



How to stay cool in summer

A COLLECTION OF SOLUTIONS



Raising summer energy poverty awareness
to reduce cooling needs

Coordination and support action
Call H2020-LC-SC3-EC-2-2020: Mitigating household energy poverty

Please cite as:

Ludueña , Camila Andrea; Torrego Gómez, Daniel; San Nicolás Vargas, Patricia; Gayoso, Marta; Nuñez Peiró, Miguel; Barbero, Maria del Mar; Neila González, Javier and Sánchez-Guevara Sánchez, Carmen. (2022) *How to stay cool in summer. A collection of solutions*. Cooltorise Project. Universidad Politécnica de Madrid.

© COOLtoRISE Consortium, 2022

This deliverable contains original unpublished work except where clearly indicated otherwise. Acknowledgment of previously published material and of the work of others has been made through appropriate citation, quotation or both. Reproduction is authorised provided the source is acknowledged.

Editor(s): Universidad Politécnica de Madrid
Responsible Partner: Universidad Politécnica de Madrid
Status-Version: Final version
Distribution level (PU, CO): Public

Project Number: 101032823
Project Title: Cooltorise. Raising summer energy poverty awareness to reduce cooling needs

Title of Deliverable: Repository of different levels of solutions
Due Date of Delivery to the EC: 31/05/2022

Work package responsible for the Deliverable: Universidad Politécnica de Madrid

Editor(s): Universidad Politécnica de Madrid

Contributor(s): Asociación Bienestar y Desarrollo, Ecoserveis, AISFOR SRL, Municipality of Parma, CSEG, Municipality of Peshtera, ViLabs.

Abstract: The study aims to provide knowledge on the improvement of thermal comfort conditions in households in a situation of summer energy poverty by creating a repository of low-cost strategies.

Keyword List: Summer Energy Poverty · Passive cooling strategies · Repository · Energy bills



Index

1.	EXECUTIVE SUMMARY	1
2.	INTRODUCTION	3
3.	METHODOLOGY	7
4.	CLIMATIC CONTEXT	9
4.1.	PASSIVE STRATEGIES	9
4.2.	PASSIVE STRATEGIES FOR EACH LOCATION	11
4.2.1.	SPAIN	11
•	MADRID	12
•	BARCELONA	16
4.2.2.	GREECE	20
•	THESSALONIKI	20
4.2.3.	ITALY	24
•	PARMA	25
4.2.4.	BULGARIA	29
•	PESHTERA	30
•	PAZARDZHIK	30
•	IVAYLO	30
4.3.	SUMMARY OF STRATEGIES	34
5.	REPOSITORY OF SOLUTIONS	37
5.1.	USAGE PATTERNS	38
5.1.1.	PERSONAL BEHAVIOUR	39
5.1.2.	USAGE PATTERNS	39
5.2.	PASSIVE MEASURES	39
5.2.1.	URBAN LEVEL	39
5.2.2.	BUILDING LEVEL	40
5.2.3.	HOUSING LEVEL	40
5.3.	ACTIVE MEASURES	40
5.3.1.	CONSUMPTION PATTERNS	41
6.	ENERGY BILLS	73
•	BULGARIA	75
•	GREECE	89
•	SPAIN	125
•	ITALY	149
7.	CONCLUSIONS	165
8.	REFERENCES	167

1. Executive Summary

This document is part of the work developed in the framework of the COOLTORISE project 'Raising summer energy poverty awareness to reduce cooling needs' funded by the European Commission within its Horizon 2020 program under the theme LC-SC3-EC-2-2018-2019-2020 Mitigating Housing Energy Poverty.

It consists of a repository of solutions to improve heat response and comfort conditions during the summer season. These solutions focus on low-cost passive strategies that can be implemented at different scales, from behavioural changes to building and urban interventions.

At the beginning of the document, the climatic context of the five pilot locations involved in the project (Barcelona, Madrid, Parma, Pazardzhik-Peshtera and Thessaloniki) is given. This is then linked with each one of the solutions included in this repository and, to help guide the reader along the document, these solutions are categorized into three large groups:

Usage patterns. The solutions listed in this category belong to the level of actions related to personal physical well-being to avoid heat stress due to exposure to high temperatures. These include some general recommendations such as staying hydrated or wearing light clothing, and other actions related to dwelling usage patterns such as natural ventilation or solar protection.

