

Social Solar Policy in Greece



GREENPEACE



A guide as to how Greece can make full use of existing resources, in order to help 340,000 vulnerable households become small producers of solar energy for self-consumption, thus liberating themselves from energy poverty.

October 2018

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Executive summary:

The government could immediately start implementing an ambitious 10-year social policy programme on solar energy, in order to help more than 300,000 vulnerable households turn into small producers of solar energy for self-consumption, thus freeing themselves from energy poverty.

The suggested program could liberate vulnerable households from a problematic and ineffective support system, like the current Social Residential Tariff, making them **energy self-sufficient**, as they will be able to **produce their own clean energy** and stand on their own feet, without any support. Equally important is the fact that the Greek economy will be moving towards clean energy with **terms of social equity** and that the principles of **energy democracy** will be promoted.

BRIEF DESCRIPTION

Implementation of a ten-year programme providing free 2kW photovoltaic energy to 340,000 households, with an estimated weighted cost of implementation up to €45 million annually. The suggested programme combines two options: a) free installation of individual systems per household but also b) creation of local PV parks (energy communities) with free participation for vulnerable households. The programme could take off immediately as a pilot, with a small budget of €6-13 million for the first few years; later on, it could be reinforced with funds released from different sources.

The implementation cost of the suggested programme is absolutely realistic and, furthermore, it is far lower than the annual cost of the Social Residential Tariff. Moreover, for its implementation, Greenpeace proposes capitalising on existing resources, which can be redistributed without changing the national budget or burdening the consumers.

The program can be implemented by municipalities and energy suppliers. For the Public Power Corporation (PPC) in particular, implementing the program offers many advantages. It puts PPC at the forefront of the energy democratization process, thus enhancing its environmental and social profile. It also helps PPC retrieve hundreds of millions (€) in unsettled debt from very poor households that are currently unable to pay.

Prospective benefits per household per scenario:

2kW Power	Benefits per household
Total annual energy production	2.750 - 3.100 kWh / year
Coverage of annual needs in electricity per household	70-80%
Estimated annual savings per household	280-315€





Similar programmes of social solar policy have already been implemented elsewhere for some years now. As energy democracy is enhancing the citizens' role in energy production, more and more programmes of social solar policy are expected to be implemented worldwide in the near future.

The race to tackle climate change and the **Paris Climate Agreement** force for radical change in the way that the economies work, as well as for a quick turn towards a future of 100% clean energy. Indeed, the global economy is quickly turning towards cheaper and clean renewable energy sources; in the near future, the social solar policy will become "business as usual" for many countries.

There is absolutely no reason for Greece to wait any longer, since there is the solar potential (which is a comparative advantage of the economy) and, at the same time, a significant problem of energy poverty that makes a large percentage of the population suffer. Greece should include social solar policy in the **National Energy and Climate Plan** as one of the main policies that strengthen a socially equitable transition towards a clean future.

A fundamental condition for this to happen is political will, as well as some **necessary and urgent improvements on the legal and policy framework** that will remove serious obstacles in the installation and operation of local PV parks.

Turning to the sun, along with putting an emphasis on transforming households, small and medium-sized enterprises, municipalities and local communities into small producers of energy, could only benefit our society. In particular, a programme of social solar policy for the most vulnerable households could result in:

- **Energy poverty alleviation and creation of a steady income for households, with one single intervention**

Households will come out of the support system and regain their dignity with a single intervention. For the same reason, tax-payers' and consumers' money will be used much more efficiently.

- **A socially fair energy transition**

Securing a socially fair energy transition requires the active participation of all members of society – and particularly the economically disadvantaged citizens. The social solar programme makes sure that the forthcoming democratisation of the energy sector will be inclusive, "leaving no-one behind".



- **A definitive solution for household debts towards PPC**

A major benefit for PPC is that households will be obliged to be placed on a debt settlement scheme. It's a "win-win" situation, in which on one hand the PPC is securing payments and on the other hand households are paying their debts in a sustainable way, because of free solar energy.

- **Boosting the local economy instead of importing fossil fuels**

The country's solar capacity is a comparative advantage for the Greek economy, while it can also support tens of thousands of jobs. Even if Greece imports all PV panels and inverters, and none of them are manufactured by Greek industries, still the domestic added value of PVs can reach up to 60% of the investment.

- **Effective climate policy**

By helping vulnerable households turn from passive consumers into clean energy prosumers, the program effectively places hundreds of thousands of households in the centre of the national climate policy.

