



FRATELLO SOLE
FOUNDATION

Vatican to green

**The Fratello Sole Foundation for an agrivoltaic plant
in the extraterritorial area of Santa Maria di Galeria**





“We must shift from collecting data to caring; and from environmental discourse to an ecological conversion that transforms both personal and communal lifestyles”.

(Address of Pope Leo XIV to the participants in the “Raising Hope” Conference marking the tenth anniversary of the Encyclical *Laudato Si’*, Mariapolis International Center, Wednesday, 1 October 2025)

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OUR COMMITMENT TO A BETTER WORLD

With the *Motu Proprio Fratello Sole*, published on June 21, 2024, Pope Francis launched a fundamental step in the Church's commitment to safeguarding Creation: the construction of an innovative agrivoltaic plant in the territory of Santa Maria di Galeria, near Rome, the historic home of Vatican Radio's antennas. This project, called Vatican to Green, combines solar energy production and agriculture as a model of sustainable economic development.

With the same *Motu Proprio*, the Holy Father entrusted us—in our respective roles as President of the Governorate of Vatican City State and President of the Administration of the Patrimony of the Apostolic See—with the task of building this agrivoltaic plant, which will not only provide electricity to the existing radio station but also completely provide for the Holy See's energy needs.

From the very beginning of his Pontificate, Pope Leo XIV has followed in the footsteps of Pope Francis. Not only

did he visit the extraterritorial area of Santa Maria di Galeria on Thursday, 19 June 2025, but on 1 June 2026 he also established the *Fratello Sole* Foundation, with the aim of constructing and managing the agrivoltaic plant, including its financial management.

The document you are now reading describes this project, which was particularly close to Pope Francis' heart. The project is not only ecological, but also represents the realization of the vision that both Popes have shared with humanity since the beginning of their pontificates: a sustainable economy that combines respect for the Earth with the needs of economic and social development. This agrivoltaic plant will be a concrete example of how it is possible to produce renewable energy while protecting and cultivating the land in the best possible way. Pope Leo XIV has emphasized that *Vatican to Green* aims to be “a sign of hope for the future,” demonstrating that energy production and agriculture can coexist without compromising

the environment. Thanks in part to your support this is the commitment that we wish to pursue.

We hope to count you among the supporters of this initiative. Join us in this project promoted by the Pope for a greener and more sustainable future. With your contribution, Vatican to Green will also become—we are certain—a source of inspiration for all those who believe in the creation of a better world where renewable energy and sustainable agriculture can be combined to promote the common good.

Sr. Raffaella Petrini, F.S.E.

President Fratello Sole Foundation

Archbishop Giordano Piccinotti, S.D.B.

Vice President Fratello Sole Foundation



INTRODUCTION

PAPAL COMMITMENT FOR THE EARTH

How will we leave the Earth to future generations? This urgent question has been at the heart of Pope Francis' commitment since the beginning of his pontificate. The Holy Father has invited us to reflect on our role as stewards of Creation, asking us whether we are truly caring for the Earth or whether, instead, we are behaving like greedy consumers of the resources entrusted to us. His ecological vision is a call to action for every individual, every family, and every community to become aware of the seriousness of the ongoing environmental crisis.

Pope Francis had placed at the center of his mission the urgency of a radical change in our relationship with the environment. He called for the implementation of an economic model that considers not only profit but also sustainability and social justice. The Pontiff has repeatedly emphasized that environmental protection cannot

be separated from the fight against the economic and social inequalities that afflict our world. Natural resources, in fact, are a gift that we are all called to protect. His message is clear: it is urgent to rethink development models and adopt an attitude of global solidarity, where the well-being of future generations is placed at the center of economic and political choices.

From the very beginning of his Pontificate, Pope Leo XIV has made the protection of our common home and the care of creation a priority. He has called for ecological responsibility and stressed the need for an integral transformation towards more virtuous ways of life, explaining that creation springs from the goodness of God and that every creature bears within itself a reflection of His glory. Sadly, in our time, this glory is wounded by irresponsible choices, and it is not only creation that suffers: the poor suffer with it.



In his Encyclical *Magnifica Humanitas*, on safeguarding the human person in the age of artificial intelligence, Leo XIV emphasized that protecting the environment is a social priority and an imperative commitment: “Care for our common home and responsibility towards the poor and future generations require that the use of the goods of creation and the new possibilities offered by technology be regulated in such a way as to respect the environment, prevent waste and avoid new forms of exploitation.”

