Policy Paper

Enterprises GHG mitigation financing roadmap for Cyprus till 2030

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On behalf of:

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for the Environment, Nature Conservation
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OEB

The **Cyprus Employers and Industrialists Federation (OEB)** was founded in 1960 by 19 pioneering entrepreneurs. Today, its members are active in all sectors of the economy and employ more than 60% of the private sector's workforce. OEB is a Pancyprian, independent non-profit organization comprising of 60 of the main professional/sectoral Associations as well as hundreds of companies from the Manufacturing, Services, Commercial, Construction and Agricultural Sectors. In total, OEB has more than 5.000 Member/Enterprises.

In particular, the Energy & Environment Division of OEB was founded in 2016 and its goals are to be pioneer on the topics of energy, environment and sustainability, through actions that can improve the competitiveness of renewable energy technologies, to remove administrative or other barriers for the promotion of energy efficiency, to support Cypriot manufacturers to maintain their global position in the installation of domestic solar thermal systems, to promote clean technologies for environmental protection and the 2030 targets for circular economy and climate change, to provide education and training, to promote efficient use of energy, to provide technical advisory support on sector related issues, to promote cooperation between academia and industry in the fields of energy and environment and in the development of research and innovation.

There are many projects have been developed by the Energy & Environment Division that aim e.g. the promotion of eco-innovation, blue energy, GHG emission reduction etc.

OEB operates in environmentally friendly manner. Since 2017 OEB is EMAS certified as well as produces on site renewable electricity through PV net metering system.

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List of Abbreviations

a	Annum
BES	Biomass Electricity Systems
CERA	Cyprus Energy Regulatory Authority
CHP	Combined Heat and Power
GW	Gigawatt
GWh	Gigawatt hour
kW	Kilowatt
kWh	Kilowatt hour
MW	Megawatt
MWh	Megawatt hour
BAFA	Federal Office for Economic Affairs and Export Control
BMU	Federal Ministry for Environment, Nature Conservation and Nuclear Safety
EBRD	European Bank for Reconstruction and Development
EC	European Commission
EEA	European Environment Agency
EED	Energy Efficiency Directive (Directive 2012/27/EU)
EEFIG	Energy Efficiency Financial Institutions Group
EPC	Energy Performance Contracting
EIB	European Investment Bank
EnEV	German Energy Saving Ordinance
EPBD	Energy Performance of Buildings Directive
EPC	Energy Performance Certificates
ERDF	European Regional Development Fund
ESCO	Energy Service Company
ETS	Emissions Trading Scheme
ES	Energy Savings
EU	European Union
FI	Financial Instruments
GDP	Gross National Product
GHG	Greenhouse Gas
IEA	International Energy Agency
IMF	International Monetary Fund

MARDE	Ministry of Agriculture, Rural Development & the Environment
MECIT	Ministry of Energy, Commerce, Industry and Tourism
MunSEFF	Municipal Finance Facility – Energy Efficiency
NEEAP	National Energy Efficiency Action Plan
NECP	National Energy & Climate Plan
SEAP	Sustainable Energy Action Plans
SEFF	Sustainable Energy Finance Facility
SFRB	State Housing Development Fund
SME	Small and Medium-sized Enterprises
RES	Renewable Energy Sources
UNFCCC	United Nations Framework Convention on Climate Change

1 Introduction

Most recently, the harsh reality of climate change was brought into the spotlight of the world stage. We learned that the ambitious targets of the 2015 Paris Agreement are not enough to forestall significant impacts on our climate and that global fossil fuel-derived CO_2 emissions are likely to rise significantly by around 2,7% in 2019 (Global Carbon Project, 2018). In order to curb the damaging effects of global warming and to foster the transformation to greener low-emission economies, the EU has increased the amount of public funds available for energy efficiency. It is projected that the funds required for Europe to stay on target for a 2°C pathway translate to necessary investments upwards of USD 1.300 billion for buildings and USD 154 billion for industry (IEA, 2017).

In order to meet the energy and climate policy objectives of the EU and to support the transition to a clean energy system in member states such as Cyprus, there is a need to further unlock private financing for energy efficiency investments. Energy Efficiency is a hidden financial resource, which needs investment or support to be exploited. Even cash-starved local governments, subject to tight budget constraints, could take advantage of various financing schemes to implement energy efficiency projects from pre-feasibility analysis to monitoring and verification of energy savings (Bertoldi & Atanasiu, 2007). One of the objectives must be to provide information, best practices and examples of successful implementations, which is the aim of this policy paper.

