Northern Periphery and Arctic Programme
2014–2020

EUROPEAN UNION
Investing in your future
European Regional Development Fund

LECo

Local Energy Communities

Finance Options for Local Energy Communities

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Contents

1.0 INTRODUCTION

Securing finance for a Renewable Energy (RE) project can be very challenging and community groups are perceived as inherently high risk. This perception of high risk is mainly due to the community energy barriers that are listed below; for example: lack of technical experience, inability to access finance, complicated planning and grid access process, complicated paperwork for applications etc. This report will review the existing financing options available in each of the partner region that are applicable to communities, including investment subsidies, low interest loans, loans from green banks or funds and tax instruments, such as investment tax credits, tax exemptions, carbon taxes and accelerated depreciation.

Role of communities in the Energy Transition: Within the context of an energy transition to a low carbon economy, new roles for local communities are emerging, whereby they are transitioned from being passive consumers to active prosumers with the possibility of local generation, demand response and energy efficiency measures. The energy transition will require significant mainstreaming of niche social and technical innovations to succeed at the community level, for example electric vehicles, heat pumps, smart meters, sustainable energy communities, domestic PV, and battery storage.

Role of the LECo Project in community energy initiatives: The LECo project shall respond to the needs of remote communities for a sustainable energy supply. The project aims to deliver a set of locally adapted concepts for community based energy solutions in remote areas. These concepts will be modelled, developed and implemented in selected test communities in each participating country. The methodology for setting up such local adapted concepts and their implementation will be made available in the form of a practical guideline which can then be used for transferring the results to other locations.

Barriers to community energy: The LECo policy paper has identified common barriers to community energy projects (see below). There is a more detailed analysis in the dedicated PESTLE analysis report that is specific to the barriers in each of the NPA regions.

Societal, cultural, political and/or organizational:
- Lack of historic experience with cooperatives and civic activism.
- Low trust in the cooperative model as a viable alternative.
- Lack of political support from local representatives.
- No experience with setting up cooperatives.
- Organisational challenges – pre-planning stage barriers.

Legal, administrative, bureaucratic:
- Complicated legal framework, high levels of bureaucracy to acquire licenses
- Lack of national community energy strategy; lack of national targets for community energy projects, which then are broken down in Local Energy Action Plans by local authorities.
- Bureaucratic barriers to grid connection (complicated application procedures, uncertainty of approval, costs, time consuming)
- Not allowed to operate micro-grids - producing, own-use, selling within community, selling to third-parties – as compared to only: sell it to the grid and buy it back (often with low financial returns to the community – profits are again made by companies outside the community, which defeats the idea to keep revenue within the community).
- Lack of supportive local authorities and/or local energy agencies.
- Generally no support schemes for RES projects

Technical:
- Technical challenges – lack of expert knowledge to design, plan, procure, implement, commission a project.
- Lack of expert knowledge for operation and maintenance.
- Size of energy project.

Financial:
- Financial challenges in the initial stages of project development; access to finance, grants, etc.
- Fair and secure payments for energy generated (insufficient Feed-in-tariffs only for wind, but not for Solar PV, no standardized PPAs, and third-party-off take not possible).
- Insufficient incentives for renewable heat projects: replacing fossil fuel heating with biomass boilers or solar thermal or heat pumps.
- Complicated tax rules, no tax exemptions
- Generally no tax incentives for RES projects, lack of guarantees

Challenges in mature cooperatives:
- Expansion of power generation, of number of members – how shall older and new membership shares be valued?
- Re-investment into existing installations.

1.1 Financial Options for LECos

The role of economics and project finance has a significant impact when it comes to sustainable development and in particular renewable energy [1]. Each renewable energy technology has both performance and economic characteristics which make them suitable for some applications and not suitable for others. The cost of highly autonomous energy supply systems is both one of their main disadvantages and one of the main advantages [2]. The initial capital and installation costs of small scale renewables are typically high in relation to traditional, centralised energy supplies in terms of €/kW capacity installed. The renewable energy financial competitiveness has improved in recent years, due largely to decreasing production costs and higher efficiencies for RE, and increasing cost of fossil fuels.

National policy-makers should set up dedicated finance support schemes for local energy communities, to especially help them during the planning and project set-up phases. Such mechanisms can be, for example, grant-to-loans, guarantees or cheap credit opportunities. Additionally, national policy-makers should facilitate the access of local energy commu-

nities to technical information and guidance about setting up, financing and operating community projects [3].

