

Change energy policy
and change the world

**‘POWER TO THE PEOPLE’ -
MICRO RENEWABLE ENERGY
GENERATION CAN DELIVER CLIMATE
ACTION TARGETS FOR IRELAND**



MICRO RENEWABLE ENERGY FEDERATION
MREF.ie

Table of Contents

SUMMARY.....	3
INTRODUCTION	4
TIME LINES FOR ACTION - URGENT	4
AN INCLUSIVE POLICY WITH COMMUNITY AT ITS CENTRE.....	5
LESS FINANCIAL ANALYSIS FLAWED	6
FUNDING A MICRO RENEWABLE ENERGY SCHEME.....	6
TWO SUPPORT SCHEMES PROPOSED.....	7
A ONCE-OFF GRANT FOR SELF-CONSUMPTION	7
<i>Administering the Grant</i>	7
GENERATION TARIFF FOR EXPORT TO THE GRID	7
VALUE FOR MONEY COMPARISON	8
PRACTICAL PLANNING EXEMPTIONS AND RULES.....	8
GRID CONNECTIONS	8
THE CASE FOR ROOF TOP SOLAR AS THE MICRO GENERATION TECHNOLOGY OF THE FUTURE ..	9
APPENDIX 1: Cost comparison based on actual micro generation installation costs 2017	10
APPENDIX 2: Detailed MREF grant structure proposals for self-consumption and comparisons with the cost of large scale renewable project costs	11

SUMMARY

Households, businesses and farmers can deliver on the country's renewable energy targets using micro generation technologies and specifically roof top and ground mounted PV solar. Up to 500,000 homes, 50,000 businesses and 100,000 farmers have roof tops or ground space available to install a micro generation installation where the energy generated can be consumption on site.

Decisions on supporting micro generation are urgent as Government inaction is causing paralysis with thousands of households, businesses and farms holding off on decisions to generate their own renewable power.

Homes and businesses will pay €500m in the PSO levy in 2018 and some of this money must be ring-fenced to support and encourage PSO levy payers who wish to help the country meet its carbon reduction targets by generating some of their own energy on site.

At least 20%, or €100m/year, of the PSO levy should be immediately directed towards micro-generation. This will support the build out of up to 1.5GW of PV Solar electricity generation over the next 5 years across the regions.

Ireland is seriously behind the rest of Europe when it comes to supporting micro generation. With the proper incentives now for micro generation, community members can deliver the necessary carbon reduction targets for the country.

Supporting micro generation for consumption of energy on site impacts positively on the grid by reducing demand right across the country.

Supporting micro generation supports regional development and will create thousands of jobs across the country.

Supporting micro generation is as cost effective as supporting larger projects particularly when account is taken of the social, community, regional and employment benefits.

INTRODUCTION

The Micro Renewable Energy Federation (or 'MREF', www.mref.ie) is representative of the majority of companies and stakeholders engaged in developing, installing and/or supplying roof top solar generation and battery storage in Ireland.

MREF is also a voice for the thousands of households and businesses waiting for the long overdue delivery of the Government's commitment to support micro energy generation.

The policies of the Federation detailed in this document have already received support from community representative organisations and environmental groups. For example, the Irish Farmers' Association is advocating that the Government change direction and allocate at least 20% of the PSO levy towards micro generation.

TIME LINES FOR ACTION - URGENT

All members of MREF are extremely disappointed and very concerned for the viability of their sector in Ireland at the ongoing delays in coming up with a realistic support structure for the micro renewable energy sector.

Ireland is one of the only countries in Europe today that does not support and encourage a vibrant micro renewable energy sector.

The lack of decision making is destroying the viability and enthusiasm of our member organisations. Households and businesses that should be progressing to improving their energy sustainability are holding off on key decisions in the expectation of Government intervention to support projects to attain viability. Already major companies hoping to enter and become involved in the sector have closed operations in Ireland, with the consequent loss of jobs and investment to the Irish economy.

The micro generation sector is very clear in the belief that there is significant interest among households and business owners in becoming involved in helping the country meet its challenging climate change obligations.

These delays by Government, having indicated as far back as 2013 that a support structure would be put in place, are creating almost total paralysis in the decision making of customers and consequently for the sector as a whole. This uncertainty is very unfair to a significant community of businesses striving to make a difference in growing a sector and contributing to a sustainable future for Ireland.