A key challenge for Cyprus is its high dependence on fossil fuels (representing the largest share in the EU) and its reliance on importing a large proportion of petroleum products. Other obstacles are the lack of adequate public transportation, the almost exclusive dependence on aviation for international travel and, until recently, the absence of energy performance requirements for buildings (Zacharidis, 2015). Despite continued efforts to reduce emissions through the promotion of renewables and energy efficiency, the country has seen the largest increase in energy demand in the EU since 1990. Against this background it becomes clear that Cyprus will require additional investments for decarbonisation and innovative and effective financial mechanisms in order to reach the EU 2030 targets.

Consequently, this policy paper summarises successful models for financing climate and energy projects in the European Union which are transferable to the Cyprus context. On the ground, a multitude of financing initiatives for small and medium sized enterprises (SMEs) are already taking action, all with the common goal to mitigate GHG emissions by providing the necessary funds for a transformation to a green economy. With the ultimate goal of incorporating these measures into the Cyprus national climate and energy strategy 2030, this paper is providing an outline of suitable financial instruments.

This policy paper is structured in the following way: First, the national energy and climate action plan for Cyprus is discussed in Chapter 2 with a focus on the national context and necessary investments. Chapter 3 outlines the current state of GHG financing in Cyprus and Chapter 4 presents best practice case studies from countries within the European Union. Finally, innovative mechanisms tailored to the Cypriot situation are presented in Chapter 5.

2 The national energy & climate action plan for Cyprus (NECP)

2.1 EU regulations regarding the energy & climate action plan (NECP)

On 24 December 2018 the regulation on the governance of the Energy Union and climate action entered into force. Agreed as part of the *Clean energy for all Europeans package*, the goals of the new regulation are:

- To implement strategies and measures which ensure that the objectives of the energy union, in particular the EU's 2030 energy and climate targets, and the long-term EU greenhouse gas (GHG) emissions commitments are consistent with the Paris agreement,
- to stimulate cooperation between Member States in order to achieve the objectives and targets of the energy union,
- to promote long-term certainty and predictability for investors across the EU and foster jobs, growth and social cohesion,
- to reduce administrative burdens, in line with the principle of better regulation. This was done by integrating and streamlining most of the current energy and climate planning and reporting requirements of EU countries as well as the Commission's monitoring obligations,
- and, to ensure consistent reporting by the EU and its Member States under the UN Framework Convention on Climate Change and the Paris agreement, replacing the existing monitoring and reporting system from 2021 onwards.
- These should be addressed via the integrated National Energy and Climate Plan (NECP).

The governance mechanisms to ensure Member States' consistency with the Clean energy for all Europeans package are based on integrated National Energy and Climate Plans (NECPs) covering ten-year periods starting from 2021 to 2030, EU and national long-term strategies, as well as integrated reporting, monitoring and data publication. The transparency of the governance mechanisms are further ensured by public consultations on the NECPs.

The regulation on the governance of the Energy Union and climate action emphasises the importance of meeting the EU's 2030 energy and climate targets and sets out how EU countries and the Commission should work together, as well as how individual countries should cooperate, to achieve the Energy Union's goals. It also takes into account the fact that different countries can contribute to the Energy Union in different ways.

Under the regulation, each Member State was required to submit a draft NECP by the end of 2018, which would then assessed by the Commission. If the draft NECPs do not sufficiently contribute to reaching the Energy Union's objectives – individually and/or collectively – then the Commission may, by the end of June 2018, make recommendations for countries to amend their draft programmes. The final NECPs must be submitted by the end of 2019.

2.1.1 The Cyprus NECP and its sectoral targets

The draft of the first National Plan 2021-2030 should have been submitted to the European Commission on 31.12.2018. However, the European Commission was informed by Cyprus Authorities that the draft National Plan would be delayed and expected to be submitted by the end of January 2019. The draft NECP was submitted on 23.01.2019 and was presented to the European Commission on 29.01.2019.

Prior to the preparation of the draft NECP, the Council of Ministers of Cyprus made decisions on 15.11.2017 regarding the constitution, structure and operation of the National Energy and Climate Governance System. On the governance level the committee consists of the Minister of Agriculture, Rural Development and Environment, the Minister of Energy, Commerce and Industry, the Minister of Finance and the Minister of Transport, Communications and Works, their permanent secretaries as well as a number of specialised working groups – which were endowed with the responsibility for the strategic planning and reporting on the implementation of energy and climate policies, the preparation of the NECP for the period 2021-2030 and to monitor progress towards achieving the national Energy and Climate Goals. The Parliament also played a role in the development of the NECP by directing public consultations. Local and regional authorities were also involved with the development through various discussions.

