

Presentation to the Joint Oireachtas Committee on Communications, Climate Action and the Environment

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The energy transition is not one technology, one investor or one government policy. The energy transition must happen to every house, every journey, every building and every citizen. In order for the transition to take hold, every one of these opportunities must be taken. Each regulatory decision, each funding program, each communication opportunity, each piece of legislation. The committee and members of this house will be well aware of the disconnection between citizens and climate action. It is huge. Every opportunity the state has approached to engage citizens in the energy transition, it has approached it in such a manner as to ensure citizens are not engaged. This needs to change. Microgeneration is one of those opportunities.

You will be informed by various different parties that solar energy will not be sufficient for Ireland, we don't get a lot of sun, and particularly when we need energy in winter. Last June Ireland baked, The UK & Germany hit records for solar energy use, we hit records for gas use. Solar energy produces 7% of Germany's electricity, the industrial powerhouse of Europe, from 1.5 Million solar systems, or 2 panels per person. If Ireland was to catch up with 2 panels per person, we would effectively produce 10-12% of Ireland's electricity, or maybe higher with some storage. In Germany 73% of this capacity is small scale (<100kW). Why would we not allow our citizens, farmers, SMEs produce a large percentage of this? Why must it be multinationals and semi-states covering vast tracts of land, using foreign money, before we cover roofs and farm sheds and pay our citizens for their energy production. John Fitzgerald always cautions about wealth transfer in energy policy, why not transfer to our own citizens and SMEs versus foreign capital. In Northern Ireland Rooftop solar is approximately 50% of total capacity.

Several members of this committee visited several buildings in Tipperary including a leisure centre and school, who had a solar system with a small array versus the roof size. Would we not prefer to see the school or the pool to have a lower operational cost or a small income from their roof versus paying to subsidise the multinationals and renewable energy industry. I am not advocating for one or the other, I am advocating for both.

The barriers to this opportunity are entirely within the state to control. They are:

- Lack of available power purchase agreements mandated by suppliers (at "at least" the wholesale cost)
- Excessive charges for export meters, which could be included as part of the smart meter roll out, effectively for free, as they already have export channels but are currently switched off).
- Restricted planning permission, which could be revised by a small change to SI83:2007/ SI 235:2008 (additional document included), bringing them in line with the North of Ireland, UK, Germany etc.
- The State, since mid-last year, subsidises solar PV on domestic buildings. The existing grant is generous and coupled with payment for spill at the wholesale rate (i.e. no cost to the state or subsidy) will be relatively simple and would provide householders a net income for larger systems. The alternative payment model may be less efficient to administer for domestic systems. Why should we not allow households release their savings to install larger systems and get paid for the export.
- The State should opt for a more efficient, commercially and economically advantageous scheme to unlock rooftop solar in non-residential buildings and like the UK and Germany farms. The wholesale rate plus an uplift to deliver an appropriately attractive investment would be a significant stimulus to the rooftop solar regime. Note that the income from the energy will be a combination of displacing fossil

fuels and the subsidy. This subsidy will be relatively small and could be capped based on available PSO finance but should be at least the rate of any commercial auction.

The reasons the committee will be given for not supporting solar energy will always start with the those who cannot afford to pay for solar will pay for those that can. The more solar is installed on the electricity grid, the cost of infrastructure will rise and the, and the use of this grid will fall. Any reasonable back of the envelope calculation accommodating the electric car and electrification of heat will show a significantly rising throughput of the electricity grid and the investment in this extra transmission capacity will be more than covered within existing revenue per unit. I would predict the average cost of the grid per unit will in fact fall with the higher asset utilisation. This is to be welcomed. This is not to say that the challenge of grid congestion is not there, it will require the investment in assets, the ringfencing of capacity, the potential offering of non-firm generation capacity (Appendix 2 details a potential avenue for building this grid capacity) and the legislative or regulatory amendments surrounding governance of the distribution grid.

We are not Germany whose early support schemes spurred the development of Solar PV. German consumers are being paid 42c/kWh for early systems. We will only need a fraction of this thanks to their sacrifice.

We are not Australia, whose latitude of 20-30 degrees from the equator provides significant winter power. At 53N, Ireland's power-hungry winter will not be met by solar energy, thus ensuring the very vast majority of buildings will stay connected to the grid.

We should put citizens first, encourage active prosumers and use the roof as an encouragement to unlock the energy transition. Would someone spilling electricity onto the grid not think an electric car or a heat pump would be a great use of that power.

