

HYPERION ENERGY COMMUNITY

The First Solar Energy Community in Greece, Powered by Citizens

(Executive Summary February 2021)

Hyperion Energy Community

7, Olympionikon Street, Ilioupolis, Attica,
Greece Registration number: 155702401000

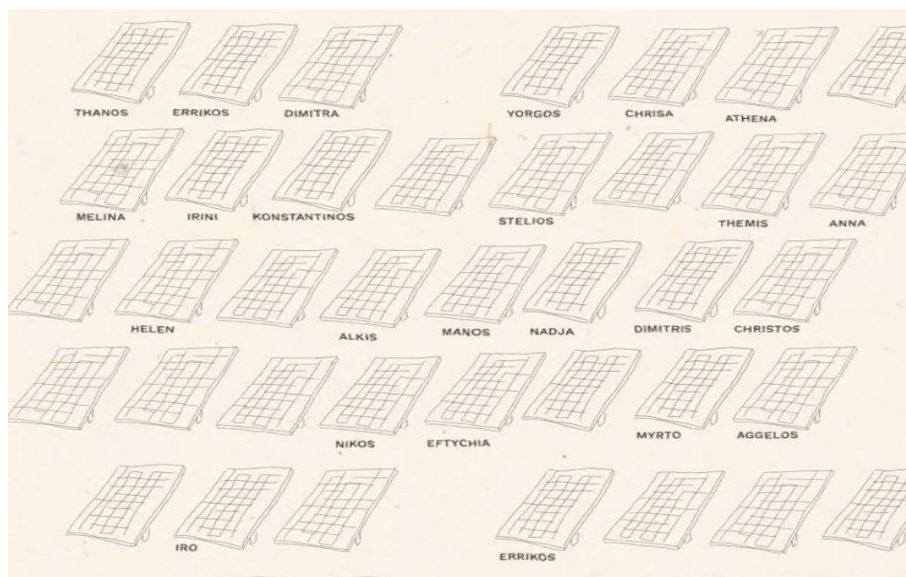
HYPERION
SOLAR COMMUNITY



ABOUT HYPERION

Hyperion is the first **virtual net-metering solar energy community** in Athens, Greece. Led by Electra Energy Cooperative, a Greek social enterprise, It is a grassroots initiative by citizens, movements and social oriented enterprises. It is aiming to tackle energy poverty and also support vulnerable communities, while to showcase a new energy-ownership model and help shift into a new societal paradigm. The first solar farm will be constructed in Thiva and will consist of a 60 kW solar PV park, and will power more than 20 homes and small businesses, generating more than 90.000 kWhs /year. Hyperion II will start licensing and grid applications during Q3 2021, and it will scale up to > 150 kW and it will target the participation of low income households and charity organizations.

Our aim is to use Hyperion as a guiding project to develop the skills, capacity and knowledge so as to replicate the project in other areas of Greece and potentially internationally. Hyperion is a non-profit Energy Community ([Law Gazette 4513/2018](#), Ministry of Energy and Environment, one of the first transpositions of the core “prosumer” articles in the Clean Energy Package). The purpose of Hyperion is the production, distribution and supply of Renewable Energy to its cooperative members, with special focus on the development of community based solar self-consumption schemes (collective-self-consumption).



Hyperion Energy Community

7, Olympionikon Street, Ilioupolis, Attica,
Greece Registration number: 155702401000



CURRENT SUPPORT SCHEME AND PPA MODEL

The business model combines two legal framework operational in Greece: **Ministerial Decision in Greece for Virtual Net-Metering (Government Gazette B759, 05/03/19) and 4513/2018 “Energy Communities”**:

- **4513/2018 Energy Communities**: the **new law on energy communities 4513/18’** was voted in the Greek Parliament in 2018: it defined the role of citizens in the energy sector, giving particular emphasis on the promotion of a **solidarity economy** and **fighting energy poverty**. The legal framework specifically defines that members of an **Energy Community (EKOIN)** are able to benefit from virtual solar PV parks upon a new Ministerial Decision for self-consumption by the Ministry of Environment.

- **B759, 05/03/19 Virtual net – metering (VNM)** is a bill-crediting system for **community solar energy**. It refers to when **solar energy is not used on-site** but is instead externally installed and shared among subscribers.

Article **16 of the B759 05/03/19** defines the content of the off-set agreement that the Greek law stipulates. The articles of the standard agreement can be found in english and greek [in this document](#); The financial model will operate under a **“pay as you save”** agreement between the members and the financial party (in this case a local bank). The project will test a subscription model with agreements to allow members to cover their share costs in the photovoltaic investment for a term and to pay as the power is periodically offsetting the energy bill.

ENERGY PRODUCTION

Annual solar yield has been calculated using **PVGIS data** for spots near Thiva ,estimated **at 1,550 kWhs** per year and kilowatt peak installed (1 kW = 1,550 kWhs/year, Thiva Regional unit, PVGIS data source). With an installed capacity of 60 kWp, it is estimated to have an annual production of 90,000 kWhs/year.