1.2 Grant Aid

Grant aid is financial assistance usually in the form of money that is given to a local government or organisations and does not need to be repaid. For example: the Scottish Government's *Community and Renewable Energy Scheme* (CARES) [1] can provide a grant of up to £25k for feasibility, and up to £150k for an innovation activity. The most common types of grant aid are for capital projects, feasibility studies and/or planning permission costs.

Finland: In Finland, energy aid can be granted for investment or projects that promote renewable energy production, energy efficiency or projects that otherwise further low carbon energy production. This includes electricity and heat production projects, transport biofuel production projects, and projects that pilots new technology. Applications for funding are mainly handled by the Innovation Finance Centre Business Finland.

Germany: Grant aids are a widespread funding instrument in Germany, predominantly for renewable heat and efficiency related investments. In the electricity sector, grant aid programs tend to focus on innovative technologies and solutions which are not or not sufficiently covered in the REFIT scheme, e.g. storages or landlord-to-tenant electricity.

Major grant aid programmes on federal level are:

- The Market Incentive Programme (Marktanreizprogramm, abbrev.: MAP) of the Federal Office of Economics and Export Control (Bundesamt für Wirtschaft und Ausfuhrkontrolle, abbrev.: BAFA) is the biggest incentive programme for renewable heat in Germany. It provides investments grants for heating systems based on solar thermal energy, heat pumps or woody biomass. The amount of funding depends on the technology, its scale and whether it is combined with other technologies (e.g. solar thermal heating in combination with a wood boiler). In 2017, 61.401 Heating systems received MAP support with a total volume of 210.7 million Euro.
- The National Climate Protection Initiative (Nationale Klimaschutzinitiative, abbrev.: NKI) of the Federal Ministry for Environment is the largest incentive program for climate protection related projects. Over 790 million Euro of subsidies were granted for some 25,000 projects, ranging from energy efficient building refurbishments over LED lighting and sustainable mobility to communication campaigns. The NKI also funds 65% of the costs for a climate protection concept and hiring a climate protection manager.

The 16 federal states of Germany provide grant aid programmes of their own. The federal Ministry for Economic Affairs and Energy provides a searchable database of all federal, state and EU funded programmes (http://foerderdatenbank.de). As of January 2019, it contains 131 ongoing grant aid programmes for renewable energy and energy efficiency funded by a federal state.

Ireland: In Ireland, through SEAI's Better Energy Community (BEC) and also the Sustainable Energy Community (SEC) programmes, communities can avail of the following grant aid:

- 50% capitals grant aid for any energy efficiency, renewable energy and/or smart energy project.
- Through the SEC programme, communities can avail of limited feasibility and planning grant aid, although the mentors can provide them with expertise.
- As part of the upcoming Renewable Electricity Support Scheme (RESS), there is an initial provision for "Financial supports for community-led projects across early phases of the project development including feasibility and development studies (grants, legal and technical assistance" although the details have yet to be finalised.

Sweden: Solar PV [2]: The Swedish government provides a 30% investment support to solar PV projects. This grant is limited by an annual budget, which can be exceeded before the end of the year due to high interest. The government has increased this budget recently. The maximum support has been 1.2 MSEK per project. For 2019 it is not decided yet if this support will be continued.

Energy Storage [3]: Grants may be awarded with a maximum of 60% of the costs for the storage system, however, up to a maximum of SEK 50,000.

Wind energy [4]: The Government has commissioned the Swedish Energy Agency to allocate 70 MSEK per year in wind power premiums to Sweden's municipalities. The premium is based on how much new wind power was put into operation in the municipality during the previous year.

Klimatklivet [5]: The climate fund (Klimatklivet) supports measures that reduce carbon dioxide emissions at local level. Up to 50% of investment costs can be granted for CO_2-emission reducing projects.

1.3 Loans

Low interest community loans.

