL AND LOCAL FINANCE INSTITUTIONS WORKING IN EE SECTOR

In general, lack of financing for energy efficiency investment projects is a problem for firms in Austria. In a 2016 survey, unavailability of financing was the third reason for not investing into energy efficiency projects, after economic unfeasibility and prioritization of other projects.[26] Hence, the following paragraphs provide a short overview on financing for energy efficiency projects available in Austria.

Conventional Financing- Local traditional retail banks

In general, most finance institutions providing credit lines in Eastern European countries do not offer facilities in Austria. One case in point is the EBRD Sustainable Energy Finance Facility, which offers energy efficiency financing in almost all Eastern and Southern European countries, but not in Austria.[27] Rather, Austrian financing institutions provide energy efficiency financing abroad through these facilities, such as *Raiffeisen International* co-investing with the EBRD in Bosnia[28] or Hungary[29].

However, KfW provides financing for energy efficiency projects in Austria through its ELENA (European Local Energy Assistance) facility. ELENA is embedded in the IEE II initiative and finances through intermediaries small and medium-scale investment projects in energy efficiency and renewable energy by local or regional municipalities and energy service providers. The project is intended to contribute to the EU's 20-20-20 initiative. The financing facility is available in France, Austria, Denmark, Italy and Poland and combines a subsidy from the European Commission to support the technical project development, as well as loans for the finance intermediaries to fund small investment projects of up to 50 million euros. In Austria, ELENA is administered through the intermediary bank ERSTE BANK[30].

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[26] https://www.monitoringstelle.at/fileadmin/i_m_at/pdf/Markbeobachtung_Report_FINAL_20161013.pdf

[27] http://seff.ebrd.com/index.html

[28] https://www.raiffeisen.at/nachhaltigkeit/82960394765097820 8_83707654629960429 9-832830925696155845-NA-1-NA.html)

[29] https://www.rbinternational.com/eBusiness/01_template1/826124957350877869-826099894069199559_826101122966719750-828928608335413309-NA-1-NA.html

[30] https://www.kfw.de/KfW-Konzern/%C3%9Cber-die-KfW/Auftrag/Sonderaufgaben/F%C3%B6rderkredite-EU/ELENA-%E2%80%93-European-Local-ENergy-Assistance/

In addition, most leading Austrian retail banks offer financing solutions of energy efficiency projects. For instance, Bank Austria (now part of the Italian UniCredit group) offers its "Energieeffizienz Paket" for corporates to provide planning and analysis support, subsidy evaluation and leasing.[31] Under the framework of this financing programme, has reserved funds of up to one billion EUR at favourable interest rates for energy efficiency investments of domestic companies ("Energiespar-Milliarde"). Similarly, some branches of *Raiffeisenbank* offer financing for energy efficiency initiatives for corporate clients.[32]

KfW Subsidies

Furthermore, KfW regularly provides loans to Austrian firms investing into energy efficiency projects, such as in 2014, when KfW provided Austrian Spar Group with a 40 Million Euro loan to finance a new, energy-efficient commissioning asset to support Spar.[33] The investment was motivated by Spar's focus on green investments and was aimed at significant energy savings.

Those supermarkets were monitored for the climate efficiency with interesting results. In order of tested heating and cooler systems within the business, the lighting system was the second largest energy/power consumption.[34]

Kommunalkredit Bank

Subsidies from public sources represent a major source for financing energy efficiency projects in Austria. These subsidies are usually provided for very specific purposes and administered through the *Kommunalkredit* bank (or, more precisely, through its subsidiary Kommunalkredit Public Consulting), which is a bank specialized in financing infrastructure projects across Europe. In that sense, *Kommunalkredit* has acted as settlement agency and managed environmental support schemes of the Federal Government of Austria since 1993. Funds are often provided by national and regional governments administered through *Kommunalkredit*. Specific purposes, for which grants are issued, include for instance initiatives to upgrade cooling infrastructures of Austrian firms or programmes to improve efficiency levels of heating assets.[35] In 2016, Kommunalkredit administered more than 71,000 projects in total, amounting to 407.5 million EUR in subsidies.

Kommunalkredit administers funds from financing instruments for various institutions, including the following[36]:

- Austrian Federal Ministries (Environment, Science, Research etc.)
- EU regional subsidies (EFRE, ELER)
- Klimaaktiv subsidy scheme
- Various regional public agencies

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[31] https://www.bankaustria.at/firmenkunden-und-freie-berufe-finanzierungen-und-foerderungen-energieeffizienz-paket.jsp

[32] https://www.raiffeisen.at/paznaun/1013642253392-590935393361422737-NA-30-NA.html

[33] https://www.kfw.de/PDF/Download-Center/Finanzpublikationen/PDF-Dokumente-Berichte-etc./1_Gesch%C3%A4ftsberichte/Gesch%C3%A4ftsbericht_2014_D.pdf

[34] http://www.zumtobelgroup.com/de/4437.asp

[35] https://www.energyagency.at/fakten-service/foerderungen.html

[36] https://www.publicconsulting.at/fileadmin/user_upload/media/publicconsulting/KPC_Leistungsbericht_2016.pdf

European Investment Bank (EIB)

Between 2001 and 2014, 2.1 billion EUR were provided by the EIB as loans for Austrian energy projects. However, most of the provided loans were targeted at energy infrastructure investments, such as wind parks, and less for energy efficiency upgrade investments for private investors or enterprises.[37] Hence, while substantial in fund volume, EIB is currently not a suitable source of financing for firms seeking to upgrade their energy efficiency.

Table 5: Austria: EIB Funds[38]

BEST PRACTICE

In 2014, German KfW bank, through its subsidiary KfW IPEX-Bank, provided Austrian *SPAR Österreichische Warenhandels-AG* with a 40 million EUR loan to invest into a new, energy-efficient commissioning asset. The investment was motivated by SPAR's focus on green investments and was aimed at significant energy savings.[39]

[37] https://www.e-control.at/presse/aktuelle-meldungen/eib-darlehen-fuer-oesterreichische-energieprojekte

[38] http://www.eib.org/projects/regions/european-union/austria/index.htm

[39] https://www.kfw.de/PDF/Download-Center/Finanzpublikationen/PDF-Dokumente-Berichte-etc./1_Gesch%C3%A4ftsberichte/Gesch%C3%A4ftsbericht_2014_D.pdf

3.2. EPC AND ESCO MARKET IN AUSTRIA

Energy Service Company Overview (ESCO) are companies that provide solutions for achieving energy cost reductions, and whose overall compensation can be linked (in part or in full) to the performance of the implemented solutions. In that context, an ESCO can handle projects, mobilize financial resources (not necessary its own equity), offer turn-key services (either on its own or through collaborating with other market players) and assume performance risks.

Energy Performance Contracting (EPC) means a contractual arrangement between the beneficiary and the provider of an energy efficiency improvement measure, verified and monitored during the entire term of the contract, where investment in that measure are paid for in relation to a contractually agreed level of energy efficiency improvement or other agreed energy performance criteria, such as financial savings.