- **Strengthening PPC's role in energy transition and the democratisation of the energy sector**

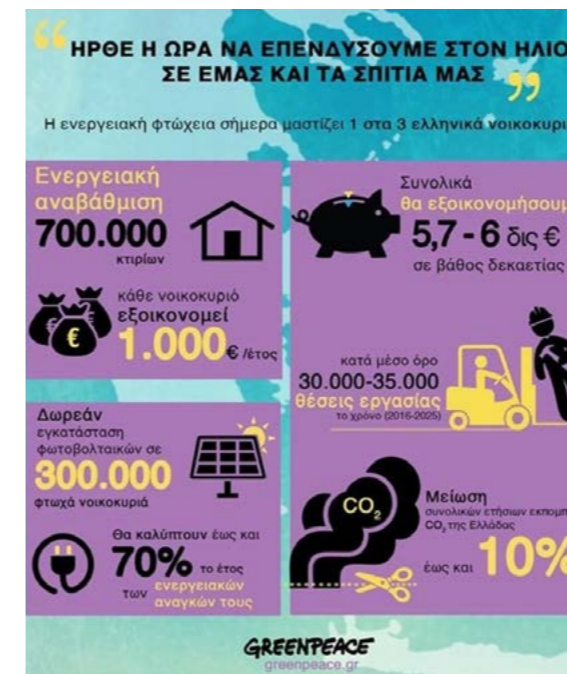
PPC ought to leave its fossil fuel history in the past and focus on how it can help itself and Greece by tapping on the country's vast renewable energy resources and be a leading actor in a socially fair energy transition.



1. Introduction

In 2015, Greenpeace presented a report called “Transforming the Greek building sector with the help of the sun” (“Αλλάζοντας τα δεδομένα στον κτιριακό τομέα με σύμμαχο τον ήλιο”¹), which analysed ways of funding a **ten-year programme of energy efficiency upgrade of 1 million buildings**. This report had fully taken account of the country's financial and political situation (economic downturn, bail out agreements with creditors) and proved that funding such an ambitious programme is totally feasible. The report's focal point was the provision of free solar energy to 300,000 households, as the best way to fight energy poverty effectively by exploiting the greatest and - to a great extent - untapped energy resource of the country: the sun.

It was the first implementation proposal of social solar policy in Greece based on renewable energy sources and not on subsidies.

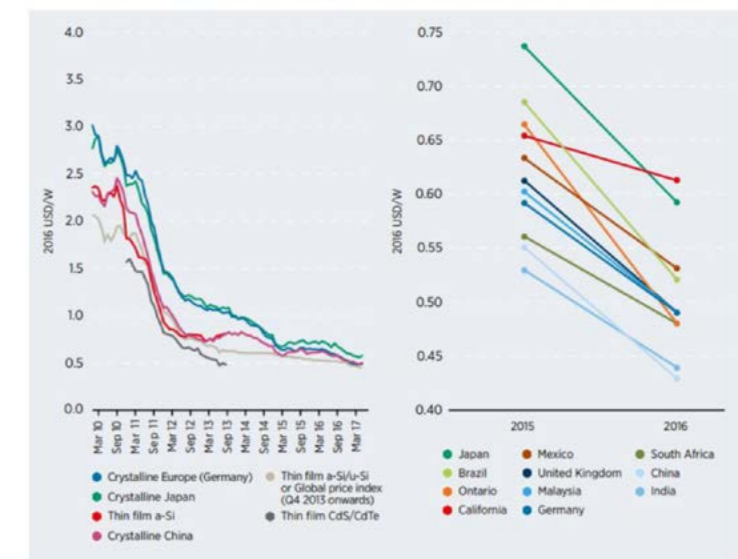


The benefits of implementing a 10-year upgrade programme of 1 million buildings (2015)

Three years later (October 2018), Greenpeace has an updated proposal for more than 300,000 households, considering that between then and now:

- there has been a major improvement in the legal and policy framework, with the new Law 4513/2018 on energy communities, while the possibility of virtual net-metering has been adopted (both of them did not exist in 2015),
- the cost of PV technology was further reduced.

Figure 3.3 Average monthly European solar PV module prices by module technology and manufacturer, March 2010–May 2017 (left) and average yearly module prices by market in 2015 and 2016 (right)



(left graph) Average monthly European solar PV module prices by module technology and manufacturer, March 2010 - May 2017
(right graph) Average yearly module prices by market in 2015 - 2016
Source: IRENA, Renewable Power Generation Costs in 2017 (2018)

1. <https://www.greenpeace.org/greece/issues/klima/5210/me-simmaxo-ton-ilio/>
2. <https://energypress.gr/news/stoiheia-sok-340000-noikokyria-den-ehoy-n-na-plirosyn-ilektriko>

The factors mentioned above offer a new evaluation of the way as well as the cost of implementing an ambitious programme of social solar policy in Greece. The new estimation concerns 340,000 households, instead of 300,000 in 2015, given that - according to the information supplied by PPC² in 2017 - this is the number of households that cannot afford to pay their electricity bills (although they are under the Social Residential Tariff programme). The substantial support of vulnerable households via a similar programme of social solar policy is crucial, in order to secure an energy transition which will be equal and fair for all members of society and promote the spirit of energy democracy.