LAND AND PROPERTY

Thiva is located in Boeotia, Central Greece and it has a population of 36,000 citizens.

- **Available land, sites and cost:** there are several spots under consideration for hosting the PV park in the region of Thiva. Property prices are between **400 and 600 € per 1,000 m²** and the installation is estimated to occupy a surface of approximately **60-80 sqm for the first phase (600 kWps) and of 3,000-5,000 sqm for the second (300-500 kWps)**.
- **Access to the National Grid:** The sites under scope have overhead electricity lines running across the fields; it is proposed that the solar farm will be connected to this infrastructure.

EPC AND ENGINEERING

HeliosRes offers high quality services and products, acting as an integrator and “turn-key” service provider in the Greek solar market. The company’s customer-oriented philosophy, its experienced and skilled associates and its high quality services give it a competitive advantage. HeliosRes is a ISO 9001:2008 certificate for its services and has implemented more than 36MW of solar PV parks (from 10 kW to 2 MW) both commercial rooftop and ground mounted. HeliosRes also has installed more than 250 residential solar PV rooftop systems across Greece.

The 60 kW solar PV park will use 111 x TRINA SOLAR 540 W solar PV panels . The solar PV park will be connected to the HEDNO Low Voltage network via HUAWEI network inverters SUN2000-60KTL-M0.



SUBSCRIPTION MODEL

Estimated development+construction costs are on the basis of **1,000 €/ kW**. The business model is proposed for the first phase of Hyperion consisting of a collective solar-self-consumption community of 20 members and average 3 kWp share per member (**60 kWps**). Members participate in Hyperion by subscribing and buying a specific amount of shares in the cooperative. This share will be proportionally adapted to its annual electricity needs and there will be offered **different investment packages (1 kWp, 2kWps, 3 kWps, 10 kWps shares respectively)**. Overall costs (development, construction and financing) will be distributed to all members of the energy community and included in the business plan as a shared expense. **The development and EPC cost is estimated between €50,000 and €60,000 and it will be paid back from the performed savings and each member will perceive the annual discount in the energy bill according to the purchased investment. The 60 kW will annually produce 90,000 kWhs and will save 12,168 €/year (0.11€/kWh).**

Subscription categories:

- **CATEGORY G1:** Households, low income families and small business G1 < 5,000 kWhs/year: packages of **1 kW - 4 kW** shares;
- **CATEGORY G21:** Households and small business G21 < 50,000 kWhs/year: packages of above **5 kW - 15 kW** shares.

Hyperion Energy Community

7, Olympionikon Street, Ilioupolis, Attica,
Greece Registration number: 155702401000



CATEGORY G1: Households, low income families and small business G1 < 5,000 kWhs/year: packages of 1 kW - 4 kW shares:

Option 1: 8 years loan term with 30% upfront payment

Member ship option	Cost of the share	Upfront payment (30%)	Loan expenses 8 years 9% interest	O&M and management costs*	Annual gross savings - O&M (based on tariff 0.11€/kWh)*	Annual net savings (Gross - Loan - O&M)	Pay-Back
1 kWp (without loan)	1,000 €	1,000 €	0 €	- 20 €	142 €	142 €	7 years
2 kWp	2,000 €	600 €	-163 €	-40 €	288 €	121 €	7 years
3 kWp	3,000 €	900 €	-245 €	-60 €	426 €	180 €	7 years
4 kWp	4,000 €	1,200 €	-327 €	-80 €	570 €	343 €	7 years

Option 2: 5 years loan term with 60% upfront payment

Membership option	Cost of the share	Upfront payment (60%)	Loan expenses 5 years 9% interest	O&M and management costs*	Annual gross savings - O&M (based on tariff 0.11€/kWh)	Annual net savings (Gross - Loan - O&M)	Pay-Back
1 kWp (without loan)	1,000 €	1,000 €	0 €	-20 €	142 €	142 €	7 years
2 kWp	2,000 €	1,200 €	-174 €	-40 €	288 €	110 €	7 years

Hyperion Energy Community

7, Olympionikon Street, Ilioupolis, Attica,
Greece Registration number: 155702401000



3 kWp	3,000 €	1,800 €	-261 €	-60 €	426 €	165 €	7 years
4 kWp	4,000 €	2,400 €	-349 €	-80 €	570 €	221 €	7 years

* O&M and management costs include accounting and members help desk. It is estimated an annual cost of **1,500 €** to be contributed among Hyperion members. It is calculated based on the amount of shares owned by each member and at a standard cost of 20€ per kilowatt installed.

CATEGORY G21: Households and small business G21 < 50,000 kWh/year: packages of above 5 kW - 15 kW shares.