Passive strategies. These actions were divided into three levels, housing, building, and urban. In this section, actions related to the intervention on building envelopes at both housing and community level can be found, given the link between indoor and outdoor ambientes during summer; on the other hand, a list of low-cost solutions that could be applied in urban environments were developed with the aim of reducing overheating and improving urban thermal comfort.

Active measures. This group of solutions focus both on consumption patterns to reduce energy consumption and, on the interpretation of household utility bills (electricity, water supply, and natural gas). Since this information varies significantly among countries, it is presented individually for each one of the pilot locations.

KEYWORDS

Summer Energy Poverty · Passive cooling strategies · Repository · Energy bills

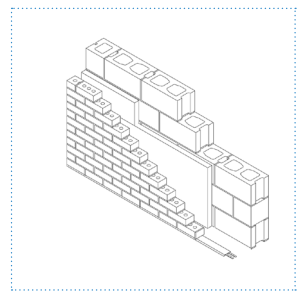
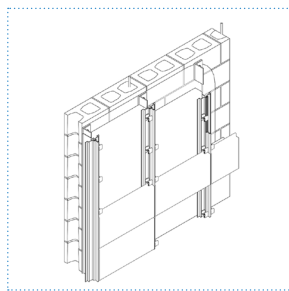
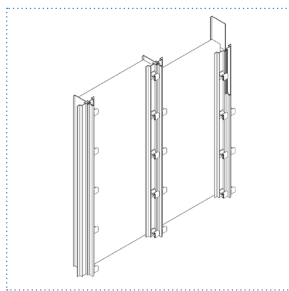
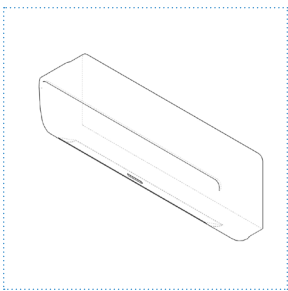
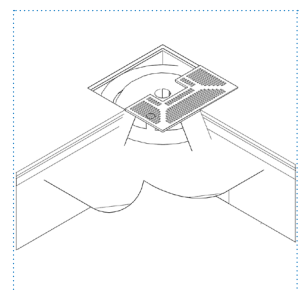
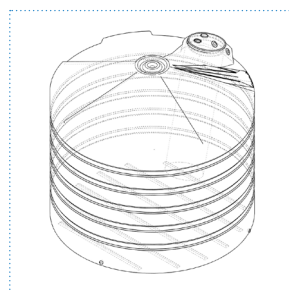
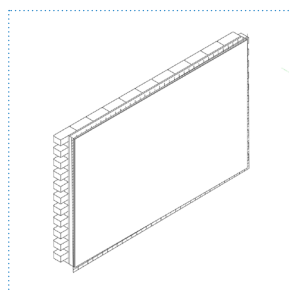
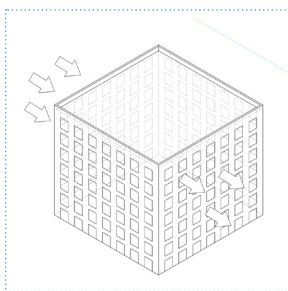
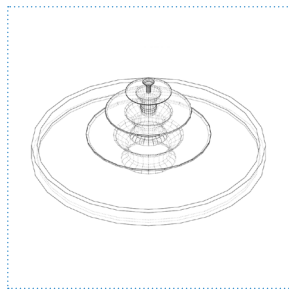