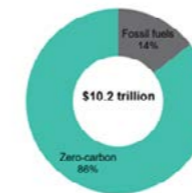


2. Energy transition and energy democracy

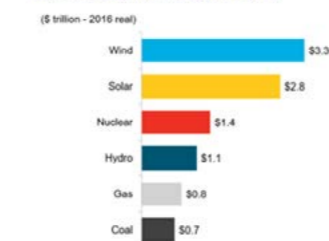
It is commonly accepted that the energy transition towards an economy free of fossil fuels has already started and it is irreversible. Whether for environmental, climate and public health reasons or because the renewable energy sources have now become more attractive investments, the global economy is quickly turning to clean energy sources, leaving fossil fuels behind.

Solar and wind attract 73% of new investment in power generating capacity

Investment, by technology, 2017-2040



Investment, by technology, 2017-2040



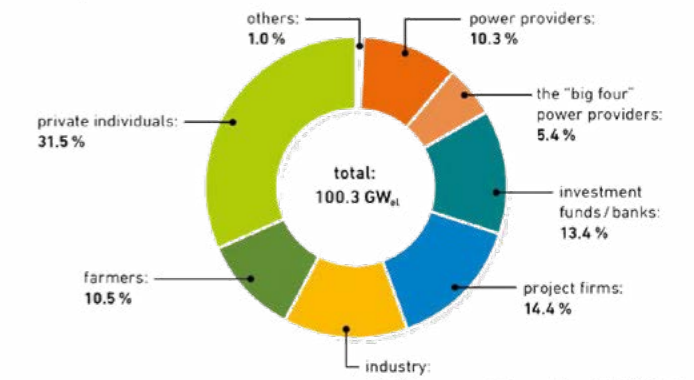
Estimation on investments in power generating capacity 2017 - 2040 (source: Bloomberg, NEO 2017)

It is extremely crucial that energy transition occurs quickly on one hand, in order to prevent an uncontrollable climate crisis, and under terms of social justice on the other hand, which means that the benefits should be disseminated to the entire community, with no exclusions.

What is vital in both cases is the **democratisation of the energy sector**, which gives the society an active role, placing it on the frontline. Small and medium-sized enterprises, local authorities, communities and cooperatives, but also households, are producing and consuming their own clean energy, taking away the total control of the energy sector from the few large companies that own it. This is not an image of the future. In many countries, energy democracy is already a fact.

Renewable energy in the hands of the people

Ownership distribution of installed RE capacity for power production in Germany in 2016



Source: trend:research as of 12/2017 © 2018 Renewable Energy Agency



Energy democracy in effect: In Germany, 42% of the power from the installed RE capacity belongs to households and farmers, whereas only 5.4% belongs to the 4 largest energy companies in the country. Source REA © REA

Furthermore, the democratisation of the energy sector requires **a transition equal and fair for all members of society**, securing equal participation for everybody, especially for the vulnerable social groups that are currently in an unfavourable position. This transition will heal plenty of the pathologies of the current energy system which is based on fossil fuels: energy poverty, high unemployment rates in the country's lignite fields and deterioration of public health.

For **energy poverty** in particular, equal participation opportunities should be ensured. Specifically, **our social policy should help vulnerable households become small producers of their own clean energy for personal consumption**, thus not only freeing themselves from energy poverty but also becoming active members of the energy transition.



3. Energy poverty in Greece

All the abovementioned are of particular importance for Greece. The heavy dependence on fossil fuels and the bad (energy) condition of the buildings, along with the financial downturn of the past years, have escalated energy poverty.

- 1 out of 3 households don't have adequate heating (Hellenic Statistical Authority).³
- 4 in 10 households declare that they are unable to pay their electricity bills (Hellenic Statistical Authority).⁴
- About 680,000 beneficiaries of the Social Residential Tariff in 2017 (PPC)⁵
- 340,000 SRT beneficiaries (almost half the number) are still unable to pay their electricity bills (PPC)⁶
- > €2 billion of unregulated debts towards PPC in the Low Voltage programme (PPC)⁷
- The consumers contribute to the SRT financing with €80 million annually, through SGI charges (RAE) ⁸

Energy poverty in Greece: end of 2017

With 4 out of 10 households having difficulties to pay their electricity bills, and with 340,000 of them being on the SRT programme, it is obvious that energy poverty in our country could be seen as a humanitarian crisis.

Under these circumstances, the smooth transition of the energy sector towards democratisation is in danger. It will be a huge blow, not only for any prospect of development but even for the country's social cohesion, if the significant benefits from energy transition concern a specific section of our society and not its whole.

3. Hellenic Statistical Authority, Έρευνα Εισοδήματος και Συνθηκών Διαβίωσης 2017 (Survey on Income and Living Conditions 2017),

4. As above.

5. Based on information from PPC to the [Media](#).

6. As above.

7. As above.

8. Decision 640/2017 of the Regulatory Authority for Energy for approval of SRT consideration, [GGG B3057](#), September 6th, 2017. For 2016, the total annual consideration for the SRT and for families with a large number of children was estimated on €79,734,999.

4. Energy social policy: The problem with today's support system

Today's social support policies are limited in programmes of consumption subsidization, like the Social Residential Tariff (SRT) and the Heating Allowance (HA). This particular approach, though, has several structural defects.