Scenario 1: 8 years loan term with 30% upfront payment

Membership option	Cost of the share	Upfront payment (30%)	Loan expenses/year (8 years, i=9%)	O&M and management costs	Annual gross savings - O&M (based on tariff 0.11€/kWh)*	Annual net savings (Gross - Loan - O&M)	Pay-Back
7 kWp	7,000 €	2,100 €	-667 €	140 €	995 €	468 €	7 years
10 kWp	10,000 €	3,000 €	-953 €	200 €	1,422 €	668 €	7 years
12 kWp	12,000 €	3,600 €	-1144 €	240 €	1,707 €	802 €	7 years
15 kWp	15,000 €	4,500 €	-1430 €	300 €	2,133 €	1003 €	7 years

Scenario 2: 5 years loan term with 60% upfront payment

Membership option	Cost of the share	Upfront payment (60%)	Loan expenses 5 years 9% interest	O&M and management costs	Annual gross savings - O&M (based on tariff 0.11€/kWh)	Annual net savings (Gross - Loan - O&M)	Pay-Back
7 kWp	7,000 €	4,200 €	-610 €	140 €	1,135 €	525 €	7 years

Hyperion Energy Community

7, Olympionikon Street, Ilioupolis, Attica,
Greece Registration number: 155702401000



10 kWp	10,000 €	6,000 €	-872 €	200 €	1,622 €	750 €	7 years
12 kWp	12,000 €	7,200 €	-1046 €	240 €	1,947 €	900 €	7 years
15 kWp	15,000 €	9,000 €	-1308€	300 €	2,433 €	1126 €	7 years

* O&M and management costs include accounting and members help desk. It is estimated an annual cost of **1,500 €** to be contributed among Hyperion members. It is calculated based on the amount of shares owned by each member and at a standard cost of 20€ per kilowatt installed

FREQUENTLY ASKED QUESTIONS

1) How to join Hyperion? Any member can join by just filling and signing a declaration of responsibility. Members must read and express conformity to the articles of association of Hyperion (*legal statutes can be found [in this link](#)*)

2) What are my obligations? Hyperion is defined under the Greek law as a non-profit civil cooperative. This means that non-distribution of profits is allowed among its members, so no declaration to the tax authorities is required for a member. As a member of the General Assembly of a civil cooperative under 4513/2018, it is obligatory to attend annual General Assemblies and to participate in the voting of the cooperative directors every three years. In addition, every member has the right and obligation to be informed of its cooperatives activities and periodical reporting, balances and decisions.

3) What do I do in case of resigning? Subscriptions are transferable by law. Any member with the intention to leave the energy community will notify the board 3 months to the contract termination. Once the notification is received, you will get your upfront paid money back.

Hyperion Energy Community

7, Olympionikon Street, Ilioupolis, Attica,
Greece Registration number: 155702401000



4) Do I need to change my utility company? All members of Hyperion must be subscribed to the same utility company. Hyperion has contracted with the energy retailer **Heron Thermoelectric SA**. Members must change their utility supplier in order to participate in Hyperion.

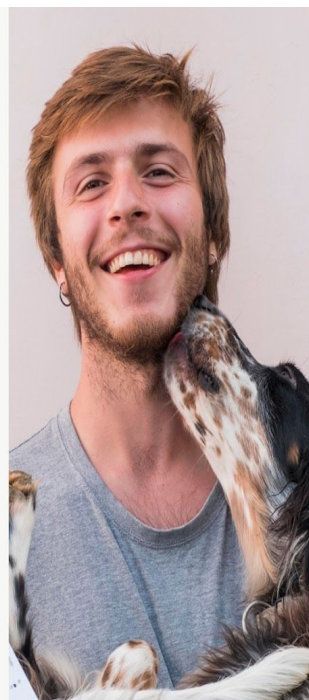
5) How is the solar production off-setted in my energy bill? HEDNO (Hellenic Distribution National Operator) will meter the PV production and report the utility company. Meantime, HEDNO also measures household's consumption and sends this information to the utility company. The utility company issues two different invoices, one for the households consumption and one for the production. Hyperion members will receive credit discounts according to the surplus of PV produced in comparison to the monthly consumption.

6) How much can I save in my energy bill by joining Hyperion? Households can save up to **€0,11/kilowatt hour**. A household consuming **4,500 kWh/year** can save up to **€450/year** by participating in Hyperion with a 3 kW subscription.

7) What about maintenance and breakdown costs? As any other electricity device, PV modules and inverters companies cover in case of malfunction. The EPC company also provides annual maintenance which cost is distributed among Hyperion members.

Hyperion Energy Community

7, Olympionikon Street, Ilioupolis, Attica,
Greece Registration number: 155702401000



Hyperion Energy Community

7, Olympionikon Street, Ilioupolis, Attica,
Greece Registration number: 155702401000

electraenergy.coop/hyperion

genervest.org/hyperion-energy-community

Hyperion Energy Community

7, Olympionikon Street, Ilioupolis, Attica,
Greece Registration number: 155702401000

HYPERION
SOLAR COMMUNITY