The MREF requests that the Government urgently decides how it plans to support the development and installation of micro renewable generation and requests that a scheme to support these objectives be put in place for 2018.

The MREF also needs practical actions to urgently address obstacles arising from planning requirements for micro-generation projects.

AN INCLUSIVE POLICY WITH COMMUNITY AT ITS CENTRE

The MREF is very aware of the commitment to community involvement in creating a low carbon future as set out in 'Ireland's Transition to a low Carbon Energy Future 2015-2030' and restated in the RESS consultation document.

Communities are made up of homes and businesses and our proposals make it possible and easy for people individually and collectively within communities to support and adopt renewable generation technologies.

The role that a vibrant micro renewable energy sector can play in achieving this seems to be totally forgotten to date and the MREF wants this addressed as a matter of urgency.

Our proposals for a Micro Generation Support Scheme meets the Government's ambitions for community involvement quickly, simply and cost effectively. They are also by far the least discriminatory of any proposal on the table at this point.

What is unfair and totally discriminatory is what has transpired to date where a few big developers with deep pockets receive all the PSO supports and the homes and businesses who are paying this levy are getting no support to do their bit directly in reducing carbon emissions. It is also clear that major developer-vested interest groups seem to be the priority for future RESS support as the consultation documents and recommendations are totally biased towards larger projects. While big wind developments had the economic advantage in the past this is no longer the case. **See appendix 1**

A vibrant micro renewable energy sector also has distinct advantages in relation to its inclusiveness when compared to existing proposals for community equity involvement in future large scale renewable projects. Community involvement in large scale projects is going to be a massively complex policy to deliver fairly and is going to add very significant administrative, financial and governance costs to any project.

It also has the prospect of being obviously discriminatory as it divides communities and people within communities on the basis of access to projects available to invest in, in the first instance, and the ability of the households and businesses within these communities to access the resources to invest, or their willingness to risk their own capital by investing in a third party project.

Any argument that a support structure for the micro renewable energy sector is discriminatory does not stack up. A vibrant micro generation sector is the best, most practical and economically sustainable way of socialising the involvement of communities and the general public in renewable energy projects with the potential to directly and positively involve thousands of home owners and businesses/farms over the next 5 years.

RESS FINANCIAL ANALYSIS FLAWED

The MREF strongly contends that the financial analysis completed by consultants to the RESS consultation is seriously misleading the debate on the affordability and viability of micro-generation and especially roof top solar generation. The figures presented are at least 3 years out of date.

At today's roof top solar installation prices in Ireland MREF members can install and commission roof top domestic and commercial systems for approximately 60% of the cost documented in the RESS analysis as undertaken by Cambridge Economic Policy Associates Ltd ('CEPA').

This MREF submission confirms, with the correct pricing, that supporting renewable micro generation can be achieved almost as cost effectively as other larger renewable projects today with added social, regional, community and employment benefits for the country as outlined by Ricardo Energy and Environment Consultants.

The facts show that the viability GAP, based on actual figures, for roof top solar is within the parameters of larger scale projects. When community, employment and social benefits are factored in, the cost benefit is clearly in favour of roof top solar and other micro-generation technologies.

See Appendix 1 for cost comparison based on actual micro generation installation costs.

FUNDING A MICRO RENEWABLE ENERGY SCHEME

Having a meaningful micro renewable energy generation support scheme is long overdue. MREF believes that any scheme aimed at homes and businesses for self-consumption of on-site generated power should be taken out of the RESS scheme all together and the required resources should be prioritized from within the existing PSO levy and other government resources. The PSO levy increase for 2018 is *circa* €100m and, in total, will amount to a tax of €500m on energy consumers in Ireland.

It is the households and businesses of the country that are levied with the PSO charge and it is time that they were given the opportunity to invest in and support the country's efforts to reduce carbon emissions.

The MREF believes that 20% of the existing PSO levy or €100m per annum should be set aside to support the micro renewable energy sector going forward.

The immediate introduction of a scheme with a budget of €50m should be made available for 2018, increasing to €100m thereafter to meet the expected demand from households and businesses.

The MREF also requests that due to the ongoing delays in getting this scheme up and running that, at a minimum, 'grandfathering' of the grant amount for any project installed from January 1st 2017 must apply.