Solar is not our magic energy bullet. It will only do a fraction of our total energy use, however it may be the magic bullet of citizen and societal engagement in the energy transition that the state has heretofore missed. Why wouldn't it? It was in Germany.

Finally, I would like to outline that the energy transition is not going to happen without market development support from organisations like the Tipperary Energy Agency and other local energy agencies. Any rapid societal transformation requires societal support. The modernisation of agriculture did not happen without the largescale state intervention in training and modernisation of agriculture. There are local services for the provision of a myriad of state services from schools to MABS to childcare committees and sports partnerships. Without this societal support governed and run to achieve a transition, it will be almost impossible to achieve a change at a societal level. I ask this committee (and the other committee) to strongly consider the supporting of local energy agencies at a local or regional level with a strong public remit.



Solar Energy Development in Ireland & Exempted Development provisions

February 2019

Planning Policy and Projects Unit

SUSTAINABLE *Tipps*

YOUR ENERGY, YOUR FUTURE

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Introduction

This preliminary report examines current exemptions from the requirement to obtain planning permission for roof-mounted and ancillary ground-mounted solar panels installations. The operation of the Planning and Development Regulations 2001 (as amended) are assessed and a comparison with UK regulation is carried out. Considerations and recommendations are set out to inform further analysis and research.

Why regulate Solar Panel systems?

The Planning and Development Regulations 2001 (as amended) are designed to regulate and control new development. With respect to roof-mounted and ancillary ground-mounted solar panels, the regulatory regime is primarily focused on visual effects i.e. on Historic Structures, Architectural Conservation Areas and on route corridors. Lack of control of solar installations could have a detrimental effect, therefore regulation is required. In particular, in the case of certain large scale installations or installations in sensitive areas, it is appropriate that planning permission with associated public consultation is sought.

Potential for Solar PV in Ireland

Internationally, Germany is a leading nation in solar PV (Photovoltaic) systems with 1.53 million solar systems, supplying 6.9% of total electricity requirements. 98% of these systems are small scale, being sized at 100kW or less (rooftop or behind the meter installations¹). A similar scenario achieved in Ireland over the next 10 years would deliver 88,000 installations of 100KW or less (20kW average). This would produce about 8% of total electricity use from small solar installations and empower homeowners in the energy transition and encourage installation of related sustainable technologies i.e. electric vehicles, heat pumps. It is vital that this transition is enabled and supported.

Comparison between Irish & UK planning regulations

In both Ireland and the UK, the installation of solar panels and equipment on buildings and land may be 'permitted development' with no need to apply to the Local Planning Authority for planning permission. There are, however, 'limits and conditions', which must be met to benefit from these permitted development or 'exempted development' rights. In both jurisdictions, certain circumstances will render these exemptions non-applicable, in

¹ A renewable energy generating facility (in this case, a solar PV system) that produces power intended for on-site use in a home, office building, or other commercial facility.

particular, in the case of solar panels; this applies for example where a building is a protected structure. In these cases planning permission will be required.

The main difference between the Irish and the UK systems is the restriction on the total area of the panels under the Irish Planning regulations (i.e. 12sqm on domestic structures and 50sqm on agricultural, industrial and commercial structures). The UK regulations do not specify any size limits on panel area.

Considerations

What is a viable solar PV installation?

Solar PV is a relatively simple technology and could be applied to the vast majority of building types. South facing roofs typically generate about 15-18% more than east or west facing roof, however in the case of a shallow industrial pitched roof, this may be less. It is therefore appropriate to assume that solar PV could be applied to all building types, but would be particularly suited to buildings where the cost effective realisation of a solar income could be considered (e.g. farm, factory, commercial etc) in addition to offsetting more expensive grid electricity in a dwelling for example.

Almost all solar PV panels come in a 1.6m x 1m panel of 250-350 watt module. The array and arrangement of these panels to suit buildings loads and shape is generally left to the installer/ client to decide. A typical domestic installation of 2kW would require 8 panels (12sqm), rising to 24 for a large domestic (6kW) installation (36sqm) providing significant export to the national grid.