The advantages of the service offered by an ESCO is that it integrates all energy services for all the phases of the project through a single contract. Furthermore, the ESCO, grounding its benefits in energy savings, offers a guarantee of obtaining rational solutions consistent with the customer needs. Thus, hiring an ESCO enables customers to renew their technology and improve competitiveness and productive assets. This could be the best solution by the following understanding of the ESCO model. The underlying logic of an ESCO model is to offer a solution whereby private contractor convert energy inefficiencies into future cash flows and energy saving investments are repaid from savings resulting from the analysis. EPC is highly recommended when the client needs to change its equipment and technologies to obtain gains in term of energy efficiency but some large up-front investments could discourage this action. Additional information on ESCOs is that those enable it client to outsource energy management activities that are usually not in the client core business. An ESCO focuses on the reduction of energy costs through best management practices, including M&V (Measurement and Verification). Therefore, it is interesting to enter negotiations with an ESCO whenever a high initial investment is needed, since such an initial investment is minimized or eliminated by an ESCO. In the case where the ESCO provides funding for the implementation of projects, the borrowing capacity of the client will not be affected. The client can then employ its financial resources for other needs. [40]

What are the differences between EPC and other energy contracts?

An ESCO can generally offer **two main models** of contracts for energy services:

i) Energy Supply Contracting (ESC): In order to reduce the price of the energy bill of the client, a long- term arrangement with the ESCO is signed. The ESCO may install more efficient equipment, employ more affordable fuels or implement solutions to achieve the savings.

ii) Energy Performance Contracting (EPC): EPC is an agreement between the ESCO and the client on the share of the energy savings and its inherent risks as a result of the implementation of energy efficiency measures.

In case of ESC the service simply provides power to the customer, while the EPC offers a more complex and complete service, since it covers both the optimization of energy supply and increases the energy efficiency in the client's facilities. In general, the EPC option has the greatest potential of savings.

In the following paragraphs the types of Energy Performance Contracting are defined as:

[40] https://help.leonardo-energy.org/hc/en-us/articles/202552562-What-is-the-difference-between-an-ESCO-and-an-EPC-

Shared savings: the shared saving contract is where the investment is assumed entirely by the ESCO, including investment financing, management and control of energy consumption. This mechanism is attractive for the ESCO as long as it excludes penalties in the event that the implemented measures perform poor or the initial estimation proves to be too low. In return for providing financing, the ESCO undertakes comprehensive management. In this case ESCO prefers large or medium-sized customers. **Guaranteed savings:** the client assumes the entire investment is required. In this case, the ESCO shall ensure real savings and if they are not enough to cover debt service, then ESCO might pay the difference. If savings exceed the guaranteed level, then the customer must pay an agreed upon percentage of the savings to the ESCO. This mechanism is typically used when the investment associated with the project is undertaken by the customer. This is why this type of contract is only suited for clients with sufficient financing, typically large or medium size companies.

Mixed savings: this kind of contracting is a hybrid combination of the two previous models. The ESCO guarantees savings to the client with any additional savings shared between the ESCO and the client. In case the ESCO makes the investment in a new equipment, which is owned by the ESCO for the duration of the contract. Ownership of the equipment is transferred to the client at the end of the contract. Usually, there is a fixed payment (investment amortization), a maintenance fee and a variable payment based on the savings achieved (shared savings). Regarding risks, both the ESCO and the client share the risk of performance and sometimes the risk of changes to the price of energy. However, the credit risk is usually taken over by the ESCO.[41]

EPC Market in Austria

Upper Austria: EPC projects can be subsidized with up to €75.000 or up to 40% of the investment costs. The scheme is one of the reasons for the very dynamic EPC market in Upper Austria with 140 supported EPC projects between 2006 and 2015. These projects showed a cumulative investment volume of 39 Mio € with granted subsidies of 3.2 Mio €.[42]

Table 6:EPC sectors

Country	Public	Industry	SME	Tertiary	Residential
Norway*	✓				
Netherlands	✓	✓	✓	✓	✓
Spain	✓	✓			✓
Belgium	✓	✓		✓	✓
Germany	✓	✓		✓	✓
Czech Republic	✓	✓	✓		✓
Austria	✓	✓		✓	✓
Ireland	✓	✓		✓	✓
Italy	✓	✓		✓	✓
Slovenia	✓	✓		✓	✓
Lithuania	✓				✓
Romania	✓	✓			✓
France	✓	✓		✓	✓

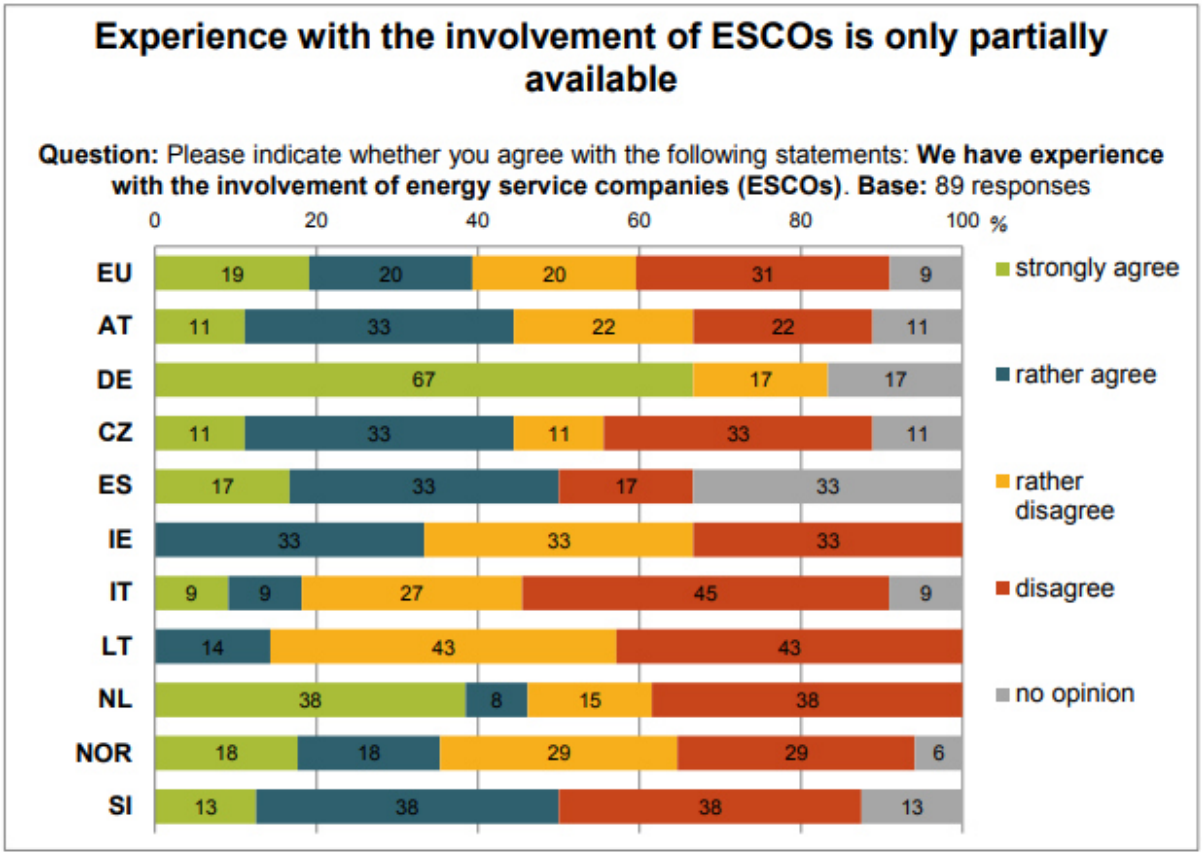
[41] https://help.leonardo-energy.org/hc/en-us/articles/202552562-What-is-the-difference-between-an-ESCO-and-an-EPC-

[42] https://guarantee-project.eu/wp-content/uploads/2016/12/guarantEE_EU_EPC_Market_Report.pdf,page 4)