TWO SUPPORT SCHEMES PROPOSED

The MREF proposes that a micro generation support structure is divided into micro renewable energy for self-consumption and micro renewable energy generation for export to the grid. Micro renewable energy generation should be defined as renewable energy projects up to 1MW in size.

A ONCE-OFF GRANT FOR SELF-CONSUMPTION

MREF proposes that a once-off grant per KW peak of energy installed is paid to households and businesses where roof or ground mounted solar systems are installed for the sole purposes of self-consumption on site up to 100 kw installation. We are proposing a generation tariff on all energy produced for commercial installations for self-consumption above 100 kW

This proposal has the added benefits that self-consumption does not require grid connection or create capacity issues and helps balance and stabilise the network as the amount of energy generated for self-consumption grows and is distributed across the country. In addition, self-consumption is straight forward to administer and audit.

We estimate that €100m/yr. invested by way of grant would support the installation of up to 300MW of micro-generation for self-consumption per year, or up to 1.5GW over a 5 yr. period up to 2022.

This support scheme would facilitate rooftop PV solar installations in over 150,000 homes and 30,000 businesses and farms. In the future, if the installation prices fall further, the grant level can be amended to reflect this. However, best estimates suggest that prices have stabilized at this point as any further reductions in panel prices are likely to be offset by wage and other install cost increases.

See Appendix 2 for detailed MREF grant structure proposals for self-consumption

Administering the Grant

The structures are already in place within the SEAI to administer our proposed grant support scheme for PV solar. The administration is significantly simplified by paying a fixed amount per KW installed and by using only Triple E registered equipment. No new or additional structures should need to be put in place to administer or audit the proposed scheme and SEAI has already successful processes to administer this scheme.

GENERATION TARIFF FOR EXPORT TO THE GRID

MREF is proposing that a specific MW quota is set aside under the RESS for roof top solar for export to the grid (90% + exported) with its own budget allocation.

Small scale rooftop/ground-mounted solar (i.e. less than 1MW) installations for export to the grid should have a specific quota allocation of up to 100MW per year. A REFIT tariff should apply of between 15c/kWh and 12c/kWh depending on project scale. This support needs to apply for 15 years to make such projects financially viable and bankable at current installation prices. This will facilitate a lot of farm and SME buildings where access to and permissions are obtained to export directly to the grid. It will also facilitate a more even distribution of generation to the grid across the country.

VALUE FOR MONEY COMPARISON

These proposals compare very favourably with the expected cost of large scale renewable developments especially when account is taken of the added value for money delivered. The difference is that they can be delivered very quickly using mainly roof top assets.

In addition, the monies that would be made available under these proposals would be invested locally across the country adding to balanced regional development and creating at least 5,000 jobs within the micro-renewable energy generation sector.

PRACTICAL PLANNING EXEMPTIONS AND RULES

In relation to planning requirements, the MREF strongly believes that there is no justification for the time delays and additional cost for having to seek planning permissions for most roof top solar systems. In the UK and Northern Ireland, micro-renewable energy installations are exempt up to 1000Kw.

MREF seeks an immediate exemption from planning for all roof top solar installations up to at least 250 kw and preferably 500kw

GRID CONNECTIONS

All micro-generation should be installed under parallel grid licenses and must not be subject to any fees. The licence criteria should allow for de minimus generation. This would allow reasonable sizing of systems to meet a higher percentage of daytime loads for business customers in particular and export a small amount in late evenings or weekends where 100% self-usage is not possible.

In addition, if micro generation is to realise its potential in Ireland the application forms needs to be simplified and approval process speeded up. In particular the connection form NC6 needs to be simplified and the KW it applies to increased significantly as most modern inverters have islanding protection as standard.

The use of zero export meters will reduce any grid issues which the DSO may have, promote correct system sizing for installations and facilitate battery storage adoption.

THE CASE FOR ROOF TOP SOLAR AS THE MICRO GENERATION TECHNOLOGY OF THE FUTURE

Rooftop solar can facilitate the installation of up to 1.5GW of energy generation in Ireland over the next few years and achieve this in a practical, speedy and cost effective way. By putting an effective support structure in place for roof/ground mounted PV solar and other micro-generation technologies, the Government would be empowering households and businesses across the country to help the national effort in meeting our challenging carbon emission targets.