Finland: MuniFin (fi=Kuntarahoitus) is a credit institution that offers funding for the municipal sector in Finland. MuniFin also offers specific loans for environmentally friendly projects. This so-called "Green finance" is offered to projects that promote the transition to low-carbon:

1) https://www.localenergy.scot/funding/
2) http://www.energimyndigheten.se/fornybart/solelportalen/vilka-stod-och-intakter-kan-jag-fa/
3) http://www.energimyndigheten.se/fornybart/stod-och-bidrag-pa-fornybartomradet/
4) http://www.energimyndigheten.se/nyhetsarkiv/2018/sa-far-kommunerna-del-av-den-nya-vindkraftspremien/
5) https://www.naturvardsverket.se/klimatklivet

- Renewable energy
- Energy efficiency
- Sustainable public transportation
- Waste management
- Water and waste water management
- Sustainable buildings
- Environmental management incl. nature conservation

Another financing company is the state owned Finnvera. Finnvera provides financing for the start of enterprises and strengthens the operating potential and competitiveness of Finnish enterprises by offering loans and guarantees.

Germany: Low interest loans, often combined with repayment grants are another common instrument in public funding programmes for renewable energy and energy efficiency related matters in Germany. The most important lender is the KfW Banking Group, a government-owned development bank.

Noteworthy fields of funding implemented by the KfW are:

- New energy efficient buildings and energetic refurbishment of stock buildings. The KfW provides loans to private home owners, businesses and municipalities at interest rates starting at 1%, some including repayment grants of up to 17.5% provided by the federal government.
- Renewable energy and energy storage. The KfW Bank is one of the largest lenders for renewable energy projects. Between 2016 and 2017, 47% of the newly installed renewable power production capacities (except offshore wind) are financed with KfW-loans. Interest rates start at 1% and efficient renewable heat projects are eligible for repayment grants.
- Municipalities and municipal infrastructure. The KfW offers dedicated loan (and grant aid) products to Municipalities and public companies for investments into energy efficient non-residential buildings and urban districts. Interest rates for municipal companies start at 1% and repayment grants are at 5%

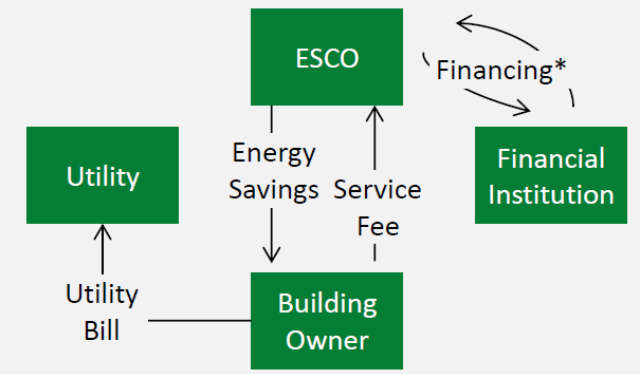
Ireland: In Ireland there are a few options of low interest community loans:

- The Western Development Commission offer community loans at 3% interest rates for communities within the WDC region,
- Clann Credo is a social finance institution that provides low interest loans. Clann Credo has a designated Community Climate Action Loan Fund of €10 million for local projects that support people taking climate action with rates of between 4.95% and 6.75%,
- Community Finance Ireland is a Charity which provides loans exclusively to other third sector organisations such as community groups, charities, sports clubs and social enterprises in the Republic of Ireland with competitive lending rates dependent on the applicant.
- Credit unions will typically have a community loan rate of 6%.

Sweden: Bank loans are available for private and business stakeholders. Swedish municipalities and regions collaborate for efficient financing of investments in a sustainable society through the organization Kommuninvest (https://kommuninvest.se/).

1.4 ESCO Model

An ESCO is an energy savings company which provides an energy saving service to an organisation. An energy performance contract (EPC) model guarantees savings for a set period of time in exchange for payment from the energy cost savings. A local energy supply contract (LESC) is where an ESCO installs works and supplies energy (usually electricity or heat) to a particular point at the client/host's facility and is paid for the quantity of energy supplied over the term of the contract



Source:https://betterbuildingssolutioncenter.energy.gov/sites/default/files/attachments/ESCO%20Financing%20Summary.pdf

Finland: There are some known large energy-saving projects that have been implemented via an ESCO-service in Finland. For example, the city of Aka in Pirkanmaa has been able to improve the energy efficiency by utilizing an ESCO service. The ESCO-partner has invested in equipment and measures that has lowered the energy consumption and saved city founds. In the first stage, an ESCO-contract was formed for eight city owned properties, consisting of schools and other large buildings. The cost of the project was approximately € 480,000, with an estimated annual savings of about € 74,000. The municipality has been satisfied with the investment and the ESCO model is seen as a cost-effective and energy efficient way of renovating properties.