Likewise, in his Message for the Tenth World Day of Prayer for the Care of Creation, on 1 September 2025, the Pontiff reiterated the need for imme-

diolate action, since environmental justice “can no longer be regarded as an abstract concept or a distant goal. It represents an urgent necessity that goes beyond simply protecting the environment. It is, in fact, a matter of social, economic and anthropological justice.” This is all the more true for believers, since it is “a theological imperative.” Indeed, it is necessary to recognize that “in a world where the most vulnerable are the first to suffer the devastating effects of climate change, deforestation and pollution, care for creation becomes a matter of faith and humanity.”

a. LAUDATO SI' AND THE GLOBAL COMMITMENT TO THE ENVIRONMENT

The year 2015 saw the publication of *Laudato Si'*, the encyclical that marks a turning point in the Church's reflection on the environment. With the subtitle *On Care for Our Common Home*, Pope Francis offered a radical vision of our relationship with the Earth, which can no longer be understood as an infinite resource to be exploited, but as a home to be cared for. The Pope warned that the "cry of the Earth" is united with the "cry of

the poor," highlighting how ecological degradation affects first and foremost the most vulnerable, who are also the least responsible for the crisis. Climate change and the destruction of biodiversity are phenomena that not only threaten the environment but also endanger the lives of millions of people, especially those living in poverty.

In *Laudato Si'*, Pope Francis reiterated that ecology is not a technical or scientific issue separate from



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other global challenges, but a moral and spiritual issue. The destruction of nature challenges our consciences, calling humanity to the need for an “ecological conversion” that will lead to a change in our daily habits, economic policies, consumption, and our relationship with other living beings. Pope Francis also made a strong international appeal, supporting the Paris Agreement on climate change (COP21) in 2015. This agreement represented a fundamental step towards limiting the rise in global temperature and promoting eco-sustainable development policies.



On 6 July 2022, Archbishop Gabriele Giordano Caccia, Permanent Observer to the United Nations for the Holy See, **deposited with the United Nations Secretariat the instrument by which the Holy See, in the name and on behalf of Vatican City State, acceded to the 1992 United Nations Framework Convention on Climate Change (UNFCCC).** In accordance with the legal requirements established by the 2015 Paris Agreement, the Holy See, in the name and on behalf of Vatican City State, also deposited its instrument of accession to the latter.

Through these instruments of accession, the Holy See, in the name and on behalf of Vatican City State, sought to contribute to and lend its moral support to the efforts of all States to cooperate, in accordance with their common but differentiated responsibilities and respective capabilities, **in providing an effective and appropriate response to the challenges that climate change poses to humanity and to our common home.**

The ratification of the United Nations Framework Convention on Climate Change and the Paris Agreement represents a **bridge between environmental policies and the guidance and recommendations of the Holy Father.**

In keeping with the teachings of the Magisterium, **Vatican City State is among the first countries in the world to pursue sustainability projects, seeking innovative and sustainable solutions that will help transform working practices while safeguarding our common home.** This commitment includes the implementation of projects that, also through the use of reliable and environmentally friendly technologies, make it possible to concretely reduce the impact of human activity on the environment.

In particular, Vatican City State has committed itself to achieving climate neutrality through the responsible use of natural resources; the implementation of projects aimed at improving energy efficiency and upgrading its technological assets; sustainable mobility; the diversification and procurement of cleaner or alternative energy products for transport; waste management; and the development of concrete future reforestation projects.

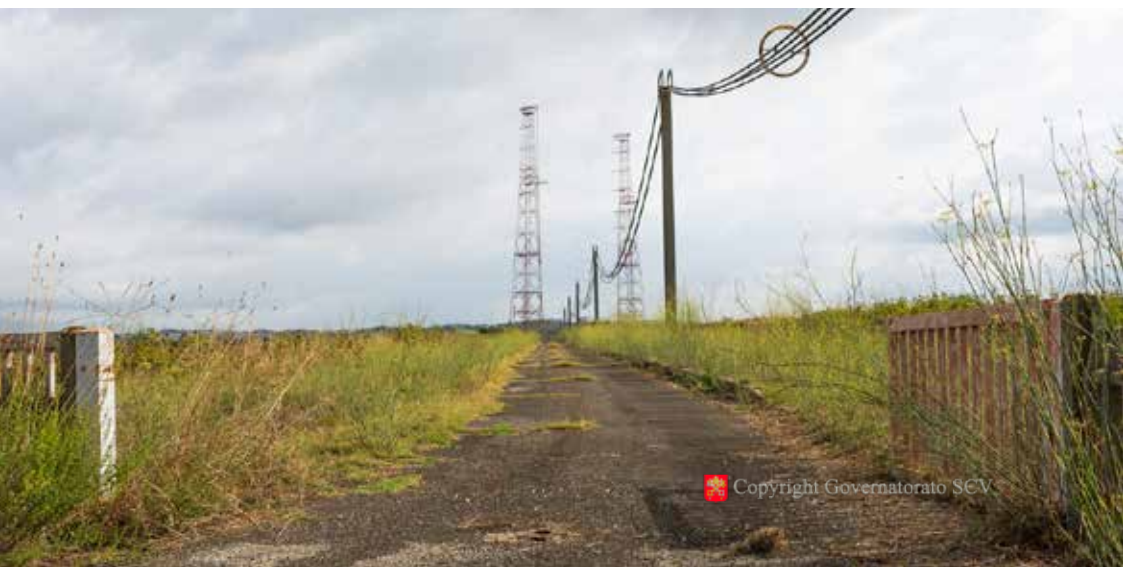
For this reason, in November 2023, the Governorate launched a sustainable mobility development program known as **“Ecological Conversion 2030”**, designed, among other objectives, to reduce the CO₂ footprint of its vehicle fleet.