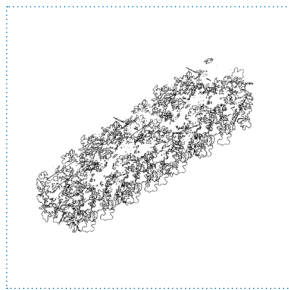
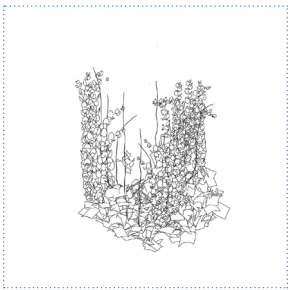
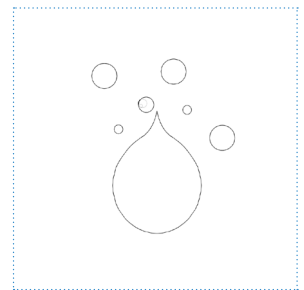
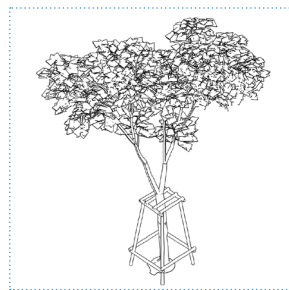
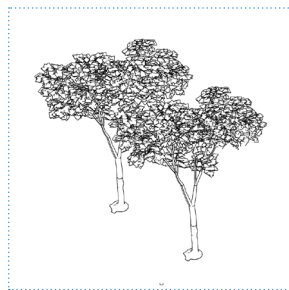
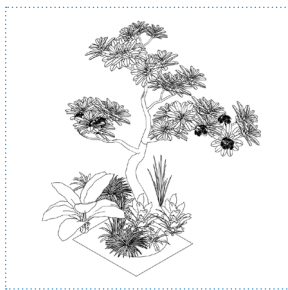
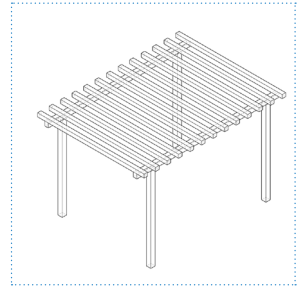
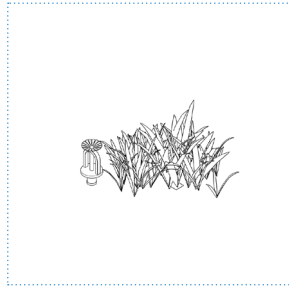
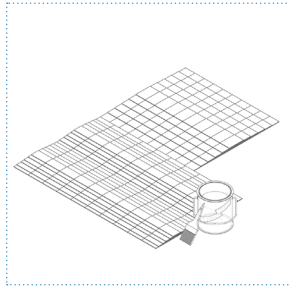
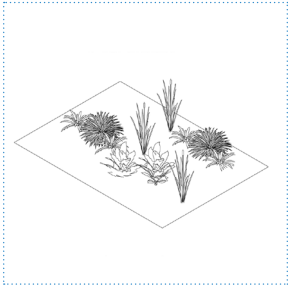
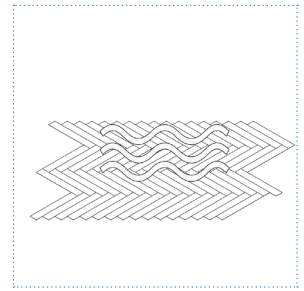
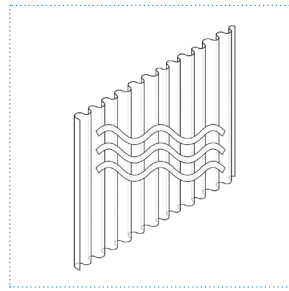
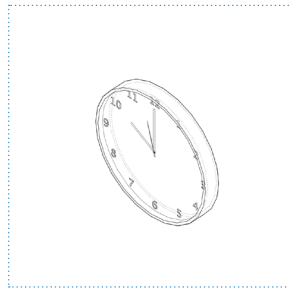
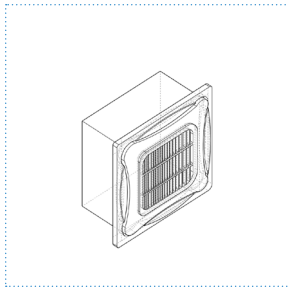
2. Introduction

Recent IPCC reports on the nature of climate change and its impacts on society strengthen the evidence pointing not only to increased exposure to heat extremes, but also to a greater impact on the most vulnerable people and communities (IPCC 2021, 2022). In cities, this situation is accentuated by greater economic and social polarisation, as well as by the superposition of climatic phenomena specific to urban environments, such as urban heat islands. In this context, the exposure scenario for households in energy poverty increases the risk of suffering impacts due to extreme temperatures, not only at the health level, but also socially, economically, and educationally.