Table 7: Austria Average investment/project[43]

Key parameters	Germany[9]	Austria[10]	Norway[11]	Czech Republic[12]	Spain[13]	Italy[18]
Average baseline / project [€/a]	1,800,000		77,000		895,146	
Average guaranteed savings [%]	26		33		23	
Average investment / project [€]	2,035,000	285,000	1,650,000		800,000	
Average ESCO turnover over duration [€]	4,275,000				2,400,137	
Average contract duration [a]	12		7 – 18	3 – 6	6	
Average total investment [€]			300,000 – 6,000000	610,692		200,000 – 500,000
Average guaranteed savings [€]				107,722		

Table 8: ESCO involvement [44]



[43] Size of projects

[44] https://guarantee-project.eu/wp-content/uploads/2016/12/guarantEE_EU_EPC_Market_Report.pdf (page 7)

Table 9: Equity financing [45]

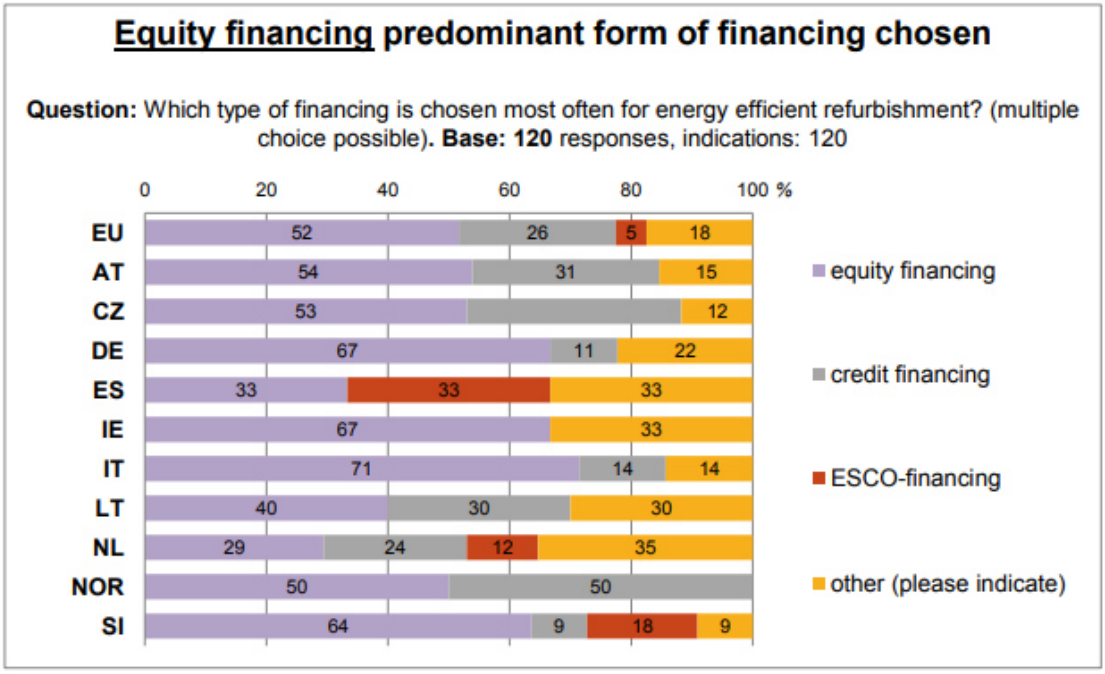
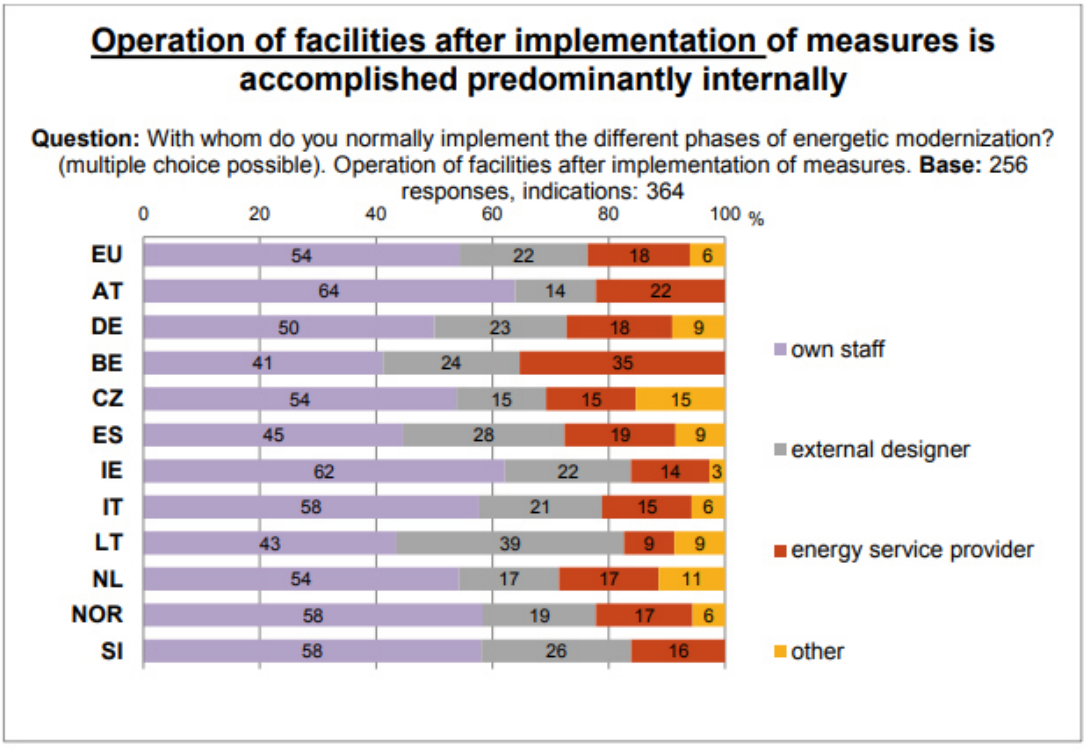