c. LAUDATE DEUM AND COP28: A CALL TO CONCRETE ACTION

In 2023, a few months before COP28 in Dubai, Pope Francis published *Laudate Deum*, an Apostolic Exhortation that follows in the footsteps of *Laudato Si'*, with an even stronger emphasis on the urgency of responding to climate change. The Pope renewed his call for a paradigm shift in global economic policies, urging world leaders not to give in to the temptation of pessimism, but to keep alive the hope that it is possible to reverse course by acting decisively. The ecological crisis, says the Pope, is an epochal challenge that requires everyone's commitment: "We cannot

wait any longer to respond decisively to the serious threats that await us."

In *Laudate Deum*, Francis calls for concrete action that is no longer limited to political discussion, but takes the form of coherent and urgent environmental policies capable of effectively addressing the climate crisis. The Pope has called on the international community to recognize that climate change is linked to all other forms of global inequality, such as forced migration and growing poverty, and that the response must be global, supportive, and inclusive.



d. FRATELLO SOLE: A GREEN AND SUSTAINABLE VATICAN

In 2024, Pope Francis launched an important project by publishing the *Motu Proprio Fratello Sole* [Brother Sun], which marks a concrete step towards the creation of a green Vatican. The project aims to combine renewable energy production with sustainable agriculture. In the zone of Santa Maria di Galeria, in the Roman countryside, an agrivoltaic plant will be built, combining the use of solar panels with agriculture, creating an innovative model of clean energy and sustainable land use.

During his pontificate, Pope Francis has therefore charted an innovative and courageous ecological path, involving everyone, from world leaders to individual citizens, in the commitment to protect the planet. With *Laudato Si'*, *Laudate Deum*, and now with the *Motu Proprio Fratello Sole*,

the Pope has launched a global appeal that goes beyond environmental protection to embrace broader social and cultural change. With the agrivoltaic plant in Santa Maria di Galeria, Pope Francis shows us a concrete model for implementing a change in mentality, which views the Earth as a gift to be cherished, rather than as a resource to be exploited. The *Vatican to Green* project is a tangible example that this change is possible. It is the realization of what Francis has witnessed and preached during his years as Pope. Protecting Creation and promoting economic development are not contradictory, but can go hand in hand. The agrivoltaic plant created with *Fratello Sole* is a concrete sign of hope for a better future, where the Earth will be protected and valued as the common heritage of all humanity.

e. THE MILESTONES OF THE AGREEMENT WITH THE ITALIAN REPUBLIC

On Thursday, 19 June 2025, Pope Leo XIV visited Santa Maria di Galeria, the extraterritorial area where the shortwave Radio Centre of Vatican Radio, part of the Dicastery for Communication, is located. The visit also provided an opportunity to inspect the extraterritorial area, whose status dates back to agreements concluded with the Italian Government in 1951 and where, pursuant to the Motu Proprio Fratello Sole, a project for an agrivoltaic plant is currently under consideration.

A further step towards the construction of an agrivoltaic plant at Santa Maria di Galeria was taken on Thursday, 31 July 2025, at 12 noon, when an Agreement between the Holy See and the Italian Republic was signed at Palazzo Borromeo, the seat of the Embassy of Italy to the Holy See in Rome. The Agreement was signed, on behalf of the Holy See, by Archbishop Paul Richard Gallagher, Secretary for Relations with States and International Organizations, and, on behalf of Italy,

by Ambassador Francesco Di Nitto, Italy's representative to the Holy See.