The current Planning and Development Regulations as they pertain to renewable energy installations date from 2008 when the demand for solar thermal was high with little or no demand for solar PV. Solar thermal, by its nature captures 70-80% of the available energy for domestic hot water. As the solar energy captured is useful only in the spring, summer and autumn solar thermal is almost exclusively used for domestic hot water heating, therefore a limit of 12m² was seen as relatively generous for future development. Today, there is significant support and interest in solar PV rather than solar thermal as the predominant form of solar energy; however the size limits as specified in the Regulations are more appropriate for solar thermal installations than solar PV installations.

Irish support for Solar PV

The Irish State currently provides capital grants for solar PV installations on domestic properties and in a restricted manner for some other facilities, however, up to now the potential income from export was disregarded.

However, the recast Renewable Energy Directive (2018-2001) Article 21 specifically gives the right to renewable energy self consumers *“to receive remuneration, including, where applicable, through support schemes, for the self-generated renewable electricity that they feed into the grid, which reflects the market value of that electricity and which may take into account its long-term value to the grid, the environment and society”* in subsequent paragraphs it qualifies this right may apply additional charges if the generation capacity is greater than 30kW or circa 200m² of installed capacity. This is positive news for consumers who will benefit from a proposed new Renewable Electricity Support Scheme.

Why the regulations need to change

The worldwide Solar PV industry has expanded from approximately 10GW installed in 2007 to 512GW in 2018. This growth, supported by generous subsidies for solar generation, has broadly skipped Ireland up to 2019, with a total installed capacity of only a handful of MW installed. There are a number of reasons for this lag with the key issues being:

- The requirement of planning consent over 12m² domestic and 50m² for non-domestic leading to significantly higher development costs,
- The lack of any clear subsidy or support program,
- Restrictions in terms of getting paid for export,
- The low solar irradiance per m².

The State is in the process of introducing supports for domestic and some non domestic Solar PV systems; therefore, a remaining significant barrier is the planning consent regime with the cost of planning permission adding 30-50%² on the overall cost of installing a domestic system. In order for Ireland to catch up with respect to solar PV output, the planning regulations need to be examined and amended, to address any barriers in so far as is practical and in accordance with proper planning and sustainable development.

² Assuming minimum cost of €700 for planning agent, fees and notices etc from an overall cost of €1500 - €2500 cost (Source TEA)

Forthcoming new solar PV supports may lead to significant additional demand for solar PV installations for both consumption and export, where the proportion of export maybe a significant part of the overall generation, leading to a higher installation size. It may therefore, be appropriate to consider the removal of the size restriction currently imposed by the regulations and not differentiate between generation for consumption or export, and instead focus on other meaningful and appropriate limits in terms of proper planning and sustainable development.

Planning Process and Solar Energy Systems in Ireland

As set out above, unless a solar energy installation is exempted development under the Planning and Development Regulations 2001 (as amended), planning permission will be required. In the case of existing premises where it is planned to construct either roof-mounted or ground mounted solar panels, the owner/developer must examine if planning permission is required, noting that if necessary they can seek a declaration from the planning authority at a fee of €80. Where it is determined that planning permission is required, adequate time will be required to appoint a planning agent, prepare a planning application and for the planning application process itself (minimum of 12 weeks). In general, 4-6 months should be dedicated to the planning phase if required.

The key planning concerns with respect to roof mounted and small-scale ground mounted solar installations are the visual impacts of such development. In particular, solar panels may not be suitable on protected structures, in architectural conservation areas or near to recorded monuments etc. In addition, the potential for glint and glare from solar panels and their potential effect on traffic corridors i.e. roads, air ports etc might be a consideration. Further advice may be sought from the planning office in advance of submitting a planning application.

Conclusion

Over the next 10 years in Ireland, it is possible that 88,000 installations of small to medium scale solar PV could be carried out (100KW or less). This could produce about 8% of total electricity use from small solar installations and empower homeowners in the energy transition and in installing related sustainable technologies i.e. electric vehicles, heat pumps. It is vital that this transition is enabled and supported in all practical ways.

The Planning and Development Acts and Regulations are designed to regulate and control new development and it is appropriate that planning permission is sought for large scale development or development proposed in sensitive locations. However, the objective of 'exempted development' is to remove certain minor or insignificant development from the requirement to obtain planning permission. In the case of 'exempted development' with respect to solar panels, the Minister for Housing, Planning and Local Government must be of the opinion that 'by reason of the size, nature or limited effect on its surroundings, of the development belonging to that class, the carrying out of such development would not offend against the principles of proper planning and sustainable development'³.