Since the EU targets have been set at reducing EU GHG emissions by 40% by 2030 compared to 2005 levels. The National Legally Binding Target for Cyprus has been set at a 24% reduction of GHG emissions by 2030, compared to 2005 in the non-ETS sectors. This figure, in relationship to the three baseline scenarios of Business As Usual (BaU), With Existing Measures (WEM) and With Additional Measures (WAM), form the basis of the Cyprus NECP. The NECP also explores the current policy situation with regards to climate and energy and outlines policies currently under development or which are being considered for the future.

With respect to the three scenarios presented in the Cyprus NECP, the following Table 1 presents the individual targets in more detail.

Table 1: Individual targets for the three scenarios presented in the NECP

Scenario	Targets
"Business as Usual (BaU)"	• Increase in emissions by 12% by 2030 compared to 2005
"With Existing Measures (WEM)"	• Reduce emissions by 10% compared to the BaU scenario • A 2% increase in emissions compared to 2005 • Approximately 19% of RES (without achieving the individual transport and heating / cooling targets) • Primary energy consumption of 2,8 Mtoe - the mandatory target for energy savings in end-use will not be achieved
"With Additional Measures (WAM)"	• Reducing emissions by 22% compared to the BaU scenario • Emissions reduction by 10% compared to 2005 • Approximately 27% of RES (without achieving individual objectives for transport and heating / cooling) • Primary energy consumption of 2,6 Mtoe - the mandatory target for energy savings in end-use can be achieved

Under the NECP there is a clear focus on the use of Renewable Energy Sources (RES), including new instruments for financing RES, support schemes for households and obligatory measures for new buildings. The NECP explores the opportunities for smart grids within the national network to deal with the current limitations affecting the penetration of RES in the energy market. Considering the high potential for decentralised RES production, another important aspect of the NECP is the modernisation and full liberalisation of the energy market by 2021, allowing consumers to select their own energy suppliers.

Approximately 40% of the reduction efforts are assigned to the EU Emission Trading Scheme (ETS). The remaining GHG emissions in Cyprus which are not included in any ETS are shown in Figure 1, where the total GHG emissions are estimated at 4 million $CO_{2\text{-eq}}$ annually.

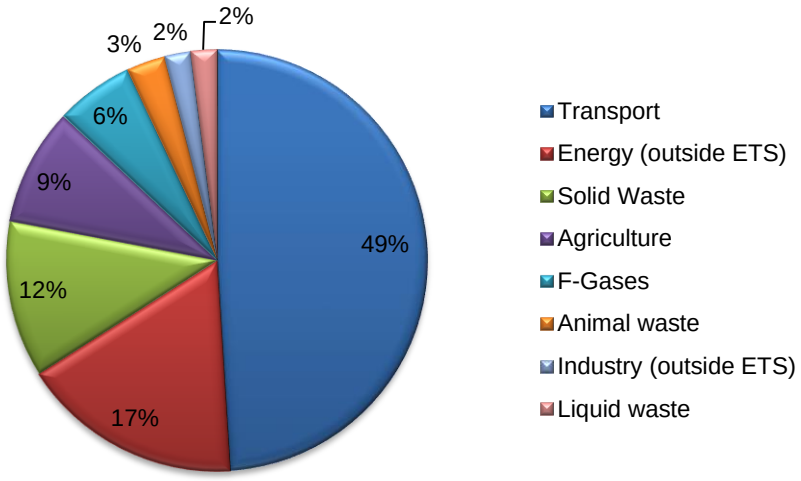

Figure 1: GHG emissions in Cyprus not included in ETS

The Figure 2 below shows how extremely difficult is to achieve the 2030 national targets. Only with the adoption and implementation of the WAM scenario the 2030 can be partially achieved and what can be achieved with the adoption and fully implementation of the WAM scenario, is summarized below:

• 10% reduction in emissions compared to 2005.

• Approximately 27% of RES (without achieving individual target for transport and heating / cooling targets)

• Primary energy consumption of 2,6 Mtoe - the mandatory target for energy savings in end-use can be achieved.