The Agreement, which bears witness to the excellent state of relations between Italy and the Holy See, updates the existing commitments between the two Parties, taking into account advances in science and technology in the field of renewable energy. It was concluded within the framework of the shared commitments undertaken under the United Nations Framework Convention on Climate Change (New York, 1992) and the Paris Agreement (2015).

On Wednesday, 7 January, the Senate of the Italian Republic approved the bill concerning the ratification and implementation of the Agreement between Italy and the Holy See for an agrivoltaic plant at Santa Maria di Galeria, signed in Rome on 31 July 2025. This marked a further step towards the construction of what will be an agrivoltaic plant designed to generate renewable electricity for the Vatican City State.



By a Chirograph dated 1 June 2026, Pope Leo XIV established the *Fratello Sole* Foundation and approved its Statutes. As the Pope writes in the Chirograph, “The Foundation represents a sign of hope for the future and an example of how energy production and agriculture can be reconciled while respecting and protecting the environment, in accordance with the principles of environmental sustainability and care for our common home set forth in the Encyclical *Laudato Si’*, the Apostolic Exhortation *Laudate Deum*, the Motu Proprio *Fratello Sole* and, more generally, in the Church’s social Magisterium.”

The Chirograph states: “The Foundation shall have its registered office in Vatican City State and shall carry out its full operational activities in the extraterritorial area of Santa Maria di Galeria. I hereby establish that this Entity shall be governed by its own Statutes, which I simultaneously approve and which are promulgated by means of this Chirograph. For the first three-year term, I appoint the President of the Governorate of Vatican City State and the President of the Administration of the Patrimony of the Apostolic See as President and Vice President, respectively, conferring upon the afo-

rementioned persons the powers provided for in the Statutes.”

Furthermore, the Foundation “pursues objectives in the public interest in the fields of energy sustainability, environmental protection, and the responsible use of natural and agricultural resources, in accordance with the principles of the Church’s social doctrine, as well as with the guidelines set forth in the Encyclical *Laudato si’*, the Apostolic Exhortation *Laudate Deum*, and the Motu Proprio *Fratello Sole* of 21 June 2024.”

It “shall provide for the construction and management, including financial management, both directly and indirectly, of the agrivoltaic plant to be established pursuant to Article 1 of the Agreement between the Holy See and the Italian Republic concerning an agrivoltaic plant at Santa Maria di Galeria, dated 31 July 2025 (the ‘Agreement’), which, for this purpose, shall be entrusted to it by the Administration of the Patrimony of the Apostolic See.”

For the first three-year term, the Pontiff appointed the President of the Governorate of Vatican City State and the President of the Administration of the Patrimony of the Apostolic See [APSA] as President and Vice President, respectively.



1. FRATELLO SOLE for a CARBON- FREE VATICAN





The “Vatican to Green” project, which originated with the Motu Proprio *Fratello Sole* [Brother Sun] signed by Pope Francis, launches the construction of an agrivoltaic plant for the production of solar electricity, with the aim of ensuring **the Holy See’s energy independence and achieving carbon neutrality, i.e., a reduction in CO₂ emissions to zero**. The plant, which will use advanced technologies such as high-efficiency bifacial photovoltaic panels and solar trackers, is designed to **produce approximately 203 GWh of energy per year, enough to cover the needs of Vatican City and the Holy See**. In other words, the plant will not only meet internal energy needs but will also contribute to achieving the historic goal of a *carbon-free Vatican*, making it one of the first carbon-neutral states in the world. The project also envisages that part of the energy produced by the plant will be donated to meet the energy needs of civil and social structures in the surrounding area, particularly in the municipality of Cesano.

The project, which integrates perfectly with the agricultural activities **of the Santa Maria di Galeria** estate, is a concrete example of how renewable energy can be used in an innovative way without compromising the surrounding environment. The area occupied by the plant will be approximately 53 hectares (an area equivalent to more than 50 soccer fields), equal to 14% of the total area (historically home to Vatican Radio antennas) of 370 hectares, thus offering a balance between green energy production and the protection of existing agricultural crops.

In line with Pope Francis’ *encyclical Laudato si’*, which calls for care for our common home and a reduction in the impact of human activities on the environment, the ‘Vatican to Green’ project represents an important step towards a more sustainable and environmentally friendly future. Through the implementation of this major project, it gives concrete form to the commitment to **energy sustainability** that is one of the central themes of

Pope Francis' pontificate.

The project therefore marks a major step on the path towards a **carbon-free Vatican**. Thanks to the use of solar energy, the plant will contribute significantly to reducing greenhouse gas emissions, making the Holy See an example of environmental responsibility for the whole world. The adoption of this ecological initiative not only supports energy self-sufficiency and generates significant economic savings for the Holy See's budget, but also represents a strong commitment to the fight for a **carbon-neutral** future.