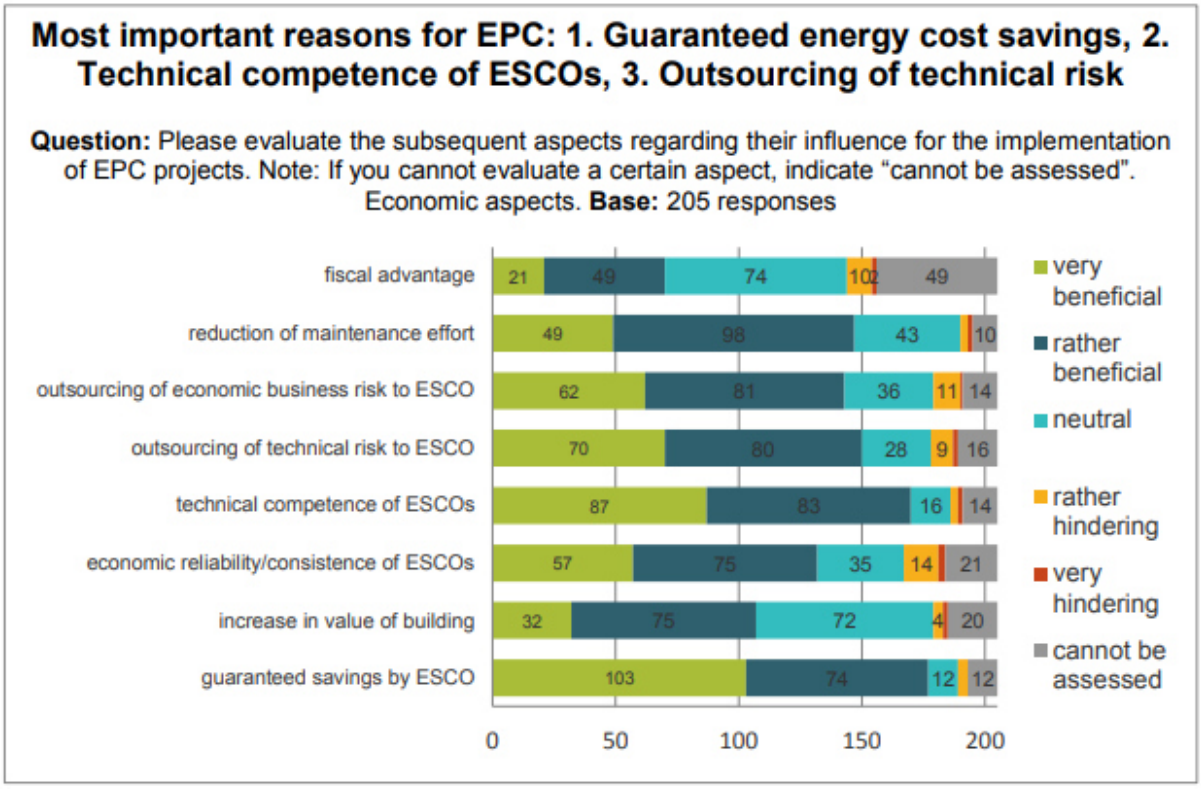
Table 10: Operation of facilities after implementation



[45] https://guarantee-project.eu/wp-content/uploads/2016/12/guarantEE_EU_EPC_Market_Report.pdf (page 8)

The three tables above give evidence that measures are mostly implemented by external companies and afterwards maintained and operated by internal resources. This might lead to risks on the side of the building owner that can be addressed through EPC. As expected, the most important reasons for the choice of EPC are:

Table 11. EPC benefits within ESCO[46]



To summarize, the development of EPC projects is facing specific challenges depending on the customer group. These challenges were presented and potential solutions offered, which were assessed by the respondents.

Challenge 1: financial investment in energy efficiency measures for public institutions: The department/budget that finances the measures does not benefit from the measures.

⇨ Solution "top": establishment of global budget for the department with fixed energy cost. The achieved savings refinance the investment.

Guaranteed savings by ESCO increase in value of building economic reliability/consistence of… technical competence of ESCOs outsourcing of technical risk to ESCO outsourcing of economic business risk to ESCO reduction of maintenance effort fiscal advantage absolute answers very beneficial rather beneficial neutral rather hindering very hindering cannot be assessed.

[46] https://guarantee-project.eu/wp-content/uploads/2016/12/guarantEE_EU_EPC_Market_Report.pdf ,page 9

Most important reasons for EPC:

- Guaranteed energy cost savings,
- Technical competence of ESCOs,
- Outsourcing of technical risk

⇨ Solution "flop": in the case of large-scale real estate the renewal of tenancy contracts (which are necessary, as operational costs change after implementing energy efficiency measures) can be avoided through development of legally effective additional agreements.

Challenge 2: tenancy in commercial properties: The landlord invests in energy efficiency measures but cannot refinance those by reduced energy cost, as only the tenant benefits from energy cost savings.

⇨ Solution "top": tenant pays fixed rent (including operational, heating and electricity costs). The landlord can refinance the investment through the savings.

⇨ Solution "flop": tenants receive guaranteed/increased comfort for guaranteed cost. At the same time, they accept higher payments to the landlord in extent of the energy savings.

Challenge 3: the behavior of users in buildings influences the energy demand drastically. However, the change of behavior of the user can turn out to be difficult.

⇨ Solution "top": Technical solution: motion sensors, window-contact switches etc. for achieving savings without the necessity to influence behavior of users.

⇨Solution "flop": Part of the achieved savings is paid/accredited to the user as "profit sharing".[47]

BEST PRACTICE

An agricultural school in Salzburg province undertook an energy savings contracting over an investment sum of 195,000 EUR. The measures included improvements of insulations, water savings, heating, and hydraulics, leading to energy savings of 15%, or 56,000 kWh and heating cost savings of 20%, or 300,000 kWh. The contract was concluded with ESCO Pro-Energy, part of ENGIE, over a duration of 15 years and with guaranteed savings of 70,000 EUR.[48]

[47] https://guarantee-project.eu/wp-content/uploads/2016/12/guarantEE_EU_EPC_Market_Report.pdf

[48] https://www.monitoringstelle.at/index.php?id=752&tx_ttnews%5Btt_news%5D=992&cHash=9c37fea3dfaca28f377d71a4d39fbe1e

3.3. CLIMATE FUNDS AND SUBSIDIES

Municipal utilities have increased their investment allocation in renewable energy and are now the most active investors in this sector. Their involvement increased significantly following the liberalization of the energy markets aimed at increasing competition round the turn of the century. Renewable energy investments facilitate municipal services to diversify and expand their generation portfolio and target a highly saturated energy market through innovative green energy offerings. As they are directly or indirectly owned by a municipality or city, municipal utilities are also often politically motivated to invest in renewable energy. Swiss municipal utilities were the first of their kind to target renewable energy investments, and more recently German, Austrian and even Norwegian utilities have become more active.[49]

A number of subsidies are avaialbe both for energy efficeincy projects and renewable energy production. The following table gives an overview of funding bodies

Table 11: Austrian funding sources in the energy sector[50]

Österreichweite Förderstellen
Austria Wirtschaftsservice Gesellschaft mbH (aws)
Austrian Development Agency (ADA)
Europäische Union
Global Incubator Network (GIN)
Klima- und Energiefonds
Oesterreichische Entwicklungsbank AG (OeEB)
Oesterreichische Kontrollbank Aktiengesellschaft (OeKB)
"Österreichischer Exportfonds" GmbH (Exportfonds)
Österreichische Forschungsförderungsgesellschaft mbH (FFG)
Bundesländer-Förderstellen

[49] http://cleanenergypipeline.com/Resources/CE/ResearchReports/The%20European%20Renewable%20Energy%20Investor%20Landscape.pdf

[50] https://www.go-international.at/weitere-foerderstellen/oesterreichweite_Foerderstellen.html

The Climate and Energy Fund owned by the Republic of Austria supports through its programmes the commitments towards national energy and climate targets. The programmes developed by the Climate and Energy Fund cover following three areas:

- R&D in the field of sustainable energy technologies as well as climate research
- Promotion of projects in the field of public local and regional transport, environmentally friendly goods transport and mobility management projects
- Foster the development of projects which enable the market penetration of sustainable and climate-relevant energy technologies

Another important engagement of the Climate and Energy Fund is to raise awareness for energy and climate topics among broad target groups.[51]

In the area of subsidies the operational Domestic Environmental Support Scheme (UFI – "Umweltförderung") which comes in support of companies wanting to invest in energy and environmental measures is of significant importance. The subsidies offered within this scheme can make up to 30% of the investment costs.