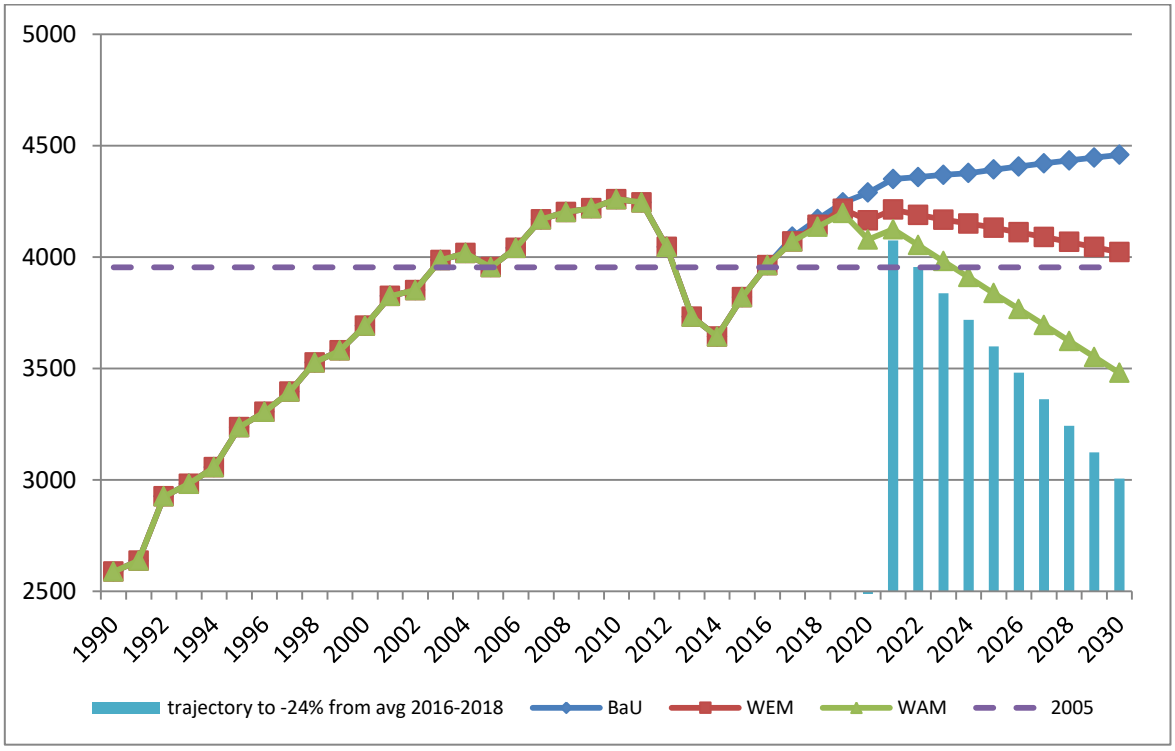

Figure 2: GHG emissions projections in Cyprus not included in ETS

The policy areas and additional measures to be adopted by the Republic of Cyprus are the introduction to the Cyprus market natural gas, the energy savings in buildings and businesses, the integration of Renewable Energy Sources, the reduction and management of waste and the reduction of emissions in agriculture. In general, the bet that Cyprus has to win is how it will manage to secure the transition to a low-carbon economy.

The measures and policies examined and included in the NECP to reduce these remaining (non-ETS) GHG emissions in order to reach the national climate targets until 2030 are then summarised in Table 2.

Table 2: Sectoral policies and measures examined in the Cyprus NECP

Sector	Proposed Policies and Measures
Energy	Renewable Energy Sources Energy Efficiency Natural gas in electricity production
Transport	Tax reform Promoting the use of electricity in transport Promoting the use of RES in transport Restriction of private vehicle use - Public transport Infrastructures
Industry	Refrigerant (F-gases) recovery
Agriculture/ Livestock Farming	Further promotion of anaerobic digestion for processing of animal waste
Waste	Separation at source - reduction of waste generation Recycling Anaerobic digestion of organic fraction of municipal solid waste Biogas recovery from old landfills

2.2 Necessary sector investments according to the NECP

Considering that there are still tremendous efforts needed in terms of expanding the renewable energy production in Cyprus, significant investment will be necessary. In order to achieve the targets set out in the NECP, the estimated expenditures for implementing the policies are approximately € 1,23 billion, with a public contribution of € 287 million for the period 2021-2030 under the scenario With Existing Measures (WEM).

To reach the targets With Additional Measures (WAM) an additional investment of approximately € 4,2 billion would be required, with a public contribution of € 2,4 billion (of which € 2 billion is for transport). These values indicate that there is a growing market for companies with expertise in renewables. However, with the long investment cycles and large scale of investment required to reach the NECP targets, investments in the energy sector will require a considerable amount of political action.