With the completion of the plant, the Vatican will become even more **of a benchmark for renewable energy**, demonstrating how modern technologies can be at the service of sustainability and integral ecology, key themes of *Laudato si'* and the Motu Proprio *Fratello Sole*. This project is not only a technological challenge, but a concrete act of care and responsibility towards Creation. It is a project that underscores the Holy See's fun-

damental role in promoting environmental protection and the development of a sustainable economy.

At the same time, the project will also safeguard the Holy See's communications heritage thanks to **the Santa Maria di Galeria Transmission Center**, inaugurated in 1957 by Pius XII in the area where "*Vatican to Green*" will be built. Today, this is a fundamental infrastructure for Vatican Radio broadcasts, with the aim of spreading the Pope's word throughout the world. Over the years, the Center has evolved its technologies, including a satellite reception system with C and Ku band dishes, and a fiber optic connection between the Center and the Master Control Room in the Vatican. The Datacenter, equipped with high security and protected power supply, manages backups and services in collaboration with international providers. The center is a reference point for the global transmission of Vatican communications.



2. RESPECT and ENHANCEMENT of the TERRITORY



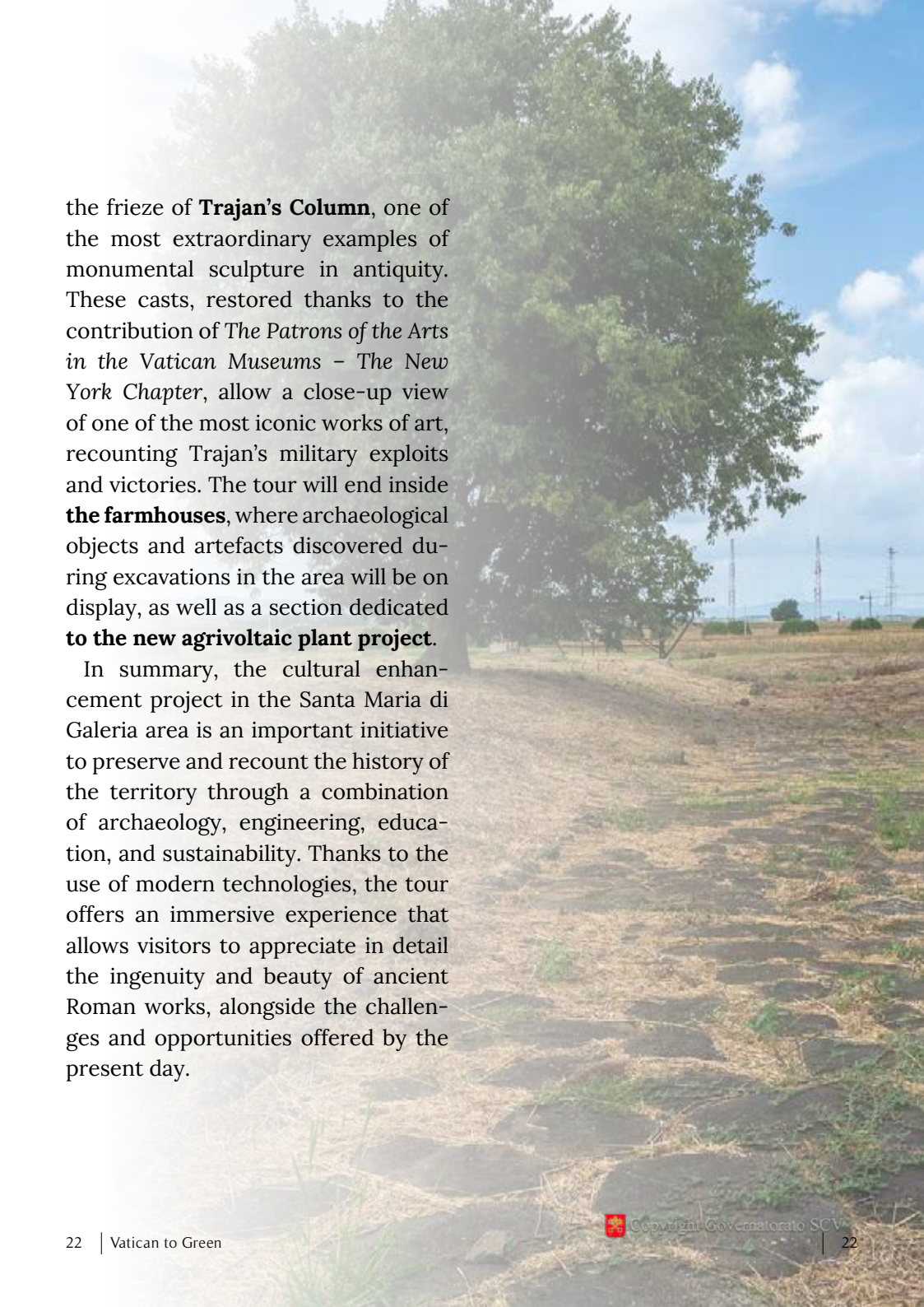
Not just energy and the environment. The “*Vatican to Green*” project also includes an important historic enhancement of the extraterritorial area of Santa Maria di Galeria, with the aim of creating an educational itinerary that allows visitors to explore the rich archaeological heritage spanning a wide time frame, from Roman times to the 17th century. The itinerary begins at **Via Clodia**, an extraordinarily well-preserved Roman road that was one of the fundamental elements of the ancient Roman road network, connecting the capital with northern Etruria. Along this 166-meter stretch of road, the marks left by passing carts are still visible, as are the basalt curbs and vertical stones, which testify to the accuracy with which the pavement was laid.