Germany: Contracting is a well-established model in Germany for both, energy supply and energy performance. Contracting providers are widely present, being energy suppliers, engineering companies, local public utilities, energy agencies, and even energy co-operatives. Typical cases implemented through contracting are:

- small-scale CHP or heating systems in non-residential or apartment buildings
- district heating networks
- photovoltaic panels on rooftop spaces
- energy efficient building technology and automation
- energy efficient lighting (street lighting, public buildings, larger commercial facilities)

More innovative contracting models are applied in regard of battery storage systems and solar self-consumption, land-

lord-to-tenant electricity and demand-side-management. In a pilot project, street lighting in small scale municipalities was changed to LED with an energy co-operative as contractor.

In many of the public funding programmes in Germany, contracting projects are also eligible to receive support. Further, the federal government addresses energy performance contracting in its National Action Plan for Energy Efficiency (APEE). Municipalities and medium-sized companies can receive grant aids for energy audits including contracting guidance. Since energy performance contracting models suffer from specific investment risks (high initial investment, long contract periods), German guarantee banks provide special guarantee conditions for loans financing EPCs.

Ireland: This is a relatively new model in Ireland with few working examples (Enerpower, Glas Eireann, and Kaizen Energy). ESB Networks (DSO) and Kingspan recently came together to offer a funded solar model to organisations.

Sweden: (6 "The EPC market in Sweden is well developed, in the sense that EPC as a business model has been implemented and adapted for a long time. The market has however been fluctuating for many years. In the early 00s, rising energy prices, renewed environmental concerns and focus on climate change generated growing interest in energy efficiency improvement and hence EPC. Customer financed EPC has been the main model. Following the National Energy Efficiency Action Plan and good subsidy schemes for public buildings (KLIMP12 and OFFROT13), the EPC market in Sweden grew considerably from 2008. Several good municipal projects were implemented and the success stories spread via good governmental initiatives, providing information about experiences and financial grant schemes. This development came to an abrupt halt in 2009/2010 when the financial scheme OFFROT ended. This coincided with an EPC procurement process in Stockholm in 2009 were the dispute between the parties ended up in court. The dispute created mistrust in the EPC business model.

There are currently mainly 5–6 companies offering EPC services in Sweden, some of which are international companies also providing EPC in other countries. The three main providers are Siemens, Caverion and Schneider Electric and between them they cover most of the Swedish market. Most of the ESCOs are primarily active in the public and governmental sector."

Jokkmokk municipality has implemented a successful EPC project for major municipal buildings, leading to a savings of about 30%.

The latest Swedish interims budget for 2019 has also removed the investment support to building owners for renovation and energy efficiency measures. (https://www.boverket.se/sv/bidrag--garantier/stod-for-renovering-och-energieffektivisering-i-vissa-bostadsomraden/). It is hoped that the new government, which is in place since January 2019, will reactivate such support.

1.5 REFITs

Many member states practised renewable energy feed-in tariffs (REFITs) under which premium prices for renewable electricity generation were generally paid by consumers; sometimes (as in the Danish case) also supported by state subsidies. Other countries such as the UK, Ireland, and France had bidding systems for renewable energy supply contracts which guaranteed subsidised tariffs for a specified volume and duration. From a community energy perspective, grid access, planning assistance and feasibility assistance are important areas where knowledge is vital. Where possible, national support schemes should allow smaller community power projects to be eligible to receive fixed-price feed-in tariffs (FiTs) (Community Power, ClientEarth). At the very least, community power projects should not be subject to competitive bidding processes in order to receive operating support.

Finland: In Finland, there is feed-in tariff support for the production of electricity based on wind power, wood-chips, other wood-based fuels and biogas. However, there are no specific feed-in tariffs for small-scale electricity providers. To receive production aid, the Power Plant must meet certain legal requirements. For instance, a wood-chips or biogas power plant must have a total rated output of at least 100 kVA and in case of wind power 500 kVA.

Germany: Germany's push into renewable energy in the electricity sector is decisively backed by the REFIT scheme introduced in 2000. Fixed and guaranteed FITs over 20 years along with feed-in priority over conventional electricity provided a secure and simple investment model for private individuals, energy cooperatives, farmers, public local utilities, local businesses and other decentralized actors.