The subsidising policy is unable to help households exit the support system: they remain in energy poverty, dependent on the aid (subsidisation) that they will need on the following year (as well). Likewise, the state will have to seek new funds for the following year, in order to keep supporting the same households. Moreover, these subsidies support energy consumption; they end up reinforcing the current energy system and its pathogenies.

75% of the electricity today is produced by fossil fuels (local or imported). Consequently, the subsidies mostly reinforce the polluting fossil fuels and the few large energy companies that control them. They do not promote energy democracy; neither do they contribute to the protection of the environment, the climate, public health and social cohesion.

Subsidising the problem or offering households substantial help?

Subsidising consumption

Vulnerable households remain on a support system

The current energy system is preserved

The environment, the economy and public health are harmed

Social inequalities / exclusion

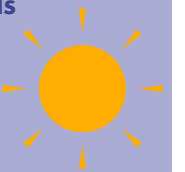
Investing on solar energy & efficiency

Households come out of the support system

The democratisation of the energy sector is promoted

Modernising the economy and succeeding our climate goals is promoted

Social cohesion / solidarity



On the other hand, if social policy leaves the system of subsidising consumption behind and turns to making the household stronger and more independent instead, e.g. through **energy saving** improvements in the house or through **social solar policy**, then the problem itself will turn to a permanent solution. This way, households will be producing their own solar energy, will effectively cope with energy poverty and will stop being dependent on subsidies. The state will be saving funds and these households will become a part of the country's energy transition: from the social exclusion of energy consumption subsidies, to the dignity of the new era.



5. What would a plan of social solar policy look like in Greece?

GIVEN THE COUNTRY'S ABUNDANT SUNLIGHT, THE EVOLUTION OF PVS' TECHNOLOGY AND THE IMPROVED LEGAL AND POLICY FRAMEWORK, GREECE HAS THE CHANCE TO IMMEDIATELY START THE IMPLEMENTATION OF AN AMBITIOUS SOCIAL SOLAR POLICY PROGRAMME.

b) In the second hypothetical scenario, all 340,000 vulnerable households get their energy exclusively through the operation of PV parks that are placed in local communities and belong to non-profit energy communities founded for this purpose. In this case, every household gets free 2kW energy from the local PV park via virtual net-metering.



Brief description

Implementation of a ten-year programme providing free photovoltaic energy of 2kW to 340,000 households, with an estimated weighted cost of implementation up to €45 million annually. The suggested programme combines two options: a) free installation of individual PV systems per household but also b) creation of local PV parks (energy communities), with free participation for vulnerable households. The program can be implemented by energy suppliers and/or local governments. The programme could start immediately as a pilot, with a small budget of **€7-13 million for the first few years**; later on, it could be supported with funds released from different sources.

In order to estimate the cost of a social solar programme for 340,000 vulnerable households, the cost of implementing two extreme hypothetical scenarios was calculated first:

a) In the first hypothetical scenario, only residential PV systems are placed on the 340,000 households. This means that every vulnerable household has its own 2kW PV system that is placed on the roof of the building. The household produces its own energy for personal consumption, through net-metering.

Net-metering and virtual net-metering

Net-metering allows placing PV systems on buildings for personal consumption of the solar power being produced. Any surpluses are temporarily "stored" in the network and transferred on the next electricity bill. Virtual net-metering works in a similar way, with the basic difference that it allows remote energy production, which means that the PV system can be at a different part of the network (e. g. a plot, a different building) than the place of consumption. For households and businesses, forming an **energy community** for the use of virtual net-metering is required. Under the Greek law, all prosumers using either net-metering or virtual net-metering are required to pay all the relative charges for the use of the grid.





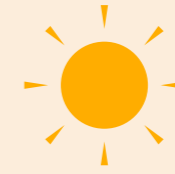
Scenario A:

Social Solar Policy exclusively via installation of residential systems

Residential PV systems for self consumption	Year	2KWp Cost (€)	2KWp Cost (€)	Vulnerable households	Total cost
	2019	2.600	5.000	10	13.000.000 €
	2020	2.444	5.000	10	12.220.000 €
	2021	2.322	10.000	20	23.218.000 €
	2022	2.206	15.000	30	33.085.650 €
	2023	2.095	25.000	50	52.385.613 €
	2024	1.991	35.000	70	69.672.865 €
	2025	1.891	45.000	90	85.100.428 €
	2026	1.797	55.000	110	98.811.052 €
	2027	1.707	65.000	130	110.937.863 €
	2028	1.621	80.000	160	129.711.963 €
			340.000	680	628.143.432 €

Assumptions:

- 2kWp cost for PPC: €2,600, excluding VAT
 - Annual reduction of technology cost, 6%
 - Gradual increase of vulnerable households



Scenario B:

Social Solar Policy exclusively via community solar PV parks using virtual net-metering