Along the route, visitors will have the opportunity to discover the **mansio di Careiae**, an ancient Roman rest station located at the 15th mile of the Via Clodia, which served as a resting place for travelers and a place to change horses. Excavations conducted by the Vatican Museums Directorate have brought to light a complex structure with buildings arranged around a central courtyard. Among the most significant

remains are the **stabula**, the stables where horses were kept. The historical importance of Careiae is confirmed by its presence on **the Tabula Peutingeriana**, a map of the ancient Roman world, which documents the vital role of this post station along one of the empire’s main communication routes.

The route continues to the **remains of the Trajan-Pauline aqueduct**, one of the most impressive hydraulic engineering works of ancient Rome. The aqueduct, which was rebuilt in the 17th century by Pope Paul V to supply the city with drinking water, crosses the **Galeria ditch** with the **Arcacci** section, which extends for about 400 meters and rises to a height of 15 meters. Here, visitors can appreciate not only the grandeur of the masonry arches, but also the historical and technical context that allowed for the construction of this infrastructure, under the supervision of the architect **Apollodorus of Damascus**, a key figure during the reign of Emperor Trajan. The aqueduct still supplies about 200 liters of water per second, mainly for the needs of Vatican City State.

In the third stage of the tour, visitors can admire the white cement casts of



the frieze of **Trajan's Column**, one of the most extraordinary examples of monumental sculpture in antiquity. These casts, restored thanks to the contribution of *The Patrons of the Arts in the Vatican Museums – The New York Chapter*, allow a close-up view of one of the most iconic works of art, recounting Trajan's military exploits and victories. The tour will end inside **the farmhouses**, where archaeological objects and artefacts discovered during excavations in the area will be on display, as well as a section dedicated **to the new agrivoltaic plant project**.

In summary, the cultural enhancement project in the Santa Maria di Galeria area is an important initiative to preserve and recount the history of the territory through a combination of archaeology, engineering, education, and sustainability. Thanks to the use of modern technologies, the tour offers an immersive experience that allows visitors to appreciate in detail the ingenuity and beauty of ancient Roman works, alongside the challenges and opportunities offered by the present day.



3. TECHNOLOGY at the SERVICE of BROTHER SUN

The “*Vatican to Green*” project would not be possible without the use of the most advanced technologies in the field of solar energy. The Santa Maria di Galeria agrivoltaic plant will stand out for its use of innovative solutions developed to maximize energy efficiency and optimize the use of available natural resources. The technology behind this plant includes bifacial photovoltaic panels, solar tracking systems (trackers), and latest-generation inverters, each of which contributes to making the plant a model of innovation and sustainability worldwide.

Bifacial photovoltaic panels are one of the project’s main technological achievements. These panels are capable of capturing sunlight from both sides: the front surface, which receives direct sunlight, and the rear surface, which exploits the reflection of light from the ground or surrounding structures. This double exposure increases the efficiency of the system, allowing for an increase in energy

production of up to 25% more than traditional single-sided photovoltaic panels. In addition, these panels are particularly suitable for agricultural environments, as they allow crops to be maintained underneath without damaging them or hindering their growth.