Considering integral energy retrofitting as the most efficient strategy in terms of reducing exposure and vulnerability conditions in relation to energy poverty, it is also the action with the most complex access due to the required level of economic investment, time and agreements between different stakeholders. While in many countries there is public support for this type of actions, it still requires long-term planning and investment that not all households can afford.

In this context, this study proposes the creation of a freely accessible repository to provide households and stakeholders with a series of strategies aimed at reducing the lack of thermal comfort at different levels that can be applied individually or collectively, and among all are low-cost and quick to implement.

Some of the strategies proposed in this study might require a certain level of technical specialisation. Thus, each of these are qualitatively detailed, but it is generally recommended to ask for further information and technical advice to be able to analyze each case in depth, especially in terms of its physical and cultural environment.



3. Methodology

The methodology applied for the development of the '**Repository of different levels of solutions**' has consisted of a series of analytical actions that take into account the general objectives of the study. First, a general climatic contextualization has been carried out for each case study, focusing on the knowledge of passive strategies following the Givoni climogram. As a conclusion of this assessment, a summary table has been obtained in which it is possible to visualise the appropriate strategies to be used during high temperature season for each locality involved in the project.

Although it is known that the most efficient way to improve indoor comfort conditions in households consists of the integral rehabilitation of buildings and that the improvement of urban comfort conditions consists in the implementation of long-term multivariable intervention plans, it is important to develop tools to generate awareness and knowledge about the types of actions that exist at different scales to reduce the impacts of energy poverty and vulnerability.

These levels have been exemplified in this study to select a series of low-cost strategies which have been qualitatively described in three main categories, usage patterns, passive measures, and active measures. Within the passive measures, housing, building and urban strategies have been described, resulting in a wide and varied repository of easily applicable strategies for different stakeholders.

As a result of this selection and subsequent categorisation, individual cards have been produced for each strategy, providing important information to be taken into account for the implementation of the strategy. It should be noted that, as the project is focused on summer energy poverty, the proposed actions are focused on the summer period and therefore will not include the winter season.

Last but not least, an information guide on basic household services (electricity, natural gas and water supply) has been carried out together with the institutions participating in the project, which consists of contextualising the operation of the markets for each of the countries involved, analysing in detail the bill information, and finally providing essential information regarding households energy right.

Givoni diagram

Psychrometric diagrams are often used to determine which strategies should be applied according to the climatic conditions of a location. These diagrams are graphical representations of the thermodynamic properties of humid air. Two of the most commonly used diagrams are the Olgay diagram for outdoor spaces and the Givoni diagram for indoor comfort conditions.

In this study, the use of Givoni’s bioclimatic chart, which is represented based on a psychrometric diagram, will be applied. Givoni proposes a bioclimatic chart in which the abscissa axis represents the dry bulb temperatures, the ordinates represent the partial tension of water steam contained in the air, and the curved, psychrometric lines represent the relative humidity (%). Above the 100% maximum humidity line, the temperature of the wet bulb is shown.

In the graph (figure 1), the comfort zone is delimited between 21 and 26 °C with a margin of adaptable comfort that expands between 20 and 27 °C (Neila González, 2004). Relative humidity values that delimit this zone are between 75-80% and 20%. These comfort areas are surrounded by zones that represent different strategies according to the ranges of air temperature and relative humidity. When the average temperatures for each month are overlapping in different zones, it may be necessary to use more than one strategy for thermal comfort at the same time.