The current Planning and Development Regulations and definition of exempted development as they pertain to renewable energy installations, date from 2008. At this time, solar installations were based on the physical attributes of solar thermal technology predominately. Today, there is significant support and interest in solar PV as the predominant form of solar energy; however, the current specifications for exempted development place a significant limitation on the total panel area that may be erected without having to seek planning permission. As a result, the current Regulations require planning permission for most viable solar PV installations including those of a domestic scale and in particular those on agricultural buildings, large commercial premises and industrial premises. It has been demonstrated that this is a limiting factor, in terms of cost and time, for owners of such premises who wish to install solar PV for their own use, or with export of excess to the national grid, and where plenty of roof space exists, often in areas where there would be little in the way of limiting planning concerns i.e. visual or architectural sensitivity.

In view of changes in technology, and in particular considering the increasing demand and need for solar PV systems, there may be a reasonable and justifiable case to omit the current restrictions on total panel area and restrictions on the percentage of roof area covered as set out in the Planning and Development Regulations 2001 (as amended).

The UK approach, in particular the omission of a restriction on panel area, should be examined for suitability to the Irish situation in the interest of cross border consistency.

³ Simons, Garrett, Planning and Development Law, Thomson Round Hall, 2007

Appendix

Typical dimensions and output of Solar PV 2019

The Tipperary Energy Agency provided an estimate of typical output (KW) and area (M2) of a solar PV array based on a number of categories. The size is estimated having consideration to 'no export' to grid and 'modest export' to grid.

	KW installed				Size			
	Without Export		With export		Without Export		With export	
	Min	Max	Min	Max	Min	Max	Min	Max
Domestic	1.5	4	2.5	6	5	15	9	22
Small Agri	3	8	5	25	11	29	18	91
Large Agri	10	25	15	50	36	91	55	182
Small Commercial (school, centra etc)	10	30	15	50	36	109	55	182
Large Commercial (Nursing home/ hotel)	20	50	30	250	73	182	109	909
Industrial	50	1000	150	1000	182	3636	545	3636

Based on the above it is possible to estimate (considering only dimensions of panels only) whether or not the solar array (roof mounted only) would constitute exempted development on an existing building.

Exempted: ○ (Subject to all other conditions and limitations)
 Not-exempted: ✗ Planning permission required, based on aperture area

	KW installed				Size			
	Without Export		With export		Without Export		With export	
	Min	Max	Min	Max	Min	Max	Min	Max
Domestic	1.5	4	2.5	6	5 ○	15 ✗	9 ○	22 ✗
Small Agri	3	8	5	25	11 ○	29 ○	18 ○	91 ✗
Large Agri	10	25	15	50	36 ○	91 ✗	55 ✗	182 ✗
Small Commercial (school, centra etc)	10	30	15	50	36 ○	109 ✗	55 ✗	182 ✗

Large Commercial (Nursing home/ hotel)	20	50	30	250	73 X	182 X	109 X	909 X
Industrial	50	1000	150	1000	182 X	3636 X	545 X	3636 X

Having consideration to the above, it is apparent that that under the current regulations, planning permission is generally not required for small scale installations of solar arrays that do not export to the national grid (auto-production), and in some cases of domestic and agricultural installations limited export to the national grid may be possible.

However, in general, the current regulations planning permission will be required for installations of a size that will generate an excess suitable for export to the grid across all categories of building use.

It is notable, that in almost all cases, the current regulations will require planning permission for solar PV installations on agricultural buildings, large commercial premises and industrial premises as the current limitations on aperture size for each of these premises is 50sqm. This may be a limiting factor for owners of such premises who wish to install solar PV for their own use with export of excess to the national grid and where plenty of roof space exists often in areas where there would be little in the way of limiting planning concerns i.e. visual or architectural sensitivity.

Summary of Irish and UK planning regulations

Irish

Restrictions on exemptions as per SI 600 of 2001

SI 600 of 2001

Article 9.(1) outlines conditions for which the exemptions set out in SI 83 of 2007 and SI 235 of 2008 (detailed for each technology below) do not apply. They include if the development would:

- Interfere with the character of a landscape, or a view or prospect of special amenity value or special interest, the preservation of which is an objective of a development plan for the area in which the development is proposed;
- Consist of or comprise the excavation, alteration or demolition of places, caves, sites, features or other objects of archaeological, geological, historical, scientific or ecological interest, the preservation of which is an objective of a development plan for the area in which the development is proposed;
- Be in an area to which a special amenity area order relates.