As far as the area coverage of the funding is concerned, it includes the efficient use of energy in commercial and industrial production processes (for renewable heat production as well as PV applications), thermal renovation of existing buildings and mobility (for electric cars, cooperate mobility management, bike use).[52]

For the development of renewable energy production capacities, the Austrian Green Electricity Act is most significant. Adopted in 2012, it stipulates the targets for each green power technology for the period up to 2020 and includes a feed-in tariff Ordinance for electricity generated from renewable sources:

Photovoltaics

One of the main changes of the now adopted amendment compared to the original government bill is the additional investment subsidies for private and small scale photovoltaic systems and energy storage. The construction and the amendment of photovoltaic systems and energy storage on a private building / roof or on business premises may be funded if the system is connected to the public electricity transmission grid, and if no other subsidies (e.g. feed-in tariff subsidies or other funding) are available. The envisaged investment subsidies amount to EUR 15 million for 2018 and 2019. At least EUR 9 million will have to be invested in photovoltaic systems. The funding amounts to max 30 % of the construction costs (not including costs of land) and may be increased by EUR 500 per kWh in case the storage capacity is increased by at least 0,5 kWh per kW peak bottleneck output. However, the overall max funding may not exceed 45 % of the additional environment-related costs. Investment subsidies are granted if the application is submitted before the construction / amendment of the photovoltaic systems, or energy storage takes place, and upon submission of proof of investment costs. Once the investment subsidies are confirmed by the competent authority, the photovoltaic systems or energy storage should be put in operation within one year, otherwise the application is deemed withdrawn and the confirmation expired.

[51] https://www.klimafonds.gv.at/about-us/

[52] https://www.umweltfoerderung.at/betriebe.html

Biogas

As far as biogas plants are concerned the new legislation no longer excludes these plants from the subsidy regime as originally foreseen in the government bill. New biogas plants will still receive subsidies. However, stricter rules will apply after 1 January 2018. The OeMAG is only obliged to contract with biogas plants under fixed feed-in tariffs, if the following requirements are met: The feed-in is operated by remote control; the content of maize and corn in the fuel does not exceed 30 %; the plants reach a maximum electric power of 150 kW and a fuel efficiency of over 67,5 % or the biogas production plants process the produced biogas to the quality of natural gas and feed it in the public gas transmission grid, and the distance between the generation plant and the biogas production plant is at least 5 km. From 1 January 2018 onwards, OeMAG's obligation to contract under fixed feed-in tariffs only applies to new plants based on solid and liquid biomass, if the feed-in is operated by remote control. In addition to continuing the subsidy regime for biogas plants, the new amendment stipulates that existing biogas plants, which are highly efficient, will receive a successor tariff from OeMAG. Compared to the original government bill, the new amendment more than doubles the annual volume of support funding for biogas plants and increases the amount to EUR 11.7 million until 31 December 2021. Moreover, in case the annual volume is not used, it can be transferred to the next year, and if the volume does not suffice, the volumes from the following years can be used in advance. In case it is needed, an amount of up to EUR 23.4 million could be used for one year; however, the amount exceeding EUR 11.7 million would have to be deducted from the following years accordingly. Plants that use fuels consisting of more than 60 % corn and maize are excluded from this support regime. Special requirements for the application such as the disclosure of fuel efficiency are also determined in the amendment.[53]

Wind power and photovoltaic systems are the winners

The green electricity package is not only pushing forward the expansion of renewable energies in Austria, but it also creates a better framework for plant operators and reduces bureaucracy.

Clear winners of the amendment to the Green Electricity Act are wind power plants and photovoltaic systems (including energy storage). Wind power can benefit from the extension of the expiry period for pending subsidy applications and additional subsidies amounting to EUR 30 million in 2017 and EUR 15 million in 2018. Private and small scale photovoltaic systems and energy storage will profit from the amendment by receiving an extra EUR 15 million in investment subsidies for the construction and amendment to existing systems. The adopted amendment also contains some benefits for small hydropower plants and biogas plants. The annual subsidies for small hydropower plants increase from EUR 1.5 million to EUR 2.5 million. Compared to the first proposed amendment, the newly adopted amendment to the Green Electricity Act does not remove biogas plants from the existing subsidy regime, and certain plant operators will receive a successor tariff. In addition, newly constructed biogas plants will still be eligible for subsidies.[54]

[53] https://investinaustria.at/en/sectors/environmental-technologies/renewable-energies.php

[54] https://www.schoenherr.eu/publications/publication-detail/renewable-energy-amendment-of-the-austrian-green-electricity-act-doubles-funding/

3.4. GREEN BONDS FOR RENEWABLE ENERGY FINANCING

Green Bonds are still relatively new in Austria.[55] However, already in 2014, power company Verbund AG issued a 500 million EUR green bond at 1.5% at a 10 years maturity. Verbund AG uses the proceeds from the bond issue to finance, among others, energy efficiency projects in its hydro business.[56]

For the first time in 2008 the *Weltbank* launched first Green Bond. The terminus *green bond* is just allowed to use for Environment projects. Not every project can be defined as green. Therefore, it requires European sustainability standards and certificates for Green Bonds. States and companies should become more aware of it and should develop those projects to launch more of it. But at the same time those projects should avoid the lacking transparency. [57]

There are existing „Green Bond Principles", so Michael Schmidt. The target expert and Co-Founder of *Deka Investment GmbH* and member of European Union - expert group, who is planning to intend standards for green bonds until mid of 2019". Those changes could encourage at that time a small market. Michael Schmidt explains „just 2 % outstanding bonds issued worldwide incurred in this sector".

Even in 2018 it could change to a better standard, almost 30% growing can be expected (US-rating agency: Standard & Poor's). The market could reach about 200 Billion US-Dollars. Regionally China one of the largest issuer but also European countries like France and Poland issuing as well.[58]

BEST PRACTICE IN AUSTRIA

Hypo Vorarlberg was the first Austrian financial institution to issue a green bond today. With the issue proceeds of this bond, the largest *Vorarlberger* Bank finances or refinances energy-efficient apartments and commercial real estate in Vorarlberg. The security is the first green bond of an Austrian bank listed on the Stock Exchange.[59]

3.5. CROWDFUNDING FOR RENEWABLE ENERGY FINANCE ACTIVITIES

Over the past five years a new trend has emerged changing and more digitized energy sector of crowdfunding for energy projects. With the ability to post a project with all its details on platforms and its global reach, the opportunity to tap into the minds and investment wealth of large numbers of people is an obvious one. This is particularly true for smaller scale projects that are outside the scope of the traditional larger investment institutions or investment banks. For their part, the investors are not in it for nothing and the lure is an often-attractive projected return over the project lifetime, generally based on energy sales. Illustrative of the growing popularity and potential of crowdfunding, an estimated 4.2 € Billion was raised

[55] https://www.oekonews.at/?mdoc_id=1118836

[56] https://www.climatebonds.net/2014/11/austria%E2%80%99s-first-green-bond-power-company-verbund-ag-eur-500m623m-coupon-15-10yr-tenor-bbb

[57] https://diepresse.com/home/wirtschaft/boerse/5401587/Der-Markt-fuer-Green-Bonds-waechst

[58] https://diepresse.com/home/wirtschaft/boerse/5401587/Der-Markt-fuer-Green-Bonds-waechst