While the FIT rates were formerly set by the government, they are now determined by competitive bidding (for ground-mounted photovoltaics and onshore wind energy lager than 750 kW as well as biomass over 150 kW). Critics worry that this tendering process could result in disadvantages for small scale local and citizen owned businesses, since the financial risk of losing a bid might prevent them even from participating in the auction in the first place. Rule exemptions for citizens' energy projects were misused in early tendering rounds and therefore partly withdrawn.

Ireland: In Ireland, the schemes were designed to provide certainty to renewable electricity generators by providing them with a minimum price for each unit of electricity exported to the grid over a 15 year period (7. The current REFIT schemes closed at 4pm on 31 December 2015. In parallel with the market developments, the Department is developing a new support scheme for renewable electricity (RESS) to be available from 2019 subject to state aid approval. The scheme will be subject to the new rules on public support for projects in the field of energy, adopted by the European Commission in 2014, which seek to promote a gradual move to market-based support for renewable energy. The first RESS auction will

6) Source: norden.diva-portal.org/smash/get/diva2:900555/FULLTEXT02.pdf
7) https://www.dccae.gov.ie/en-ie/energy/topics/Renewable-Energy/electricity/renewable-electricity-supports/refit/Pages/REFIT-Schemes-and-Supports.aspx

take place late 2019. This proposed RESS framework aims to provide pathways and supports for communities in the form of the following;

- Financial supports for community-led projects across early phases of the project development including feasibility and development studies (grants, legal and technical assistance).
- Separate 'community' category in the RESS auction. RESS auctions will be held at frequent intervals throughout the duration of the scheme. The first RESS auction in 2019 will deliver 'shovel ready' projects.
- Mandatory Community Benefit Fund and register standardised across the sector. It is proposed that this contribution is set at €2/MWh for all RES-E generation supported through RESS auctions.
- Mandatory investment opportunities for communities and citizens in all RESS projects. Projects must fulfil community investment criteria to qualify for RESS actions

However, micro-generation projects were not included or supported in the RESS given the higher costs identified with micro generation.

Sweden: In Sweden, the main instrument for renewable energy is a certificate system: For each megawatt hour (MWh) renewable electricity produced, the producers can obtain an electricity certificate from the state. Electricity producers can then sell the electricity certificates in an open market where the price is determined between the seller and the buyer. The electricity certificates thus provide an extra income for the renewable electricity production, in addition to the usual electricity sales. Buyers are actors with so-called quota obligations, primarily electricity suppliers.

Renewable Feed In tariffs are very restrictive. If you are not an energy company, but a so called "microproducer" you can sell renewable electricity to the grid but you need to fulfill the following:

- Your electrical installation must have a main fuse of no more than 63 A, and the input power for your production plant must not exceed 43.5 kW.
- You must be permanently connected to the grid
- Outputs and input of electricity are made via the same main fuse and electric meter
- You buy more electricity than you sell over a whole year

1.6 Tax Incentives

Incentives can be set through offering tax reliefs, which could be set at local, regional or national level. There could be lower rates for taxes to be paid locally, e.g. business taxes or building-related taxes. Often taxes have to be paid to the state or to a municipality when buying a property and there could be a lower tax rate for certain exemplary buildings. There could be other tax exemptions that private people or businesses can benefit from, if investing in energy efficiency or renewables e.g. income tax reductions. However, these options do not seem to have been embraced yet by tax systems around Europe. Existing policy and support networks (both planning and financial) tends to favour large schemes.

Finland: In Finland, there are some tax incentives for micro producers. Producers do not have to pay excise duty or supply security fee (fi=huoltovarmuusmaksu) if the energy is produced with a 50 kVA generator or under. If the electricity is not transferred to the grid, the limit value is 2.0 MVA.

Germany: Tax incentives play a relatively small role in the German financial support regime for clean energy. The potentially largest field discussed is energy efficiency in the residential sector. In its coalition agreement, the current government announces to incentivise energy efficiency in stock residential buildings by making expenses tax-deductible. However, this is not yet implemented in actual policy.

Electric mobility in Germany benefits by a number of tax incentives.

- Electric vehicles registered until end 2020 are exempted from the motor vehicle tax for ten years. After that period, the tax rate will be reduced by 50%.
- If employees charge their electric vehicle (privately owned or company car) free of charge (or at reduced cost) at their work place, the resulting monetary benefit is exempted from the income tax. This also includes electric bicycles.
- Electric vehicles and plug-in hybrids used in local public transport benefit from reduced electricity tax. It is reduced from 20.50 Euro/MWh to 11.42 Euro/MWh.