Solar Thermal or PV panel in a domestic setting

- Total panel area must not exceed 12 sq. m or 50% of the total roof area including existing panels.
- The distance between the plane of the wall or pitched roof and the panel must not be more than 15cm.
- The distance between the plane of a flat roof and the panel must not exceed 50cm.
- The panel must be a minimum of 50cm from the edge of the wall or roof on which it is mounted.
- A free standing array's height must not exceed 2m above ground level.
- The erection of a free standing array must not reduce the area of private space to the rear or side of the house to less than 25 sq. m.

Solar Thermal within a light industrial or business setting

- Cannot be erected on a wall.
- Total panel area must not exceed 50 sq. m or 50% of the total roof area including existing panels.
- The distance between the plane of the pitched roof and the panel must not exceed 50cm in a light industrial building and 15cm in a business premises.
- The distance between the plane of a flat roof and a panel must not exceed 2m in a light industrial setting and 1m in a business premises.
- The panel must be a minimum of 50cm from the edge of the roof on which it is mounted or 2m on a flat roof.
- Any associated equipment or storage must be within the roof space of the building.
- A free standing array's height must not exceed 2m above ground level.
- The total aperture area of a free standing array must not exceed 25 sq. m. No advertising can be placed on the panel and a free standing panel must not be placed to the front of the premises.

Solar Thermal or PV within an industrial setting

- Distance between the plane of the wall or pitched roof and the panel must not exceed 1m.
- The distance between the plane of a flat roof and the panel must not exceed 2m.
- The panel must be a minimum of 50cm from the edge of the wall or roof on which it is mounted.
- The total aperture area must not exceed 50 sq. m.
- Any associated equipment or storage must be within the roof space of the building.
- A free standing array's height must not exceed 2m above ground level.
- No advertising can be placed on the panel.

Solar Thermal or PV within an agricultural setting

- Total panel area must not exceed 50 sq. m or 50% of the total roof area including existing panels.
- Distance between the plane of the wall and the panel must not exceed 15cm.
- The distance between the plane of a pitched roof and the panel must not exceed 50cm.
- The distance between the plane of a flat roof and the panel must not exceed 2m.
- The panel must be a minimum of 50cm from the edge of the wall or roof on which it is mounted or 2m if on a flat roof.
- The total aperture area of a free standing array must not exceed 25 sq. m.
- Any associated equipment or storage must be within the roof space of the building. A free standing array's height must not exceed 2m above ground level.
- No advertising can be placed on the panel.

PV within a light industrial or business setting

- Total panel area must not exceed 50 sq. m or 50% of the total roof area including existing panels.
- The distance between the plane of the wall and the panel must not exceed 15cm.
- The distance between the plane of a pitched roof and the panel must not exceed 50cm in the case of a light industrial building and 15cm in a business setting.
- The distance between the plane of a flat roof and the panel must not exceed 2m in the case of a light industrial building and 1m in the case of a business premises.
- The panel must be a minimum of 50cm from the edge of the roof or pitched roof on which it is mounted or 2m on a flat roof.
- Any associated equipment or storage must be within the roof space of the building. A free standing array's height must not exceed 2m above ground level.
- The total aperture area of a free standing array must not exceed 25 sq. m.
- No advertising can be placed on the panel and a free standing panel must not be placed to the front of the premises.

https://www.seai.ie/resources/publications/Conditional_Planning_Exemptions.pdf

UK

The installation of solar panels and equipment on residential buildings and land may be 'permitted development' with no need to apply to the Local Planning Authority for planning permission. Limits and conditions, set out below, must be met to benefit from these permitted development rights.

Planning Permission: Solar equipment mounted on a house or a block of flats or on a building within the curtilage

All the following conditions must be observed:

Equipment on a building should be sited, so far as is practicable, to minimise the effect on the external appearance of the building and the amenity of the area.

When no longer needed equipment should be removed as soon as reasonably practicable.

All the following limits must be met:

- Panels should not be installed above the highest part of the roof (excluding the chimney) and should project no more than 200mm from the roof slope or wall surface.
- The panels must not be installed on a building that is within the grounds of a listed building or on a site designated as a scheduled monument.
- If your property is in a conservation area, or in a World Heritage Site, panels must not be fitted to a wall which fronts a highway.