The following Table 3 presents the estimated expenditures for implementing the sectoral policies examined and included in the Cyprus NECP.

Table 3: Estimated expenditures for implementing the sectoral policies included in the Cyprus NECP

Sector	With Existing Measures (WEM) [€]		With Additional Measures (WAM) [€]	
	Investment Cost	Public Funding	Investment Cost	Public Funding
RES	RES-e: 528 mil RES-h/c: 408 mil	130 mil	RES-h/c 90 mil	7,5 mil
Energy Efficiency	80 mil	64 mil	1 bil	278 mil
Research, Innovation & Competitiveness	70 mil	40 mil	100 mil	100 mil
Energy Security	N/A		N/A	
Internal Electricity Market	N/A		N/A	
Transport	7 mil	0,15 mil	3 bil	2 bil
Other (Waste, Agriculture, Refrigerants)	140 mil	71 mil	42,5 bil	18 mil
TOTAL	**1,23 bil**	**287 mil**	**4,2 bil**	**2,4 mil**

3 Current GHG financing situation in Cyprus

The Government of Cyprus has developed various support schemes and incentives on energy efficiency and RES in order to further support the GHG reduction, energy efficiency and RES penetration in SMEs. The majority of these instruments are intended to be financed by the national budget, with assistance from EU support and EU funds, where applicable.

The national support schemes can be divided into 4 main categories:

- Support Scheme for RES
- Grant scheme for Energy Efficiency
- Support Scheme for large RES-e projects
- Bank Loans or other financial instruments

An overview of the current financing situation for SMEs in Cyprus is presented in the following paragraphs.

3.1 Support Schemes for RES

Net-metering

SMEs can receive funding for Net-metering with the installation of photovoltaic (PV) systems up to 10kW which are connected to the distribution network, solely to cover their own needs. The system should be on the roof of a legally built premises or on the ground within the same plot of the building.

The net-metring methodology has so far been implemented with great success in Cyprus. Until December 2017, 10.360 PV systems had been installed under the net-metering scheme. The total installed capacity (kWp) was 33.2 MW, out of which 3.2 of MW correspond to SMEs. In January 2019, the total installed capacity (kWp) of PV Net-Metering Systems reached 40.1 MW.

Net-Billing for PVs and Biomass

This scheme is related to the installation of PV systems or Biomass Electricity Systems (BES) which are implemented only on the premises of SMEs (under commercial or industrial pricing) for the purpose of generating electricity for their own use with the methodology of Net-Billing. The installed capacity of each installed RES system ranges from 10kW to 10MW per installation. Currently, 17 MW of PV systems have already been installed by SMEs under this scheme.

Installation of CHP Units with the methodology of Net-Billing

Also included in the category of Net-Billing are combined heat and power (CHP) units, which can be located on any commercial or industrial premises (e.g. commercial, industrial units, public buildings, camps, schools, agricultural and livestock units).

The installed power of each CHP system cannot exceed 5MW per installation and the Total Power for all units allocated to this scheme is 20MW.

3.2 Grant Schemes for Energy Efficiency

Energy Audits for SMEs

The Grant Scheme for energy audits in SMEs is set to be in place by May of 2019. With a total budget of 200.000 €. This government endorsed grant will supplement 30% of the cost of an energy audit, to a maximum of 2.000 € and is therefore expected to be utilised by 100 SMEs across the country.

Introduction of an Eco-Management and Audit Scheme (EMAS) to Enterprises and Public and Private Organizations

This scheme aims to increase the environmental performance of SMEs through the establishment of an environmental management system as foreseen in Regulation 1221/2009 / EC and concerns the provision of subsidy to enterprises that intend to establish an Eco-Management and Audit Scheme (EMAS). Aims to address the environmental aspects of SMEs, to reduce the use of natural resources and improve their energy performance.

The scheme is based on *de minimis* aid and provides 70% of the cost of providing services for the establishment of an environmental management system with a maximum amount of grant of 2.000 €. It is also available for the verification and validation of the system with a maximum grant amount of 500 €. Transition Costs from ISO 14001 to EMAS can also be funded through additional 500 € grants.

3.3 Support Scheme for large RES-e projects

The support under this scheme is available for RES-e projects that will be under the Transitional Regulation of the Electricity Market with the objective to finally enter the competitive electricity market. The Total Power allocated for this scheme is 150 MW. Wind energy, solar energy, biomass and wave energy projects are eligible.