[59] https://www.hypovbg.at/hypo-vorarlberg/news/artikel/erfolgreiche-green-bond-emission/

through platforms in Europe in 2015. Crowdfunding renewable energy statistics on crowdfunded energy projects are limited. A 2015 estimate position raised the amount of €165 Million worldwide on 300 clean energy projects, although by now both these figures will be substantially larger. The earliest crowdfunded renewables project is *Windcentrale*, which was launched in the Netherlands in 2010 to enable investors to acquire wind turbines and thereby support the development of renewable energy in that country. *Windcentrale* has raised more than €16.5m in total, potentially positioning it among the energy crowdfunding frontrunners. The company raised €230,000 in half an hour during the one campaign and €1.3m within 13 hours on the second campaign. Another example of a renewable energy company exploiting the emerging blockchain technology is the South African-based *Sun Exchange*, which funds solar photovoltaic projects for commercial and industrial operators on a blockchain-based platform. Three projects have been funded in South Africa and the fourth, the largest for microgrid electrification of a rural village in Lesotho was funded successful too. The European Union has also recognized the value of crowdfunding in advancing renewables and through the EU programme Horizon 2020 which is supporting the *CrowdfundRES*[60]. The three-year project which had the Kick-off in February 2015 was conceived to bring project developers, investors and crowdfunding platforms together, with The main objective of "unleashing the potential of crowdfunding" and to accelerate renewables development. Specific focuses of the project included: gaining a deep understanding of the public's perception within crowdfunding and analyzing the challenges faced by the application of crowdfunding for renewable projects in Europe. Those guidelines have been developed to support more effective and wider accepted practices in crowdfunding projects. The intention was also to improve the market and regulatory framework, and to promote the crowdfunding concept and its advantages among those who could contribute or raise funds. Some of the key challenges that have emerged for crowdfunding in this project are scaling investor numbers, ensuring supportive financial services regulation and the consistency of regulation across Europe. A consequence is restrictions on cross-border crowdfunding, which appears to be a major obstacle in the region. The cross-border crowdfunding regulatory is a present topic on which all countries contributing and the results on a common EU regulatory has to be discussed in different proposals of each country.[61]

BEST PRACTICE

100% Styrian green electricity project *Lärchenholz GmbH*. A photovoltaic system larch wood was to be erected on the roof of *Jannach Lärchenholz GmbH*, based in Thalheim in the district of Judenburg in Styria. The revenue is earned through a 13-year purchase contract (guaranteed ÖMAG tariff).[62] Few other projects like *Ökostrom: Share-Crowdinvesting, Deutsche Bürgerenergie: subordinate loan contract (Startup modell), GW Energy* got funded on crowdinvesting platform CONDA.

The company *Greenetica* is developing a hybrid solar photovoltaic concentrator that can produce not only electricity but also heat and cold. The first examples were produced in a semi-industrial design in cooperation with renowned international research centers. In the next steps, the industrialization process will be guaranteed and the marketing strategy will be set up. In addition, new models are to be developed and put on the market. Every investor receives his investment amount as a credit when ordering a

[60] http://www.crowdfundres.eu/

[61] https://www.engerati.com/article/crowdfunding-renewable-energy-solar-wind

[62] http://www.fondsprofessionell.at/news/vertrieb/headline/erstes-photovoltaik-projekt-ueber-crowdinvesting-finanziert-116704/

prototype. Investors can thus purchase their own hybrid solar collector cheaper. This campaign was represented on Greenrocket.at.

Crowd4Energy[63] is an online platform to enable crowd-financing of sustainable energy projects in Austria. It was created during an EU Horizon 2020 project and has already successfully financed two projects, a corporate PV upgrade and a small-scale hydropower plant, offering investors returns exceeding 4%. The aim of the project is to bridge the gap between energy projects and availability of funds through involvement and participation of the broad public through crowd investments.

3.6. CITIZEN PARTICAPATION IN RENEWABLE ENERGY FINANCE ACTIVITIES

3.6.1. Climate protection projects

Users contribution will be held in a separate fiduciary account of Kommunalkredit Public Consulting who is managing the operations of Climate Austria. The contribution to climate protection projects will be paid out only after the project in total has been successfully implemented. Should one of the climate protection projects get supported not meet the agreed-on expectations, these climate protection projects will be replaced by other eligible climate protection projects. The guiding principle is maximum transparency, both in the selection of projects and in the efficient use of your contribution in line with your specifications. This transparency is reflected by the publication of all climate protection projects supported by Climate Austria. International climate protection projects are additionally disclosed on the official website of the Gold Standard, the Verified Carbon Standard or the Framework Convention on Climate Change.

3.6.2. Citizen participation programs

Citizen participation models are generally more widespread in well calculable energy projects because of the more predictable revenue side than in real estate and infrastructure projects. In the following, the mechanisms and possibilities of citizen participation will be examined based on some classic business models in the energy and transport sector. Biomass district heating business model. The longest tradition has citizens' participation in the energy sector in biomass district heating projects in the form of cooperative associations of regional energy wood suppliers. The first biomass district heating projects in Austria in the seventies of the last century were organized cooperatively. Models involving citizens, in which the followers are involved as co-owners of the facilities, usually in cooperative form, represent an increasing form of citizen participation, but are dependent on conceptual inputs, which are usually provided by public institutions.

[63] https://www.crowd4energy.com/

BEST PRACTICE IN AUSTRIA

1. Small hydro power plant for the energy supply of *Gollinghütte* mountain hut run by the Preintaler Alpine Society (1,643 MASL), is an important base on the Lower Tauern ridgeway. On average, it welcomes 2,700 overnight guests every year. To ensure eco-friendly energy supply for the hut, a hydro power plant was built at the *Steinriesenback* creek with the support of Climate Austria. It achieves an annual CO2 reduction of 21.26 tons. The power plant has a head of 150 meters and a power of 11 kW. It provides power to the hut's service cable railway, the circulation pump for the fully organic sewage treatment plant, hot water production as well as lighting, refrigerator and kitchen appliances. The hut is located in the Klafferkessel conservation area, which is why running a sustainable and eco-friendly operation is especially important there. Thanks to this initiative, a total of 319 tons of CO2 emissions can be avoided over the useful life of 15 years.[64]

2. Example Drinking water power plant of the municipality Sulz. In the course of the renewal of the source derivation for the drinking water supply plant in 2005 a drinking water power plant with 30 KW was established. The citizens were involved in the project in the form of a profit loan with a term of 50 years. The amount of the single participation was between 500, - and 1.000, - EUR. In addition, an eco-electricity offer of Stadtwerke Feldkirch in the immediate vicinity was developed specifically for electricity from drinking water power plants for all community citizens.

Photovoltaic Business Model "Sale and Lease Back" The relatively easy realization of photovoltaic systems, in conjunction with the expansion of subsidy instruments in recent years, has resulted in a wide range of participation models for photovoltaic systems. The "sale and lease back" model represents a relatively easy-to-use model for raising capital in addition to the traditional investment opportunities via corporations (KG, GmbH, GmbH & Co KG) and cooperatives. Prerequisites are physically divisible energy plants and their purchase and subsequent leasing from citizens to the operator of the facility. The model is only a summary of many purchase and rental agreements. It should be noted that the rental must be protected by commercial law. Example Linz AG "*Sonnenschein Aktion*" ***Golden sunshine* bills** were sold for 600, - EUR for a polycrystalline PV module with 1.5 m2 and silver sunshine bills at 300 EUR for half a share in a PV module of the same design. With the deposit into the account of Linz AG, an indefinite and permanent contract for the purchase of the module and the re-letting to Linz AG is concluded. Rent is for the golden sunshine bill 20 EUR, for the silver sunshine bill 10 EUR a year, which corresponds to 3.3 percent of the purchase price. There is a limit to the purchase of a maximum of ten solar modules per individual. An interesting bonus in the sense of customer loyalty are discounts for tickets for sports.