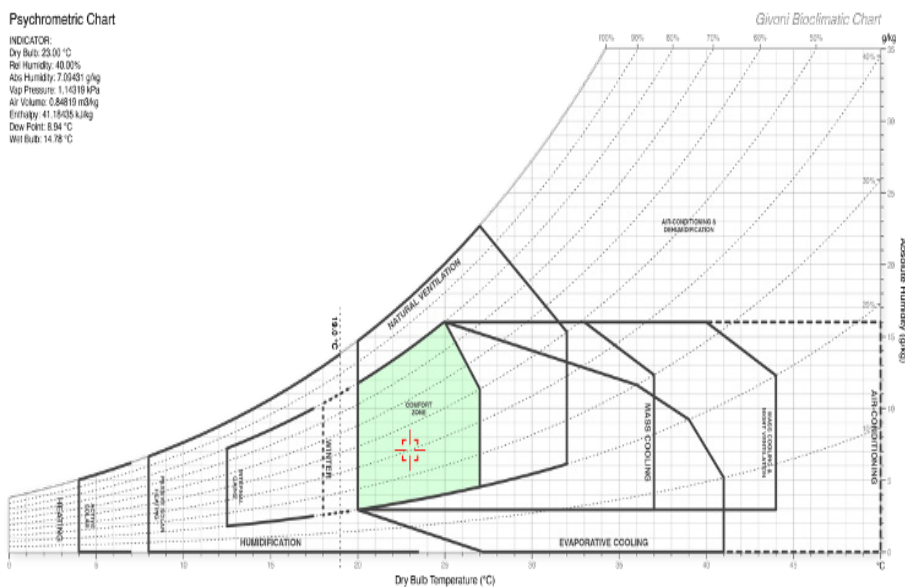


FIGURE 1 GIVONI'S BIOCLIMATIC CHART. SOURCE: [HTTP:// ANDREWMARSH.COM](http://andrewmarsh.com)

4. Climate context

In the following section, a description of the climatic characteristics of each of the localities participating in the project will be given. This is one of the fundamental pillars when it comes to establishing solutions to improve thermal comfort in summer and thus tackle energy poverty.

In section 4.1, from a general approach, the existing passive strategies for summer will be presented, describing their function and the reason for their application. Then, for each of the locations, a brief climatic description will be given together with the specification of the applicable passive summer strategies for each of the described climates. Finally, section 4. concludes with a summary of the passive strategies where the information collected for each of the locations is compiled.

4.1. Passive strategies

Passive strategies are those guidelines that contribute to better adaptation to the local climate and help to improve the well-being of indoor spaces reducing dependence on active installations (e.g., air-conditioning equipment). They may vary from one climate to another and also according to the season of the year. Consequently, strategies can be grouped according to hygrothermal needs, either for cooling or heating. Although there are several passive strategies that respond to different variables, they can be combined and several of them can be applied simultaneously to achieve better results in alleviating the effect of heat.

A differentiation has also been made between those passive strategies that have a permanent character since it is not possible to determine when they are used and when they are not (for example, the use of thermal mass cooling, since the mass of the building is permanent, so it is not possible to modify it on a daily basis), and others that are more customizable since they allow us to apply them when necessary (for example, the use of natural ventilation, since we can determine when to open the windows).

The following section will focus on those strategies that respond to the need for cooling and can therefore be applied in the summer time of the year. However, it is necessary to know the climate where we are in order to

determine which of these strategies to apply and the degree of necessity of each of them.

General description of Summer Passive Strategies

Solar protection (permanent)

Under this strategy, the use of elements that help to reduce or block solar radiation is considered. In this way, we avoid the increase of the temperature inside the house, as well as the accumulation of heat in constructive elements that release it afterwards. The protection elements can be fixed or mobile (e.g., blinds, overhangs, windows with solar control glass, etc.) Vegetation can also be used to protect from the sun. Trees with dense foliage are very useful for this purpose. Another form of protection is the use of light colours on building facades or floors, although they do not prevent or block direct sunlight, they absorb less solar radiation than dark colours.

Natural ventilation (customizable)

Ventilation has several applications, as it can be applied to eliminate overheating and to reduce the sensation of heat. There are various forms of ventilation, the best known of which is cross ventilation, in which windows located on different sides of the house must be opened to move the air. For the use of this strategy, the temperature of the outside air is important, since if it is too hot, the effect will be the opposite. Night ventilation can be used in environments where the air is cool. In humid climates, there is usually not much difference between daytime and night-time temperatures, so there is little justification for its use.

Mass cooling - Inertia (permanent)

Thermal inertia is the ability of buildings to store heat during the hottest hours of the day and gradually release it, thus preventing overheating inside the building. This strategy is ideal for use in locations where the temperature difference between day and night is high. The material of the elements is also important, as their characteristics will determine whether they will have greater or lesser thermal inertia.