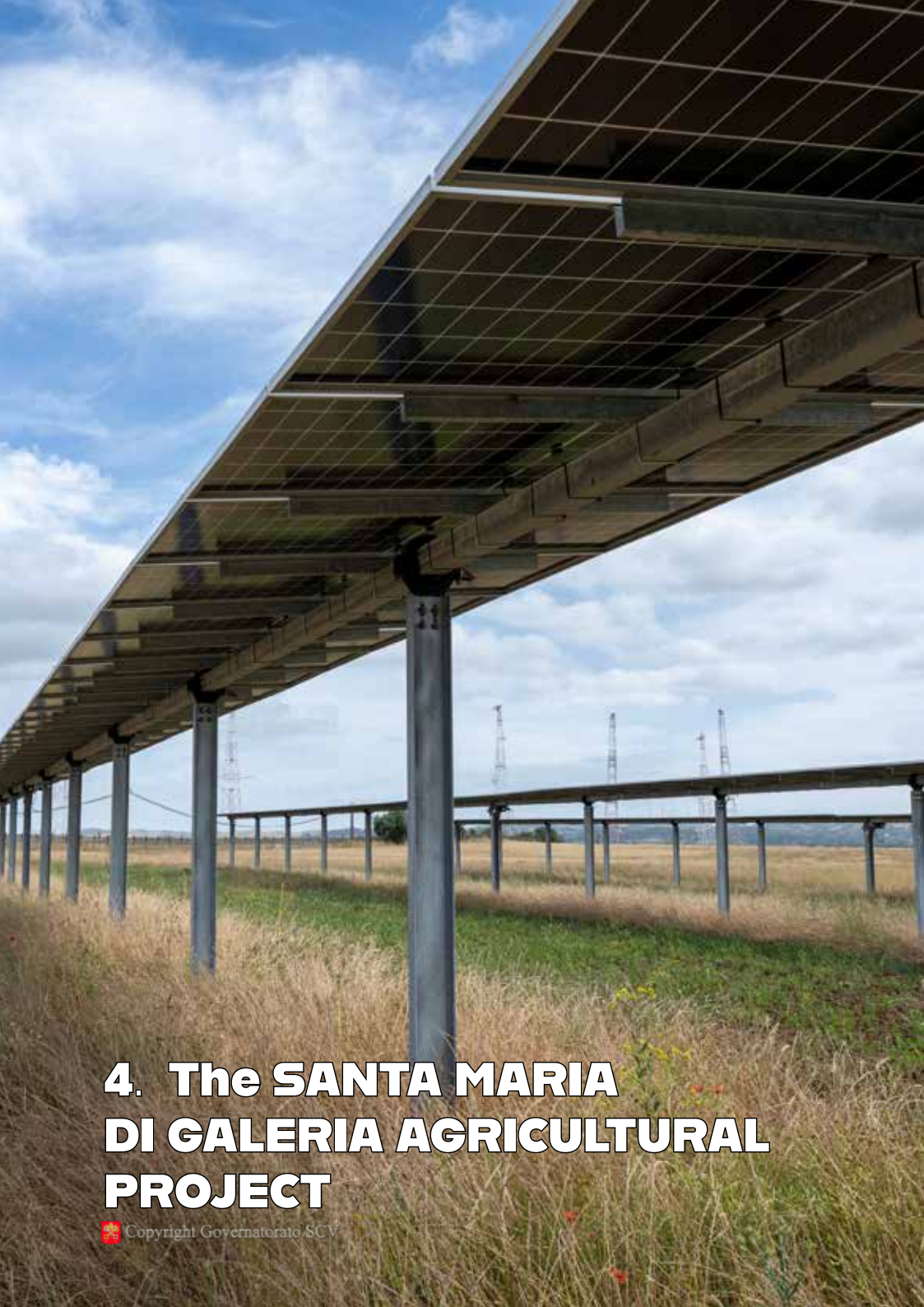
To further maximize energy production, the photovoltaic panels are mounted on **trackers**, i.e., single-axis solar “trackers,” which automatically orient the modules following the movement of the sun throughout the day. This tracking system allows the panels to maintain an optimal angle to the sun’s rays throughout the day, improving the efficiency of the photovoltaic system compared to fixed ones. The trackers are designed to be lightweight and easily adaptable to different climatic and geographical conditions, minimizing energy losses caused by suboptimal panel orientation.

Once the solar energy is captured by the panels, it is converted into direct current (DC) and then transformed



into alternating current (AC) by **inverters**. In the case of the “Vatican to Green” project, the system involves the use of 18 inverter cabinets, each with a power rating of 6,250 kVA. Inverters are devices that ensure efficient and reliable conversion of solar energy, allowing it to be fed into the electricity grid in a safe and stable manner. Thanks to their advanced technology, these devices are able to manage power fluctuations and ensure continuous energy production, even in conditions of variable solar radiation.