Ireland: There is tax relief available in Ireland in the form of an accelerated capital allowance that promotes investment in energy efficient products & equipment. The ACA scheme allows a sole trader, farmer or company that pays corporation tax in Ireland to deduct the full cost of the equipment from their profits in the year of purchase. As a result, the reduction in tax paid by the organisation in that year is currently 12.5% of the value of capital expenditure. By contrast, the Wear and Tear Allowance provides the same tax reduction, but this is spread evenly over an eight-year period.

For cars coming under the category "Electric and Alternative Fuel Vehicles" the accelerated allowance is based on the lower of the actual cost of the vehicle or €24,000.

Sweden: Sweden applies specific tax rules for "microproducers" of renewable energy (see chapter feed in tariffs) which do not need to pay energy tax nor need to pay VAT (as they are not an energy company). In addition to investment support (see chapter Grant Aid) Sweden offers two types of tax deductions for work (ROT-deduction) and services (RUT-deduction) carried out in privately owned homes and apartments, these two types of support can however not be combined! With both ROT and RUT tax deduction each person owning a share of the home is eligible to deduct a maximum of 30% of the labour cost and a maximum of SEK 50,000 per person and year.

https://www.skatteverket.se/privat/fastigheterochbostad/rotochrutarbete

1.7 Green Bonds

Green bonds are issued in order to raise finance for climate change solutions. They can be issued by governments, banks, municipalities or corporations. The green bond label can be applied to any bond format, including private placement, securitisation, covered bond, sukuk and others. The key is for the proceeds to be applied to "green" assets. The concept of being green differs around the world. At the Climate Bonds Initiative, we approve green bonds according to a sectoral taxonomy. Issuers can also certify their issuance according to the Climate Bonds Standards. The stringent verification process ensures that the use of proceeds comply with the objective of capping global warming at 2˚C. Only bonds with at least 95% of proceeds dedicated to green projects that are aligned with the Climate Bonds taxonomy are included in our figures. For example, sustainability bonds with a wider use of proceeds or bonds which fund large amounts of working capital would be excluded.

If issuers do not provide sufficient information on the use of proceeds, the bonds are tagged as "pending". If and when satisfactory additional information becomes available, the Climate Bonds Initiative may include them in its database of labelled bonds.

Finland and Sweden: The Nordic countries have evolved in the context of the Nordic Model, which is based on decentralisation and cooperation across countries and municipalities to enhance the effectiveness of service delivery. Against this background, the region was able to position itself at the forefront of integrating environmental and sustainability targets within budgets at a central and local government level. The Nordic Investment Bank (NIB), a supranational, and Norwegian state bank KBN Kommunalkredit were among the very first to start issuing green bonds, both debuting in 2010. Several important green bond firsts have come from the region: the first green city bond (City of Gothenburg), the first corporate green bond and the first green bond from a real estate company (Vasakronan), and first labelled Green MTN corporate bond programme (Fabege), to name a few. Gothenburg and Vasakronen were amongst the organisations recognised at our inaugural Green Bond Pioneer Awards in 2016. Nordic stock exchanges have also contributed to the green bond market's development. Oslo Bors and Nasdaq Stockholm were the first stock exchanges to introduce dedicated green / sustainable bond segments in 2015.

Germany: The green bond segment is gaining popularity in Germany. Besides big banking houses like Deutsch Bank or Commerzbank, the KfW bank and banks well established in the renewable energy and co-operative sector are known issuers: DKB, Landwirtschaftliche Rentenbank, DZ Bank and GLS Bank. Private companies like EnBW (Energy supplier) or Senvion (wind turbine manufacturer) are also pushing on the market.
The German Stock Exchange introduced its own segment for green bonds in November 2018 listing 150 bonds.

Ireland: In October 2018, The National Treasury Management Agency has today raised €3 billion from the sale of its first 12-year "green bond". This was the first time the NTMA has tapped an increasing popular market that raises capital for projects with environmental benefits. The funds were raised at a yield of 1.399%. The total order book of over €11 billion included in excess of 170 individual accounts, a substantial number of which were new accounts.

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Project Partners

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*Outside the NPA Programme area