Evaporative cooling (customizable)

As the name implies, this type of cooling is achieved by evaporating water. To achieve this, energy is needed, so that when water evaporates, the ambient temperature is reduced because the heat energy has been used. Ideally, sprayed water evaporates better than water that is stagnant. Vegetation contributes to this type of cooling through the internal processes by which it evaporates water through its leaves, reducing the temperature of the plant itself and its immediate surroundings. One of the major limitations of this strategy is that a dry environment is required and the water to be evaporated must be exposed to air currents.

Dehumidification (customizable)

Humidity plays an important role in the thermal sensation. That is, on days with the same temperature, we can have a greater or lesser sensation of heat depending on the humidity present in the environment. In climates with hot summers and high relative humidity, it is advisable to dehumidify the environment. In these cases, the ideal is not to exceed 65% relative humidity.

4.2. Passive strategies for each location

Due to the diversity of climates in the localities where the project is being developed, it is necessary to specify for each of them the passive strategies to be applied. Therefore, for each locality, information on the characteristics of its climate and a psychrometric diagram showing the passive strategies for that locality are included. For this purpose, EPW (EnergyPlus weather) climate files containing hourly data from 2007-2021 were used. These files were downloaded from the Climate One Building database. Then, for the visualisation of these climate data, the web-based software www.andrewmarsh.com/software was used, which are the graphs accompanying the climate analysis.

These climate files, however, do not have precipitation data, therefore such information was downloaded from climate-data.org which uses data from ECMWF (European Centre for Medium-Range Weather Forecasts), collected in a series between 1999 and 2019. It should also be noted that no data was found in this Iwaylo database for Bulgaria, so this information is not included in the climate analysis.

In addition to their visualisation in graphs for a better understanding of the climate, these same data were used to generate Givoni psychrometric diagrams in order to determine the passive strategies associated for each location.

4.2.1. Spain

In Spain, Madrid and Barcelona are the localities participating in the project. Their climatic characteristics are different due to their geographical situations. A brief description of each is given below:

Madrid is a city located in the central part of the Iberian Peninsula at latitude $40^{\circ} 24' 59.4''N$, at 609 metres above sea level. Near to the Guadarrama mountain chain to the southeast and in the western part of the Tagus basin. According to the Köppen climate classification, its climate has characteristics of cold steppe, with dry summers and cold

winters and also influenced by a continental climate due to the large thermal oscillation.

Barcelona is located at latitude 41° 22' 57 «N, at 5 metres above sea level. Situated at the north-east coast of the Mediterranean Sea and 120 km south of the Pyrenees mountain chain. To the northwest is the Collserola mountain range, and it has two rivers, the Besós river to the northeast and the Llobregat river to the southwest. According to the Köppen climate classification, it has a Mediterranean climate with maritime influences. The geographical area is also a transition zone to the humid subtropical climate, since although it is influenced by the Mediterranean climate where summers are hot and dry, in Barcelona they are hot and humid.

The following section shows detailed summer climate and passive strategy information for the cities of Madrid and Barcelona.

● Madrid

The climate in Madrid has hot summers, with monthly average values between 22°C (June) and 27°C (July). The thermal oscillation is large, with a daily temperature difference between 15-20°C. In addition, daily peaks exceeding 37°C are observed, and the minimum temperatures in the hottest month (July) do not drop below 14°C.

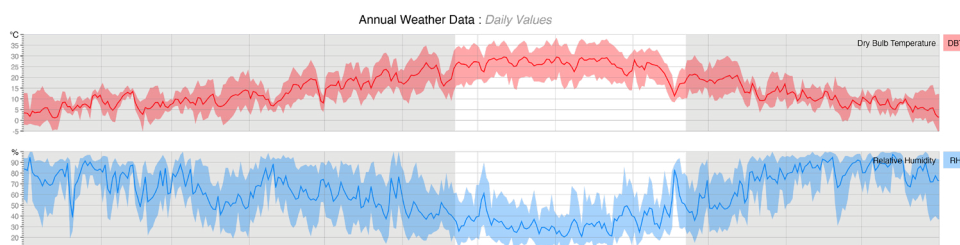


FIGURE 2. TEMPERATURE AND RELATIVE HUMIDITY ANNUAL DATA, MADRID.