Already, 101 MW of RES-e projects - mainly PV systems – have entered the competitive electricity market based on the previous support scheme for RES-e projects. These RES plants will be connected to the grid and receive a “RES price” with an EAC avoidance cost until the opening of the competitive electricity market.

3.4 Bank Loans and other financial instruments

Financial Instruments for Energy Efficiency/Renewables in SMEs

Within the framework of the 2014-2020 Programming Period, the Directorate-General for European Programmes, Coordination and Development of Cyprus as the Managing Authority of the European Structural and Investment Funds in Cyprus, promotes the implementation of a financial instrument to promote energy efficiency and renewables in SMEs.

For the operation of the financial instrument, the creation of a Portfolio Fund is required. The objective of the Portfolio Fund is to be able to provide favourable financing conditions to the

private and public sectors for the implementation of small and medium-sized projects focusing on increasing energy efficiency/RES technologies within SMEs.

Under the financial instruments to be supported by the Fund, funds will be provided to final beneficiaries in the form of loans, and / or other financial products to achieve these objectives.

The EIB, which will manage the Fund, will launch a call for expressions of interest in the selection of Financial Intermediaries (Cyprus Banks) through which the aforementioned products will be granted. The Fund's resources are co-financed by the European Regional Development Fund and the Cohesion Fund of the European Union and the Republic of Cyprus and are distributed as follows:

EIB - € 40 million

ERDF - € 40 million

Cyprus banks - € 40 million

Until the date of preparation of this study, only preliminary information is available which can be found on this link.

Bank loans

Banks in Cyprus are promoting various financing products to SMEs in the form of loans. Mainly, the financial products are related with the purchase and installation of photovoltaic systems, the purchase and installation of green energy systems as well as various projects for the development of SMEs, including energy efficiency projects. The Local Banks evaluate the RES/EE projects like all the projects based on their own lending policy. Usually, RES projects receive loans. The lending can reach up to 100% of purchase and installation costs and usually the loan repayment period can be up to 15 years. However, the applicants should present collaterals 30% of the value of the loan.

More information can be found on this link.

4 Best-practice GHG mitigation examples from EU member states

4.1 Transport sector: Bonus-Malus-System in France

France has introduced a bonus-malus system depending on both the horse power and CO_2-emission (Transport Malus Ecologique) for new passenger cars. The French bonus-malus system is one of the most effective schemes in the EU transport sector. The bonus system aims to reward, through long-term purchase or lease financing (2 years and more), purchasers of new cars or vans emitting less than 120g of CO_2 per kilometre (European Climate Initiative, 2018). This rebate system is one of the key tools that the French government is using to bring down carbon emissions from vehicles.

Set up in 2008, the bonus is reviewed annually in order to adapt to the evolution of the offer of low-emission vehicles. For its implementation, two cases are possible:

a. If the dealer agrees to advance the amount of the bonus, it is deducted from the purchase price inclusive of tax;

b. If the vehicle is purchased from a dealer who refuses to advance the bonus, the buyer can benefit from the bonus by using the application form for payment of the ecological bonus for individuals and return it to the Agency of Services and Payment (ASP), which is the agency in charge of the management of applications for this aid (Direction de l'Information l'égale et administrative, 2019).

The scheme uses revenues from the fees collected from emission-intensive vehicles to finance the bonus payments and aims to incentivise the car consumers' decision before the point of purchase. The bonus can range from 100€ to 5000€ depending on the level of vehicle emissions. An additional super-bonus of 300€ is awarded for the destruction of the owners' previous vehicle, linked to the new purchase, if it is older than 15 years.

On the contrary, the malus is paid by owners at the time of registration of a vehicle when emissions exceed 141g/km of CO2 – a threshold that has been lowered over the years in order to stay aligned with the country's climate targets. The upfront cost to the owner is between 200€ and 2600€, plus a yearly malus of 260€ is charged to those owners whose vehicles' emissions exceed 245 g/km. In January of 2018 a super-malus was introduced, directly targeting luxury vehicles with higher horsepower engines, exerting a tax of 500€ per fiscal horsepower (European Climate Initiative, 2018).

The bonus applies to new vehicles belonging to the category of passenger cars, vans and specialized motorized vehicles, as well as vehicles with two or three wheels and quadricycles within the meaning of the Article R. 311-1 of the Highway Code. Vehicles eligible for the bonus may be registered by individuals or by companies. A vehicle purchased abroad and never registered, is eligible for the bonus. The purchase of used vehicles is not included in this aid (Direction de l'information légale et administrative, 2019).