PV parks with virtual net-metering	Year	Cost €/MWp	Vulnerable households	Installed power capacity MWp	Total cost
	2019	600.000	5.000	10	6.000.000 €
	2020	558.000	5.000	10	5.580.000 €
	2021	530.100	10.000	20	10.602.000 €
	2022	503.595	15.000	30	15.107.850 €
	2023	478.415	25.000	50	23.920.763 €
	2024	454.494	35.000	70	31.814.614 €
	2025	431.770	45.000	90	38.859.279 €
	2026	410.181	55.000	110	45.119.940 €
	2027	389.672	65.000	130	50.657.387 €
	2028	370.189	80.000	160	59.230.176 €
			340.000	680	286.892.009 €


Assumptions:

- Initial 1MWp cost for PPC: €600,000, excluding VAT (conservative estimation)
 - Annual reduction of technology cost, 7%
 - Gradual increase of vulnerable households


As it becomes clear from the previous tables, the total implementation cost of the ten-year programme will be somewhere between the two extreme scenarios, between €287 - 628 million, with an annual weighted cost of implementation of €29 - 63 million. Of course, the exact cost will depend on the choice combination, *Residential PV systems vs community PV parks*. However, given that in actual fact at least half of the households are expected to use virtual net-metering through PV parks (forming energy communities), **the true annual weighted cost is estimated to be less than €45 million**, namely almost half of the total amount (€80 million) that is being allocated today to support the SRT programme and the families with many children.

The tables also show that the gradual implementation of the programme allows its initial launching with a far smaller amount (**€7 - 13 million annually**).

Residential PV systems vs community PV parks: advantages and disadvantages.



The community PV parks, through virtual net-metering, have the advantage that they can cater for vulnerable households that don't have the adequate space for installing an individual PV system (e. g. they dwell in apartment buildings). Also the implementation cost is considerably lower due to economies of scale.



- On the other hand, residential PV systems offer a higher benefit per household because of the reduced charges for network use. Furthermore, they utilise the areas available on the buildings, without taking up space on land.



WHY GREENPEACE SUGGESTS 2kW OF SOLAR POWER?

- PVs of 2kW power produce a substantial amount of electricity that can aid households, covering 70-80% of their needs while at the same time offering a major motive for a more reasonable use of energy. Furthermore, they are compatible with future energy saving interventions on the building, that can further reduce consumption or/and electrify the heating (e.g. transforming a building into a passive house, using heat pumps instead of fossil fuels boiler, etc.).

Prospective benefits per household per scenario:

Power 2kW	Scenario No 1 (Individual PV systems)	Scenario No 2 (PV parks in energy communities)
Total annual energy production*	2.750 kWh / year	3.100 kWh / year
Coverage of annual needs in electricity per household**	70%	80%
Estimated annual savings per household	315 €	280 €

*Based on verified data from already established systems, PV parks produce on average more than PVs on buildings, due to optimal orientation (source: HELAPCO)⁹

**According to official data from the Hellenic Statistical Authority, the average annual electricity consumption per household in Greece is 3,750 kWh.

5.1 FUNDING SOURCES

For the funding of the programme, the use of flexible sources is suggested, that can be easily redistributed for the benefit of social solar policy, without the obstacles of heavy bureaucracy. Moreover, it is appropriate that these sources will form **a permanent mechanism for domestic capital generation, so that the implementation of the programme will continue uninterrupted in the long run**. Three potential funding sources are proposed below:

Emission Trading Scheme (ETS)

By creating a surplus at the RES Special Account (RESSA) and from the recently agreed measures by the Institutions (May 2018), that secure its financial sustainability, dozens of millions of Euro will be released from the ETS, (which currently supports the RESSA fund today). The

European Union's measures for boosting the carbon price, which seem to be achieving their goal so far¹⁰, are also contributing to that. It is reminded that ETS's main role is charging the major pollutants, aiming to channel at least half of that income to funding clean energy, energy efficiency and social programmes.¹¹

Consequently, a social solar policy programme **can be gradually supported with a small amount from the estimated revenues of ETS from 2021 and onwards**.

9. http://helapco.gr/wp-content/uploads/pv-stats_greece_2017_8May2018.pdf

10. Analysts raise EU carbon price forecasts on emissions rise, UK Brevity clarity, Reuters, 11 Απριλίου 2018

11. https://ec.europa.eu/clima/sites/clima/files/factsheet_ets_en.pdf

Services of General Interest (SGI)

In a similar way, the programme can be gradually supported by funds deriving from charges of SGI, that support the Social Residential Tariff today. The recent Cyclades Islands Interconnection, as well as the imminent Crete interconnection, **is expected to release hundreds of millions of Euro annually from the SGI charges**. A part of these savings will suffice for a **major reduction** in the energy bills of consumers, who today carry the burden of SGI charges. However, a reasonable amount of these funds should be redistributed on an annual basis on reinforcing programmes which combat energy poverty, namely to support programmes of energy saving in vulnerable households (e. g. "Energy efficiency at home" - "Εξοικονόμηση Κατ' Οίκου" - energy-saving programme) and the social solar policy programme.