Planning Permission: Stand alone solar equipment (panels not on a building but within the grounds of a house or a block of flats)

All the following conditions must be observed:

- Stand-alone solar equipment should be sited, so far as is practicable, to minimise its effect on the amenity of the area
- When no longer needed equipment should be removed as soon as reasonably practicable.

All the following limits must be met:

- Only the first stand alone solar installation will be permitted development. Further installations will require planning permission.
- No part of the installation should be higher than four metres
- The installation should be at least 5m from the boundary of the property
- The size of the array should be no more than 9 square metres or 3m wide by 3m deep
- Panels should not be installed within boundary of a listed building or a scheduled monument.
- if your property is in a conservation area, or in a World Heritage Site, no part of the solar installation should be nearer to any highway bounding the house than the part of the house that is nearest to that highway.

(https://www.planningportal.co.uk/info/200130/common_projects/51/solar_panels)

Citizen, Community and Small Scale Generation

Appendix 2: Submission to the Committee on Communications Climate Action and Environment, 5th March 2019

Most European countries have a vibrant roof-top solar market, where individuals, SME's, schools, community facilities or farms can generate electricity from PV and sell to the market. Ireland is an outlier in this case, where significant restrictions imposed on the marketplace prevent this happening. The revised renewable energy directive, currently before the council, may force member states to remove these barriers.

In Ireland right now, under the revised connection policy ECP1 ([CRU 18/058](#)), in order for an entity to produce power from 7kW single phase or 12kW 3 phase, they must apply for a grid connection to export power to ESB networks. As part of this they must have planning permission and submit a fee €763 (11kW- 50kW) and €1557 (50kW-500kW). This is not the connection fee, this is merely the application fee to ascertain how expensive a connection point would be. So in principle a cost of €2,000 - €4,000 would have been spent and one could find no capacity existing and an upgrade cost of up to hundreds of thousands or millions of euro, making the small project unviable. As a result, it will be unlikely that many will apply for the permission nor complete the project. The regulator has also limited this to 30 per annum.

This must however be taken into context of the long waiting list for grid access, making available capacity very scarce and likely to have been already secured by large commercial entities, therefore leading to the required network upgrades for any additional capacity to be significant.

While the Renewable Electricity Support Scheme is supportive of community energy, it is not relevant for this scale of power production, and this should be a simple cheap process that should be in line with most other European countries. In addition, it is noted on both the white paper and the RESS high level design that there should be preferential grid access for community led electricity

What could we do to change this?

- Ring fence a portion of export capacity on each node for SME/ autogeneration, community, farm and house export load.
- Complete an internal capacity increase project to provide this capacity at specific nodes where capacity does not exist.
- Allow capacity to be applied for and utilised on a first come first served basis, with the connections per node published monthly.
- The costs of these capacity upgrades could be:
 - o Added to the regulated assets base (like most countries do.)
 - o Added to the PSO levy (paid for evenly by consumers)

- Added to a specific community/ citizen energy pot and levied on these renewable generators on a kWh basis across the state in the form of a levied cost per kWh over 40 years. This would be transparent and updated annually.



- Ideally the price citizens would match the most recent solar auction available plus any appropriate uplift (subsidy paid for from the PSO or central government funding). This subsidy would be quite small for the scale of opportunity from the citizen energy sector. A sample is noted below:

PSO Subsidy in Millions of Euro per annum					
MW	GWh	2c/ kWh	4c/ kWh	6c/kWh	8c/kWh
10	9	€0.2	€0.4	€0.6	€0.80
100	90	€1.8	€3.6	€5.4	€7.2
500	450	€9	€18	€27	€36
1000	900	€18	€36	€54	€72
1500	1,350	€27	€54	€81	€108

Benefits:

- People, businesses and farmers could export the power they do not use at market rates/ within a subsidy scheme.
- There would be wider acceptance of renewables as people can benefit from the sale of electricity, in effect they can participate in the energy transition.
- The economic benefits would be realised more equally across society and not concentrated in the few developers who could speculate.

It is likely that the existing legislation in place could be utilised to allow this to happen, however it may be a specific act of the Oireachtas to mandate the CRU to create a connection policy that would facilitate the take up of small scale generation 11kW-500kW, both from a network access (ESB networks) and market access (mandating suppliers to purchase electricity). Further study is warranted, however as this is the norm in most other European countries and in Northern Ireland, analysis should be brief and prompt.