Although the system has worked well to diminish the average emissions from new vehicles, the scheme has undergone several adjustments over time in order to tighten the regulation as well as to be able to balance revenues and pay-outs, as the scheme is intended to be revenue neutral, without additional costs to the government for bonus payments.

4.2 Industry sector: KfW Energy Efficiency Programmes in Germany

The KfW Energy Efficiency Programme for Production Facilities and Processes is a low-interest loan-scheme offering different kinds of promotional funds, for instance loans to finance investments in energy efficiency measures, of up to EUR 25 million per project.

There are several eligibility which apply to the program:

- For investments in and outside Germany that achieve substantial energy-saving effects.
- Replacement investments must lead to energy end-use savings of at least 10% on the basis of the average consumption of the previous 3 years.
- New investments must achieve energy savings of at least 10% compared with the industry average.

There are some features which make the KfW programme distinctive from other bank schemes, the most important being (KfW, 2017):

- Promotional funding starts from energy-saving of 10%
- Disbursement 100%
- Favourable interest rates

Within the framework of these promotional loans, the KfW endorses a broad spectrum of energy efficiency measures in the area of production facilities and processes of commercial enterprises. Specifically, these loans are used to finance investment measures, modernisation measures and new investments.

Support is provided for domestic and foreign commercial enterprises (majority privately owned), contracting providers (for energy services) and freelancers. Subsidiaries and joint ventures with significant German participation are also promoted for foreign projects. Support (up to 100% of eligible investment costs) is granted in the form of low-interest loans. The interest rate differs between the energy efficiency levels entry standard (energy savings of at least 10%) and premium standard (energy savings of at least 30%). For modernisation investments, the average consumption of the last 3 years is taken as the reference for improvements. Expenses associated with the investment for planning and implementation support, as well as energy management systems, can also be subsidised.

The range of support provided by the loan covers the following areas: Machines/plants/process technology, compressed air/vacuum/suction technology, electric drives/pumps, process heat, process cooling/cold stores/cold rooms, heat recovery/waste heat utilisation (for production processes), measurement, control and regulation technology, information and communication technology and combined heat and power plants.

Complementary Programs which are also available for companies include:

- KfW Energy Efficiency Programme – Waste Heat
- KfW Energy Efficiency Programme – Energy-Efficient Construction and Refurbishment

4.3 RES sector: Biogas support in Denmark

The production of biogas in Denmark is rapidly increasing. The total production is expected to more than triple from 2012 to 2020, reaching a total annual production of 15 PJ (Danish Energy Agency, 2017/2018). To date the majority of the produced biogas is used in electricity production. In the future it is expected that a greater share of the produced biogas will be upgraded and delivered to the natural gas grid. The Danish state promotes the production of biogas through subsidies granted to applicants using biogas for a number of specified purposes. The subsidies for the different uses of biogas are generally divided into three different components:

- **General subsidy:** is regulated annually with 60% of the net price index.
- **Bonus 2:** is regulated according to the natural gas price.
- **Bonus 3:** is gradually reduced and will stop by 2020.

The supported uses of biogas are:

a. **Electricity production:** Electricity produced from biogas can receive support in the form of a fixed subsidy or a price bonus. If the electricity is produced on biogas only, owner of the electricity generation plant may, on a yearly basis, choose to receive either the fixed premium or the price bonus. If the electricity is produced on biogas together with other fuels, the owner of the electricity generation plant may receive the price bonus for the amount of electricity produced from biogas. In addition to either the fixed premium or the price bonus, the owner of the electricity generation plant may receive bonus 2 and 3.

b. **Upgrading of biogas and injection to the natural gas grid and district gas grids:** For companies that supply upgraded or cleaned biogas to either the natural gas grid or town gas grids, the following subsidy may be granted per sold GJ lower calorific value (Danish Energy Agency, 2017/2018).

c. **Industrial processes:** When biogas is used for processing purposes in the industry, a specific amount of subsidy can be granted per sold GJ lower calorific value.

d. **Fuel for transport:** When biogas is sold directly to an end-user as transport fuel, the subsidy may be granted per sold GJ lower calorific value: The subsidies are granted to the person that sells the biogas to an end-user for transportation purposes. Biogas that is upgraded and injected into the natural gas grid and later used for transportation, is not eligible for the transportation subsidy.

e. **Production of heat:** The used biogas for heat production purposes, is granted per sold GJ lower calorific value depending on the category of subsidy.