3. Business Model "Car Sharing in the Neighborhood" The initiation of **small-scale carsharing** models on a district basis is a way of relieving the burden on inner-city individual traffic by completely changing the mobility behavior of the participants and also serves to increase the utilization of public transport. There are no preferable legal forms for this model, but for a certain liability of the participants, the club form has proven itself. The business model requires the assumption of start-up costs for the initial application of the models for its dissemination. Financing of vehicle purchases in small-scale models is usually organized by private loans of the participants.

4. Example Car sharing in the Maronihof Bregenz. The car sharing project was an Austria-wide pilot project for a small residential area, in the course of which a reservation and billing software was newly developed. The model was initially private small cars from new members on rent basis brought in, the rent was paid from the current revenue, creating no financing needs. For the purchase of a new scooter private

[64] https://www.climateaustria.at/eng/projects.html

loans were taken by members. The mobility behavior of the members has changed a lot. The resulting new vehicle capacity has been covered by new hires, which currently covers around 25 members with four vehicles. The know-how including the software is now distributed throughout Austria. Business Model "Building Renovation" Building renovation projects are usually relatively difficult to calculate in terms of costs and are therefore fundamentally difficult to reconcile with guaranteed returns for citizen participation models. Despite the fundamental difficulties, there are attempts by institutions close to the public to combine remedial measures with citizen participation and to accept the relatively high administrative burden per se.

5. Financing of street lighting through contracting models some exemplary private-public initiatives have developed in the area of financing street lighting systems in Austria. For example, to highlight the Styrian OPTIMON-SBL project of *Arge LEA Styria*, which aims to raise awareness of the possibilities of achieving savings potential in municipal street lighting. The project focuses on the dissemination of and information on technologies, products and services, the introduction of energy accounting and maintenance documentation, the development of efficient optimization processes and an optimization package around all affected areas of municipal street lighting. As part of the project, pilot plants were also looked after, which practiced savings in terms of electricity, costs and emissions, carried out optimizations in other areas and documented the experience gained. For example, since 2005, around 18,700 lights have been modernized in Graz as part of the Green Light Graz pilot project, resulting in annual energy savings of 1.57 million kWh (equivalent to 24% of energy consumption prior to the measures) since 2011. The measures were carried out by *Energiecontractor Energie* Graz - he promised a savings guarantee of 1.24 million kWh. The project has also significantly contributed to the relief of the budget of the city of Graz, until the end of the contracting period, the city should achieve a saving of about 3 million EUR. The Graz Energy Agency has other projects in Austria, i.a. in Ansfelden and Kirchbach, implemented. On the part of private initiators of private-public implementation models in street lighting in Austria, the "Initiative Licht" of Kommunalkredit Austria should be mentioned. Kommunalkredit, which specializes in municipal and infrastructure-related project business, has developed a financing instrument that enables municipalities to renew their municipal lighting infrastructure in a budget-friendly manner. Kommunalkredit cooperates with energy supply companies and suppliers of lighting systems. Kommunalkredit Public Consulting, a subsidiary of Kommunalkredit, also handles the Austrian federal subsidies for lighting optimization (including in the municipal sector).

4. CONCLUSIONS

The financial baseline which based on researched facts in Austria highlights that a theoretical and practical view is necessary in order to understand that the theory does not always match the reality if it is about financing energy projects in Austria.

Austria has strong financing sources for energy projects, which are based on equity finance and finance through local finance institutions as well as subsidies. These fields match almost all sectors - *improvement in building sector, performance improvements incl. EE equipment, project preparation and development, as well as renewable energy production plants*. The problem is that not enough energy projects are implemented using this option. In particular with technology projects which are highly reliant on subsides to obtain feasibility. Leading to the problem that subsidies are limited in extend and quantity annd can therby only be part of the solution. EPC is mainly applied in the public sector but the model is applicable for private sector as well. At the moment practical application is focused on the buildings sector and industry. The application can be expanded but experience in other areas is missing at the moment. Both providers of EPC and energy project implementer are hesitant.

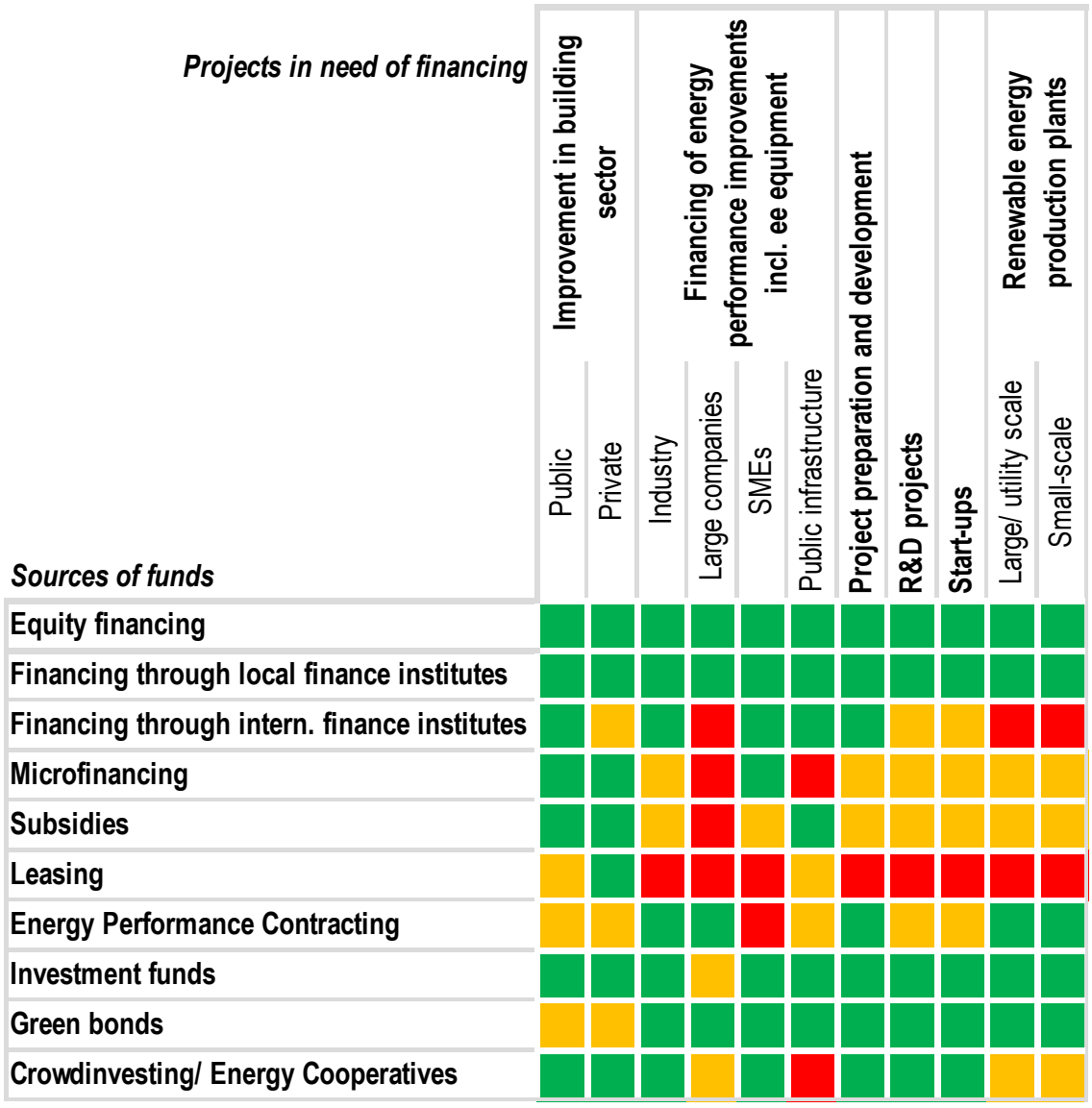
In theory, there is more potential on investment funds, green bonds and crowdinvesting or any energy cooperatives but practically it is less applicable in the Austrian market. There are no investment funds specifically focusing on energy projects. The Austrian Climate and Energy Fund is a financing mechanism supporting national climate and energy targets and act as subsidy and not as a conventional investment fund. Although investment funds are active in Austria focusing on sustainability projects and often also specifically mentioning renewable energy sources, it is not known if systematic funding of single projects can be done. Green bonds are still new in Austria. There is a growing potential predicted for the future but at the moment the market is still too new to talk about green bonds concentrated just on the energy sector. Best practices are rarely given but are not standardized yet. See the two matrix-graphics below.