Public Power Corporation (PPC)

Finally, the programme could start with the use of PPC's own funds. Implementing a large part of the program should provide PPC with many opportunities. By helping vulnerable households become small producers of energy for self consumption, the Public Power Corporation is securing payment from these indebted households in a sustainable way. Moreover, for those households that perhaps have the financial ability to repay such an investment but lack the initial capital or the access to funding, PPC, via its affiliated company GREENESCO, can offer energy services: namely, to make the initial investment and offer a programme of gradual repayment in the long term (e. g. 10 years).

It is reminded that, in accordance with Article 9, Law 4342/2015, all power distribution companies are obliged to make interventions to improve energy efficiency for final energy consumers, in order to reach a cumulative target

of energy saving - in its final use - until December 31st, 2020. The benefits from these actions have already been mentioned and concern - among other things - meeting the country's commitments for energy saving, the reduction of electricity bills, the promotion of energy services and of the Energy Service Companies (ESC) sector, the financial boost of low income households and the protection of the environment and public health.¹²

So far PVs don't constitute eligible technology, though it is quite possible that this – due to the Energy Winter Package - will change from January 1st, 2021. **So, PPC (and also all others liable) can fulfil their legal obligations by placing PVs. Equally importantly, they can immediately start a pilot implementation, preparing at the same time an implementation mechanism for large-scale alterations.**

It should be pointed out that, for the sake of social policy and solidarity, it is appropriate that for the vulnerable households that are facing severe economic poverty, the installation of a PV system or the participation in a park will be performed absolutely free of any charges, should be included in the social solar program proposed in this study and should be entirely covered from the abovementioned sources.

The opportunity for PPC

So far, PPC has lost major opportunities to invest in RE and energy saving; the result is that clean energy today (with the exception of hydroelectricity) is not more than 1% of PPC's total power generation. The implementation of a programme of social solar policy does not only help the Public Power Corporation enrich its portfolio with investments in RE projects, but also and more importantly with investments in small and decentralised RES, in a local community or household level. By helping vulnerable households to turn into small producers of energy for self consumption, PPC makes sure that these households will pay their debts in a sustainable way, and will also retain them as its customers for several years. In this way, the PPC can cover the lost ground and lead the way towards the new era, supporting the democratisation of the energy sector in terms of social equity and improving its social profile.



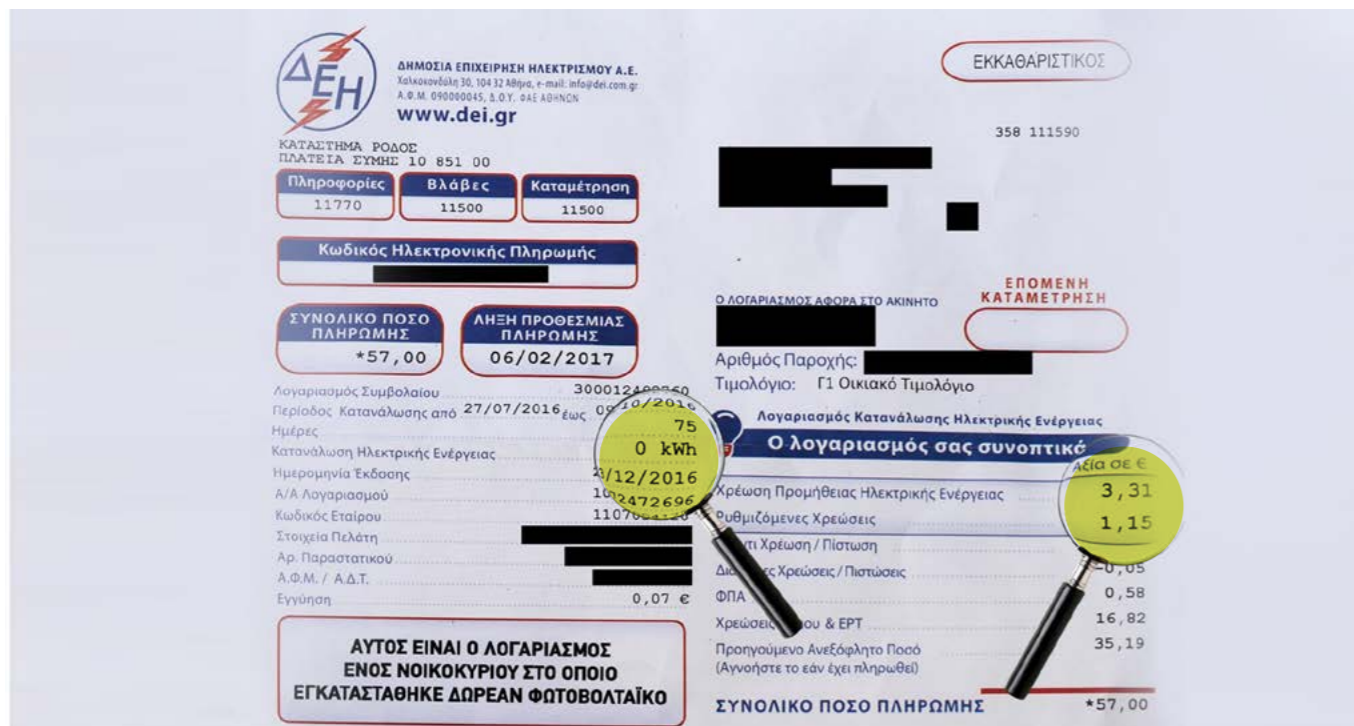
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12. <http://www.cres.gr/obs/>