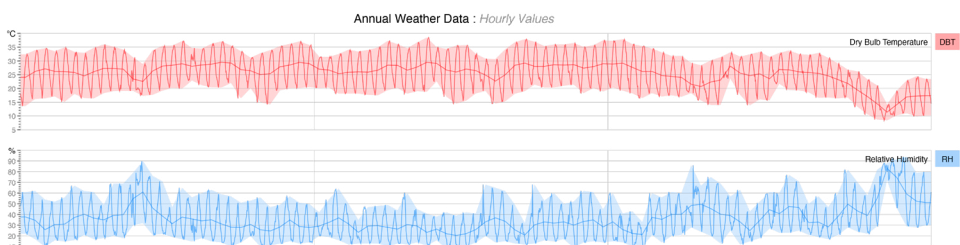


FIGURE 3. TEMPERATURE AND RELATIVE HUMIDITY SUMMER DATA, MADRID.

Global horizontal solar radiation in Madrid shows maximum average hourly values in June, exceeding 320 Wh/m². This figure decreases, and in July it tends to be below 300 Wh/m² and in August it is around 250 Wh/m². By the end of September the values are below 200 Wh/m².

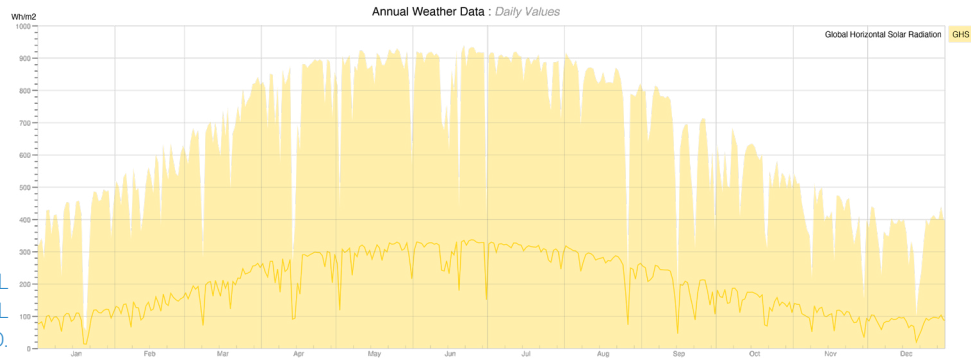


FIGURE 4. GLOBAL HORIZONTAL RADIATION, MADRID.

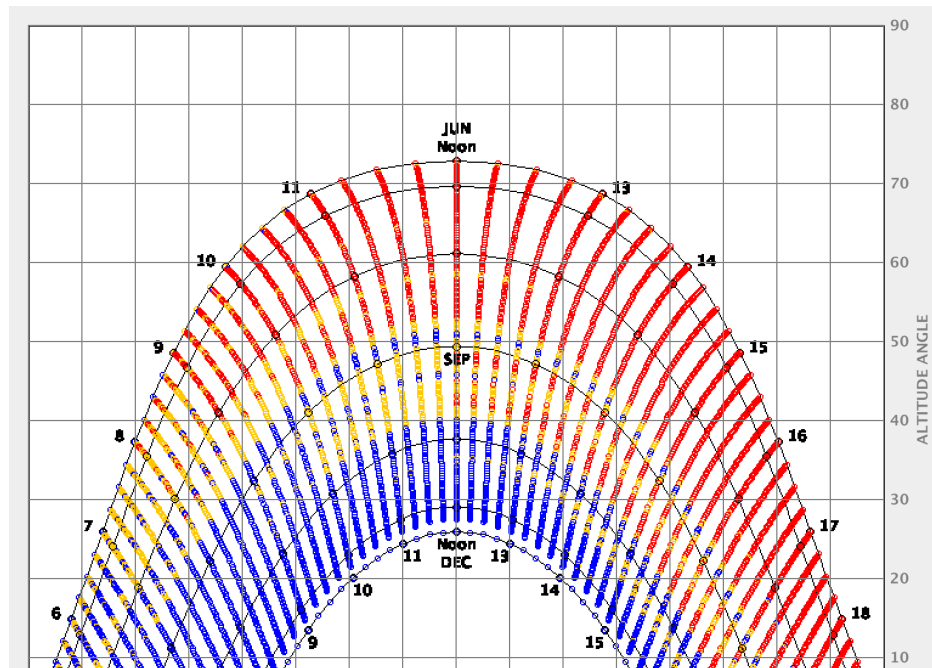


FIGURE 5. SUN SHADING CHART, MADRID. CLIMATE CONSULTANT.