Solar PV has dropped in cost per watt by approximately 80% in the last 10 years. At this point the technology is well proven, output very predictable, and performance reliable with no moving parts or expensive maintenance and repair costs. Indeed, this year PV solar panel prices have trended slightly upwards in cost for the first time leading to the expectation that there will be no significant further price reductions in the near term.

Battery storage has dropped significantly in cost in the past 12 months and the reliability, performance and safety standards are well tested and certified across the globe. Battery storage provides multiple benefits from an electricity network perspective. Not only can it offer peak shifting and maximisation of self-consumption, it can also provide grid stability, resilience and, when aggregated, a wide range of system support services that will be required to facilitate high levels of SNSP (System Non-Synchronous Penetration). It is anticipated that affordable storage solutions coupled with PV Solar will be common place in the future and it is now timely for Ireland to support these technologies as being a cost effective solution.

MREF proposals set out in this document support the Government's well-documented policy of reducing fossil fuels in the transport and heating sectors and facilitate planned changes to building regulations.

Micro-Renewable Energy Federation

Suite 109, The Capel Building, Mary's Abbey, Dublin 7, D07 EC93

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APPENDIX 1: Cost comparison based on actual micro generation installation costs 2017

The Cambridge Economic Policy Associates (CEPA) cost comparison of roof top domestic and commercial roof top solar put out as part of the RESS consultation bear no resemblance to the current market reality and are totally misleading the debate on the LCOE.

	<i>CEPA costs €/MWH 2017</i>	<i>MREF costs €/MWH 2017</i>	<i>CEPA viability gap €/MWH 2017</i>	<i>MREF viability gap €/MWH 2017</i>
Domestic RTS	221	132	125	40
Commercial RTS	182	112	130	30
Large scale solar	121		42	
Medium scale solar	123		50	
On shore wind	89		27	

In summary, the actual costs of domestic and commercial rooftop solar for self-consumption is at least 40% lower than that estimated by the CEPA report and the viability gap for commercial roof top is not significantly different to larger scale solar projects. What is clear is the viability gap is less than a third of that outlined in the CEPA report.

Individual MREF members are happy to confidentially provide worked commercially-priced quotes already made to validate this case and all of the information above. Average installation costs of €1,500/kWp for domestic and €1100/kWp for small/medium commercial and €950/kWp for larger commercial is where 2017 prices are at.

APPENDIX 2: Detailed MREF grant structure proposals for self-consumption and comparisons with the cost of large scale renewable project costs.

MREF estimates that there are at least 500,000 homes with suitable roof/ground space capable of installing solar PV, 50,000 businesses with adequate roof space and a seven day electricity demand plus 80,000 farms. The estimated roof space available is capable of installing up to 5GW of renewable energy utilizing a currently unused resource to help the country meet its renewable energy targets.

Support for Domestic roof top solar Installations

MREF are proposing a minimum grant of €500/kw peak installed up to a maximum of 10kw for a domestic dwelling. This is equivalent to circa 30% of the installation cost at 2017/18 prices

MREF are proposing a higher 50% grant for energy deprived homes or for homes for whatever reason genuinely cannot afford the installation to deal with any inequity that might be perceived. A 50% grant should also apply to voluntary and community bodies such as churches, sports clubs etc.

MREF estimate that the average domestic installation will be 4kw of PV solar which will generate between 3250 and 4000kw of electricity depending on location, and whether a roof is south facing or east west. MREF do not recommend putting PV solar on north facing roofs.

Each Installation will specifically generate electricity with surplus energy diverted to heat water, storage heating, charge the car or to battery storage. Based on being able to use all the energy generated and based on experience from installed systems to date a domestic home will be able to generate between 30% and 60% of electricity requirements.

The installation of PV Solar especially to meet the needs of electric car charging going forward will be vital as many of the loads available in domestic homes today in Ireland are not capable of taking the additional demand requirements created by an electrical vehicle charging.

The average cost of domestic day time electric is in excess of 17.5c per kWh in 2017.

The 2017 cost of installing a domestic PV solar system, including water heating, averages €1,500/kWp plus vat. Payback on a cash up front basis is c. 9 to 10 years.

With a €500 grant per kWp installed the payback period on a comparative basis is reduced to circa 6 years. From MREF research this is the minimum payback necessary for broad adoption by home owners and preferably a higher grant to give a 5 year payback should be provided.