5.2 SOCIAL SOLAR POLICY HAS ALREADY STARTED IN GREECE: THE EXAMPLE OF 8 HOUSEHOLDS IN THE ISLAND OF RHODES

Greenpeace has already made social solar policy a reality for vulnerable households in Rhodes, during a pilot programme. Between 2014 and 2016, Greenpeace capitalised on funds from its supporters, donated for this specific purpose, to help 8 families on the "Island of the Sun" to have their own 2kW PV system for net-metering. These households are now producing their own clean energy and have no need for support in order to combat energy poverty.

The following image shows an actual electricity bill from one of the households that was issued in 2016. The PPC bill for this particular quarter shows zero electricity consumption (kWh).



This should be the image of energy social policy in Greece.



5.3 LOCAL AUTHORITIES ARE SHOWING THE WAY

Some municipalities in Greece seem to have grasped this opportunity and are getting ready to invest on the sun, in order to improve their financial situation and also offer substantial help for the local communities. Greenpeace has already worked with the municipalities of Thessaloniki and Larissa, launching two of the first pilot projects of virtual net-metering on a local authority, which are connected with implementing social policy on a local level.

In **Thessaloniki**, Greenpeace placed a 10 kW PV system on the roof of the 18th Thessaloniki High School, "Emmanuel Kriaras". The system's produced energy will be fully covering the electricity needs of the social structure "Shelter for Abused Women and their Children".

In **Larissa**, Greenpeace placed a 15 kW PV system on the chamber roof of the 4th Larissa Middle School. The energy produced will be providing free electricity to the 16th Municipal Kindergarten. The municipality has made a commitment to place more than 200 kW PVs, in order to cover the needs of all the kindergartens of the city.

Both municipalities are considering plans for creating energy communities which will be providing free electricity directly to local vulnerable households. **The municipality of Fyli** is already moving towards this direction too; they are in the early stages of formatting energy communities which will have PV parks of 6MW total power. The aim is to gradually start catering for the energy needs of 3,000 vulnerable households in the municipality, with free 2 kW PV energy per family.

Greenpeace is having discussions with more municipalities all over the country that are working on similar projects. Greece is close to becoming **Europe's first country** where the social solar policy will be implemented by **local authorities**. To that end, Greenpeace recently launched a platform through which citizens can urge their local municipalities investing in social solar projects for the benefit of their communities: <http://www.iliemou-iliesou.gr/>

13. <https://www.greenpeace.org/greece/issues/klima/2521/eikonikh-autoparagwgh-hliakhs-energ/>

14. <https://www.greenpeace.org/greece/issues/klima/2454/larisa-kai-greenpeace/>

6. Social solar policy has already started elsewhere

The implementation of social solar policy on a large scale is not just a theory: it is already happening in plenty of progressive states in the USA. A few indicative examples follow.

In **California**¹⁵, there are targeted programmes for vulnerable households in social housing, and depending on the programme there is use of resources either from social policy charges on consumers (like the SGI here) or from the state emission trading scheme (like ETS in Greece). For instance, the Low-Income Weatherization Program (LIWP) subsidises 30-80% of the cost of energy saving alterations and 50-100% in PV installations in vulnerable households. Likewise, the Solar On Multifamily Affordable Housing (SOMAH) programme gathers funds of \$100 million annually for the needs of social solar policy programmes of 300MW power. Both programmes promote educational courses on the side, which take place during the installation and require recruitment of local staff.

In Denver¹⁶, **Colorado**, the Denver Housing Authority (DHA) is building a 2MW PV energy park for social solar policy needs. Through virtual net-metering, the park will be partly covering the needs of 700 establishments in social housing, thus reducing 20% of the households' energy expenses. Moreover, the state of Colorado, with a special regulation on Solar Gardens (sic), promotes energy communities that develop and operate 10kW to 2MW PV parks. The Solar Gardens Act states that 5% of the produced energy will be aiding

specific vulnerable households of each local community¹⁷. In a different pilot programme, in which the local Public Power Company is also participating, 8 PV parks were constructed, of more than 1MW total power, that offer free solar energy to 380 low income families. Generally, the state of Colorado is taking measures to ensure that during the 2017-2019 period, 5,000 vulnerable households will have access to solar power.