Crowdinvesting evolved to a popular alternative in the last year in Austria, although still limited in size. Due to a good coverage of different platforms there are already good examples and standardized processes for different applications. In the energy sector application can be mainly found for renewable energy projects with a majority in the photovoltaic sector. In theory good practices and models from community power plants can be transferred to the energy efficiency sector. Practical application for energy efficiency is still rare and in Austria not yet mature, although infrastructure is provided by diverse platforms.

It was important to underline the existing sources of funds connected to Austrian energy projects in financial needs. This research helps to analyze the current situation and financial gaps in Austria, so projects and institutions are able to work on further implementation of existing financial options or create new ways of financial solutions. That is why it is necessarily to present a financial gap analysis from the current research, which supports the idea to close the financial gap of renewable energy projects.

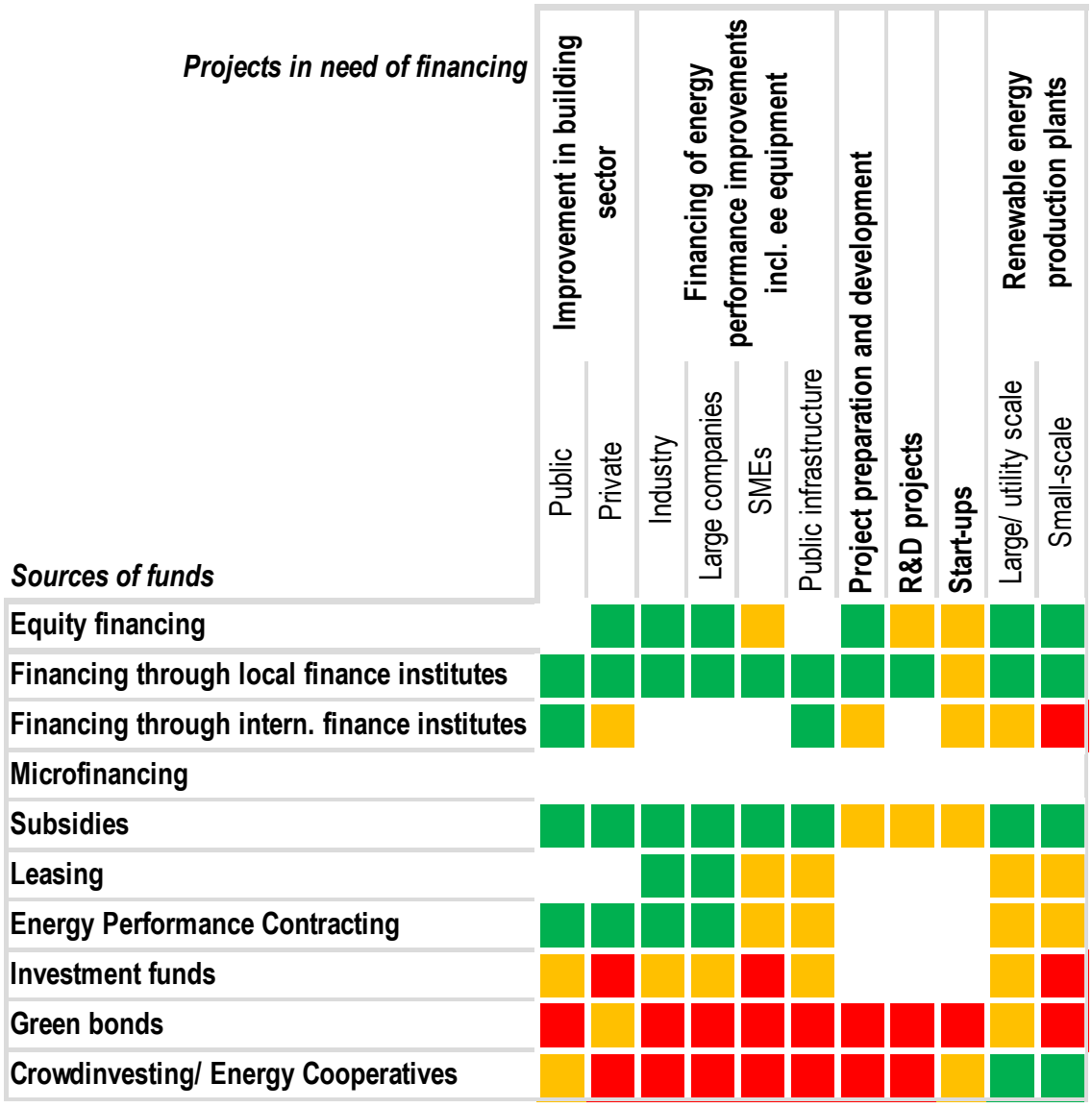
Theoretical potential of energy project financing

-> common practice
-> rarely used
-> not used
-> not applicable



Practical potential of energy project financing

-> common practice
-> rarely used
-> not used
-> not applicable



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ABBREVIATIONS

CESEE	Central, Eastern and Southeastern Europe
CEE	Central and Eastern Europe
EE	Energy Efficiency
EIB	European Investment Bank
EIF	European Investment Fund
EPC	Energy Purchasing Contracts
ESCO	Energy Service Company
EU	European Union
EUR	Euro
ESRB	European Systemic Risk Board
FI	Financial Institution
FMO	Dutch Development Bank
GEDF	Georgian Energy Development Fund
GEL	Georgian Lari
GGF	Green Growth Fund
GHG	Green House Gas
GOGC	Georgian Oil and Gas Corporation
IFC	International Financial Corporation
IFI	International Financial Institution
JSC	Joint Stock Company
KfW	German Development Bank
KPI	Key Performance Indicator
LEME	List of Eligible Materials and Equipment
LLC	Limited Liability Company
MFF	Multi-tranche Finance Facility
MFI	Microfinance Institution
MMF	Money Market Fund
mil	Million
NA	Not Applicable
NBFI	Non-Bank Financial Institution
ND	Not Defined
NIF	Neighborhood Investment Facility
NRW	Nordrhein-Westfalen
OCR	Ordinary Capital Resources
OeEB	Austrian Development Bank
OeNB	Austrian National Bank
PF	Partnership Fund
RE	Renewable Energy
SHPP	Small Hydro Power Plant
SME	Small and Medium Enterprise
TA	Technical Assistance
TFP	Trade Finance Program
TMT	Technology, Media and Telecom
USD	United States Dollar

VÖL	Association of Austrian leasing companies
VAT	Value Added Tax