5 Recommendations for financial instruments for GHG emissions reduction in Cyprus

In order to create better opportunities for financing investments in GHG emission reduction, new actions and innovative mechanisms need to be introduced for the current Cypriot policy mix. Adapting a national financial architecture requires acceptance of change and forward thinking.

Within the implementation of Business4Climate+ project several meetings and dialogues have been held in Nicosia, in order to identify potential opportunities, gaps and challenges for GHG emissions reduction in Cyprus.

Currently in Cyprus there are no support schemes that aim at the beneficiaries of micro-, SMEs or large enterprises. The large number of SMEs in Cyprus, as well as the very challenging target of GHG emissions reduction in the non-EU-ETS sectors (24% reduction by 2030, baseline 2005), create a need to support measures at this direction.

The main outcomes of the expert discussions show that

- There is a need of better mobilization of available Funds (European & national).
- Better exploitation and national planning regarding the ETS funds.
- Focus on the tertiary sector, on secondary and primary.

Thus, to identify the most suitable instruments for Cyprus market and needs, during the workshops prototype low-carbon and cleantech support schemes and instruments have been used. The discussions and brainstorming exercises have identified the key priority areas and necessary actions but also the possible sources of funding. Some excellent ideas were put on the table for discussion among the stakeholders and banks and are summarised in the table below.

The following Table 4 outlines some important complementary financial measures and instruments, aside from currently exisiting programmes, which could assist Cyprus in attaining its climate and GHG emission reduction targets for 2030 and beyond.

Table 4: Identified financial and other policy instruments that are recommended to be introduced in Cyprus

Source/Fund	Description	Sectors
National Climate Funds	Introduction of Support Scheme on GHG emissions reduction in SMEs. The SMEs will receive support on the market carbon price per CO_2-$_{eq}$ saved Support scheme for upgrading biogas plants to treat municipal organic fraction	MicroSMEs, SMEs in all economic activity sectors. Focus on all activities related with GHG emissions e.g energy, waste, F-gases

	Support scheme for the promotion of biodiesel production from used cooking oils Support scheme on reduction/replacement of F-gases Support scheme on site waste separation and treatment facilities/circular business models	Specific scheme designed for the existing biogas plants that today operate up to 60% of their installed capacity All sectors of economic activity All sectors of economic activity
RES & EE Fund	Continuation of net metering and net billing schemes Introduction of support scheme for the purchase of electricity storage technologies Support scheme on large scale solar heating/process heat Improvement of Cogeneration Scheme Introduction of sector specific schemes e.g. management systems in the secondary and tertiary sectors	Residential, Industrial, Tertiary RES large and small producers Industrial sector some tertiary sector activities Industrial and tertiary Implementation of 50001 and energy audits in SMEs
National Budget/Guarantees	Governmental guarantees for ESCOs when implementing projects for public or local authorities/Risk sharing facility Change of contracts with bus companies. Support to change fleet to electric or clean fuels Support for purchase EVs Support for new technology projects	SMEs including local authorities and public sectors Bus companies, fleet Private owners Large scale projects that include innovation components
Structural Funds/CAP	Introduction of loans for project financing Support Scheme on sustainable farming Support Scheme on installation of RES technologies in agriculture	RES producers, Industry and Tertiary Agriculture Agriculture

Mixed Instruments		
Legal/Enforcement of Legislation	Promotion of PV virtual net metering Immediate change of the spatial requirements of RES in buildings New requirements for industrial areas/zones for industrial symbiosis Obligatory inclusion of RES/EE in public procurements	
Taxation	Real estate tax exemption in case of renovations to nZEB Tax exemptions on inland produced biofuels	
Building Codes	Adoption of nZEB standards	

The Cyprus government has a range of instruments at its disposal, however very few have been implemented or not implemented at all. Despite the proven benefits of implementing energy efficiency measures and in general GHG reduction projects, the Cyprus market for GHG emissions reduction projects demonstrates several market failures.

The enforcement of already existing instruments might have a greater impact on GHG reduction. The difficultness to access capital, bounded rationality or risk aversion, are among the important hurdles. This situation not only justifies public intervention, but also determines the context for such intervention. Due to the multitude of market imperfections, no single policy is sufficient to promote GHG reduction projects alone.

As a result, during the last decades government has been implementing codes and standards to guarantee a minimum level of energy performance, economic instruments to give incentives for reducing energy consumption, and more recently there are plans for the introduction of new market-based instruments.

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