For each MW of domestic roof top solar installed a once of grant equivalent to €500,000 will be required which will support circa 250 homes. The benefits to the exchequer firstly is that they are encouraging home owners within communities to support renewable technologies and are generating jobs and economic activity across the country. Key additional benefits are that up to 1,000,000 kW of fossil fuel generated electricity is displaced per MW installed with community

generated renewable energy with only positive implications for the grid and the country. This equates to approximately 500 tonnes of carbon displaced per MW of roof top solar installed.

In financial terms the Government will get an almost immediate payback in economic terms. Each MW of roof top solar installed will employ a team of 5 people for 250 working days to deploy plus an addition 1.5 jobs in the supply chain generating an estimated €40,000 in income-related taxes for the State plus the VAT returns on the net installed cost.

Support for battery storage and electric car chargers

MREF also believe that there should be grant support for domestic homes who install either battery storage or an electric car charger with PV solar. Our proposals are for a once off grant of €250/ kW for battery storage up to a maximum of €1,000 and €250 for an electric car charger once it displays the capacity to use generated renewable energy.

Support for Commercial installations of roof top solar for self-consumption on site (no Export)

For business and farming installations up to 100kW, MREF is proposing a grant equivalent to €400/kWp installed for the purposes of self-consumption on site. For commercial installations above 100kW, MREF is proposing a tiered generation tariff on all electricity generated based on the size of the installation of between 5 and 7c/kWh /kWh for 15 years. We are proposing 7c/kWh for installation of 100kW to 500 kW and 5c/kWh for installations above 500 kW installed. We are further proposing that this generation tariff reduces or increases annually in line with actual electricity prices. In other words if the actual price of electricity rises by 1 cent then the generation tariff drops by an equivalent amount, or visa-versa.

The administration of this generation tariff is being done practically and cost effectively in other jurisdictions and there is no reason why it cannot be quickly replicated in Ireland. The generation measurements can be done remotely if necessary and fed into a central database through the utility providers of energy to each site.

Alternatively, if a generation tariff is not an option, then a minimum grant of €400/kWp installed should be provided for projects between 100kW and 1 MW scale.

We also believe that a battery storage grant of €250/kW should be provided up to a maximum of 100kW for any one commercial installation. This will also give businesses and farms the opportunity to have a reasonable and dependable back up at all times in case of black out.

For farming credits for carbon reductions achieved by the installation of renewable energy should be set against overall Agricultural emissions target.

MREF estimates that the average commercial roof top solar installation will be 60kW (average 20kW for farms) which will generate per kW installed between 850kWh and 1050kWh of electricity depending on location, and whether the roof is south facing or east west. MREF recommends that systems are sized in as far as is possible so that all of the energy generated is consumed on site.

Based on being able to use all the energy generated and on experience from installed systems to date commercial installations will generate between 20% and 50% of electricity requirements.

The average cost of commercial day time electricity is 14c/kW hour for SME and farming and 9c/kW or less for larger businesses in 2017.

The 2017 cost of installing a commercial PV solar system averages €1,100 plus vat up to 200kW and €950 plus vat for larger systems at 2017 prices. Payback on a cash up front basis is 8 to 9 years.

With a grant per kW installed as above the payback period on a comparative basis for up to 100 kw is reduced to circa 5 to 6 years assuming all of the energy generated is used on site.

This is the minimum payback necessary for broad adoption by businesses as a survey of SME and farmers by MREF members shows conclusively that the payback needs to be under 5 years.

The benefits to the exchequer is that they are encouraging business owners within communities to support renewable technologies and are generating jobs and economic activity across the country. Key additional benefits are that up to 1,000,000 kW of fossil fuel generated electricity is displaced with each MW of community generated renewable energy installed with only positive implication for the grid and the country.

In financial terms the Government will get an almost immediate payback in economic terms. Each MW of commercial roof top solar installed will employ a team of 5 people for 250 working days to deploy plus an addition 1.5 jobs in the supply chain.

VAT Reduction

In Northern Ireland the VAT rate for installation of micro generation projects was reduced 5%. MREF is proposing that a similar reduction to a 9% rate should be introduced.

FINANCING PROJECTS

As part of the Government's commitment to renewables they should provide a proportion of the EIB funds available to the country to ensure that all the banks have low cost loans available specifically to assist homes and businesses invest in renewable energy generation for self-consumption. These loans should be readily accessible and all banks should be mandated to ensure that they support the countries move to a low carbon environment.