Finally, the system for distributing the energy produced by the plant is designed to maximize efficiency and reduce losses. The energy converted into alternating current is transported through a system of underground conduits, which connect the plant’s substation to the Vatican Radio Electrical Substation, where the energy will be adjusted for integration into the national grid. The transformation of energy in the switching station will ensure safe and reliable electricity transmission.



4. The SANTA MARIA DI GALERIA AGRICULTURAL PROJECT



The Santa Maria di Galeria agrivoltaic plant also stands out for its innovative and sustainable agricultural project. Agrivoltaics combines the cultivation of agricultural crops and the production of electricity through solar panels, without taking away space from cultivated fields. On the contrary, it further enhances the land thanks to advanced technologies that respect the environment and the climate. Projects of this type have been multiplying in recent years, offering a great opportunity: to reconcile the challenges of agriculture and sustainable development, thanks to renewable energy.

Agrivoltaics is an innovative and sustainable solution that can increase land use efficiency and agricultural productivity. This method offers multiple benefits for both farmers and the environment. First and foremost, it is a **bulwark against climate change**. Every year, countless crops are damaged by hailstorms or extreme temperatures.

Among the main advantages of agrivoltaic systems, the reduction of the carbon footprint ranks first. Another important advantage is **soil conservation**. In fact, solar panels, installed 2.5 meters above the ground, provide shade, reducing erosion and maintaining soil fertility and moisture. Another key benefit is **water conservation**. The presence of solar panels reduces water evaporation from the soil, a crucial advantage in arid regions or during periods of drought. In this sense, irrigation systems can be integrated to maximize efficiency. **Reduced insurance costs** should also be considered. The panels protect crops from the elements, reducing insurance costs for farmers. The Santa Maria di Galeria agrivoltaic plant represents a significant breakthrough for the agricultural sector, promoting greater sustainability and offering new economic and environmental benefits.

The implementation of the “Vatican to Green” project will allow agricultural activities to continue on approxi-

mately 370 hectares of arable land. Thanks to the installation of photovoltaic trackers, which shade the land and reduce water evaporation in the summer, it will be possible to maintain conventional cultivation, with a particular focus on the current production of seeds for the reproduction of clover, durum wheat, Senatore Cappelli varieties, malting barley, and oats, crops for which moderate shading has almost no impact on yields.

The increase in the production of field beans for livestock feed should also be considered, as this crop benefits from shading in terms of increased yields. At the same time, the possibility of new innovative crops that could be adopted to ensure the coexistence of agricultural production and electricity generation is being explored. In fact, more and more farmers are cho-

osing to grow certain fruits, herbs, or flowers under solar panels, which act as a kind of umbrella over the crops, and it is entirely possible to hang hail nets from them.

Among the innovative crops, safflower for the production of bioplastics is of particular interest. But also the installation of super-intensive cultivation systems, such as olive groves, vineyards, and almond orchards. Or the cultivation of red fruits, such as currants, raspberries, blackberries, and strawberries.

For this reason, the agrivoltaic project in Santa Maria di Galeria represents a cutting-edge solution that combines agriculture and energy sustainability, offering new opportunities for the agricultural and environmental sectors.





5. The ECONOMIC and ENERGY DIMENSIONS



The ‘Vatican to Green’ agrivoltaic project is an innovative environmental and technological undertaking, as well as a project of great economic importance in terms of feasibility, sustainability, and circularity.

The initial investment costs around €90 million for a 119 MWp plant. The cost includes photovoltaic panels, all support structures, connections to the national grid, and the redesign of agricultural crops. Operating and maintenance costs must also be added: around €1.2 million per year to keep the plant and crops efficient, productive, and safe.

The Santa Maria di Galeria agrivoltaic plant will guarantee the production of approximately 202 GWh of green electricity per year, enough to power the entire Vatican City and some related facilities such as the Bambino Gesù Pediatric Hospital, in addition to agricultural production that can also be used in the same facilities. The total energy requirements of the Vatican and the Holy See are estimated at approximately

160 GWh per year. **Part of the green energy produced will be donated to public service facilities and entities in the municipality of Cesano**, near where the plant is located.

Vatican to Green will also bring economic benefits: it will be a stable source of income over time and will improve local agricultural production. Naturally, once the initial investment has been recouped, it will lead to overall economic savings with a significant reduction in costs for the Vatican.

As already pointed out earlier in this document, in line with Pope Francis’ request in his *motu proprio Fratello Sole*, the results will also be particularly appreciable from an environmental point of view. Once fully operational, the plant will **reduce emissions by approximately 132,000 tons of CO₂ and 343 tons of NOx per year**, equivalent to 2.2 million trees planted or approximately 2,000 hectares of forest (a wooded area the size of 3,000 soccer fields).



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