It is worth noting that the State of Colorado has recognised energy poverty as a major social issue, with about 30% of households having trouble paying their power bills.¹⁸

In the state of **Washington**,¹⁹ the Department On Energy and Environment (DOEE), with the Solar For All programme, has the goal to help 100,000 low income households reduce their bills to at least 50% by using solar power until 2032. The first phase of the programme (2017 - 2019) aims at installing 30 - 60 MW PVs. Last year, the pilot phase of the programme - of \$5 million worth and 5MW power - was completed, having installed PVs on single-family vulnerable households, small businesses and NGOs.²⁰



15. <http://www.lowincomesolar.org/best-practices/multi-family-california/>, 16. <http://www.lowincomesolar.org/dha-community-solar-project-keeps-housing-affordable/>

17. <http://www.lowincomesolar.org/best-practices/community-solar-colorado/>

18. <https://www.colorado.gov/pacific/sites/default/files/atoms/files/CEO%20Grant%20to%20GRID%20Alternatives%20for%20Low-income%20Solar%20Project.pdf>

19. <https://doee.dc.gov/solarforall>

20. <https://doee.dc.gov/node/1220306>

Australia is leading the way in social solar

In Australia, the government of New South Wales announced in September (2018) a pilot voluntary program aimed at replacing current consumption subsidies to vulnerable households with PV systems. The 15 million \$ pilot program will seek 3.400 households that are willing to receive a 2.5 kWp PV system installed at their rooftop, if they forgo their Low Income Household Rebate. It is estimated that the bill savings from the rooftop solar systems will be around 600 \$ on a yearly basis, when the current annual Rebate is around 285 \$, thus leaving the households better off by around 300 \$ each year. The pilot program will kick off in 5 NSW regions, Sydney –South, Central Coast, North Coast, Illawarra – Shoalhaven and South Coast. Australia is leading the way in small-scale solar revolution, making the democratization of the energy sector a reality: Today an estimated 1.7 million households in Australia (almost 1 in 4) own a residential PV system.



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7. Conclusions

Greece can and has to utilise its greatest resource in order to eliminate energy poverty, one of the major social issues. The cost of an ambitious programme of social solar policy is relatively small and there are available flexible funding sources that can be used to that end.

The race to tackle climate change and the **Paris Climate Agreement** force for radical change in the way in which the economies work and for a turn towards a 100% clean energy future. In the near future, social solar policy will be "business as usual" for many countries, as a way of implementing social policy.

There is absolutely no reason for Greece to wait any longer, since it has the solar potential (a comparative advantage to the greek economy) and, at the same time, a significant problem of energy poverty that makes a large portion of the population suffer. Greece should include social solar policy in the **National Energy and Climate Plan**²¹ as one of the main policies that strengthen a transition towards a clean future which will be equal and fair for all members of society.

A fundamental condition would be political will, as well as some **necessary and urgent improvements on the legal and policy framework**, that will remove serious obstacles in the installation and operation of local PV parks.

Shifting towards the sun, with emphasis on turning households, small and medium-sized enterprises, municipalities and local communities into small producers of energy, could only benefit society. In particular, a programme of social solar policy for the most vulnerable households could result in:

Energy poverty alleviation and creation of a steady income for households, with a single intervention

Households will come out of the support system and regain their dignity with a single intervention. For the same reason, the tax-payers' and consumers' money will be used much more efficiently.

• A socially fair energy transition

Securing a socially fair energy transition requires the active participation of all members of society – and particularly the economically disadvantaged citizens. The social solar programme makes sure that the forthcoming democratisation of the energy sector will be inclusive, "leaving no-one behind".

A definitive solution for household debts to PPC

A major benefit for PPC is that households will be obliged to be placed on a debt settlement scheme. It's a "win-win" situation, in which on one hand the PPC is securing payments and on the other hand households are paying their debts in a sustainable way, because of free solar energy.

²¹. In a consultation procedure on the National Energy and Climate Plans, Greenpeace filled in the specific questionnaire, with a particular reference in solar social policy. For more information: <https://www.greenpeace.org/greece/issues/klima/6435/theseis-greenpeace-gia-ton-makroxronio-sxediasmo/>

Boosting the local economy instead of importing fossil fuels

The country's solar capacity is a comparative advantage for the Greek economy, while it can also support tens of thousands of working positions. Even if our country imports all PV panels and inverters and none of them is manufactured by Greek industries, the domestic added value of PVs can reach up to 60% of the investment.²²

•Effective climate policy

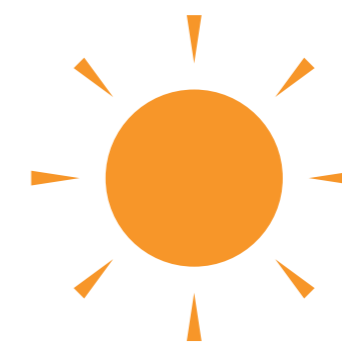
By helping vulnerable households turn from passive consumers into clean energy prosumers, the program effectively places hundreds of thousands of households in the centre of the national climate policy.



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•Strengthening PPC's role in energy transition and the democratisation of the energy sector

PPC ought to leave its fossil fuel history in the past and focus on how it can help itself and Greece by tapping on the country's vast renewable energy resources and be a leading actor in a socially fair energy transition.



22. Stelios Psomas, "Η εγχώρια προστιθέμενη αξία των φωτοβολταϊκών" (PVs' local added value), May 2016



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