As for sun protection, it will be necessary in June, July and August from 10 hours to 19 hours. In September, it is not necessary to protect from solar radiation from 10 hours to 6 hours.

Relative humidity during the summer months is low. The lowest average monthly value is found in August with 31%, followed by July with 33%. The lowest relative humidity values coincide with the highest temperatures, with values even below 20% at 16 hrs during July and August.

FIGURE 7. TEMPERATURE, RELATIVE HUMIDITY, WIND DIRECTION AND WIND SPEED MONTHLY AVERAGE DATA, MADRID.

MADRID	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT	OCT	NOV	DEC
Temperature (C°)	5	7	9	12	18	22	27	26	21	15	9	6
HR (%)	77	70	60	67	58	40	33	31	47	65	84	83
Wind direction	350	230	0	220	0	0	10	0	0	350	350	350
Wind speed (m/s)	2	4	2	3	2	3	2	2	2	2	1	1

Precipitation in the city of Madrid is quite scarce during the summer months, with August being the driest month with a monthly average of 8 mm. The highest amount of rainfall is during the autumn months, with an average monthly rainfall of 61 mm from October onwards.

MADRID	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT	OCT	NOV	DEC
Precipitation (mm)	41	34	40	47	39	16	23	8	22	61	55	46

FIGURE 8. AVERAGE MONTHLY PRECIPITATION, MADRID.

As for the time periods in thermal comfort (Figure 9), in June there are between 9 hrs and midday, and then from 21 hrs to midnight. Thus, most of the daytime hours are above the comfort zone, and in the early hours of the morning, the minimum temperatures are also below the comfort zone. A similar situation is observed for the months of July and August, with the difference that the hours outside the comfort zone increase from

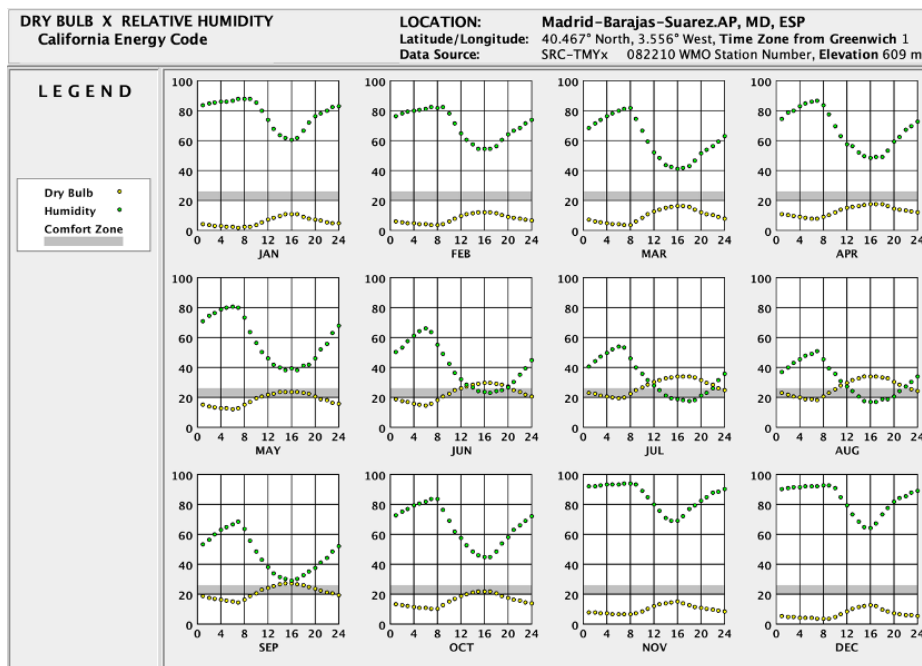


FIGURE 9. DRY BULB TEMPERATURE AND RELATIVE HUMIDITY MONTHLY AVERAGE HOURLY DATA, MADRID, CLIMATE CONSULTANT.

10 hrs to approximately 22 hrs.

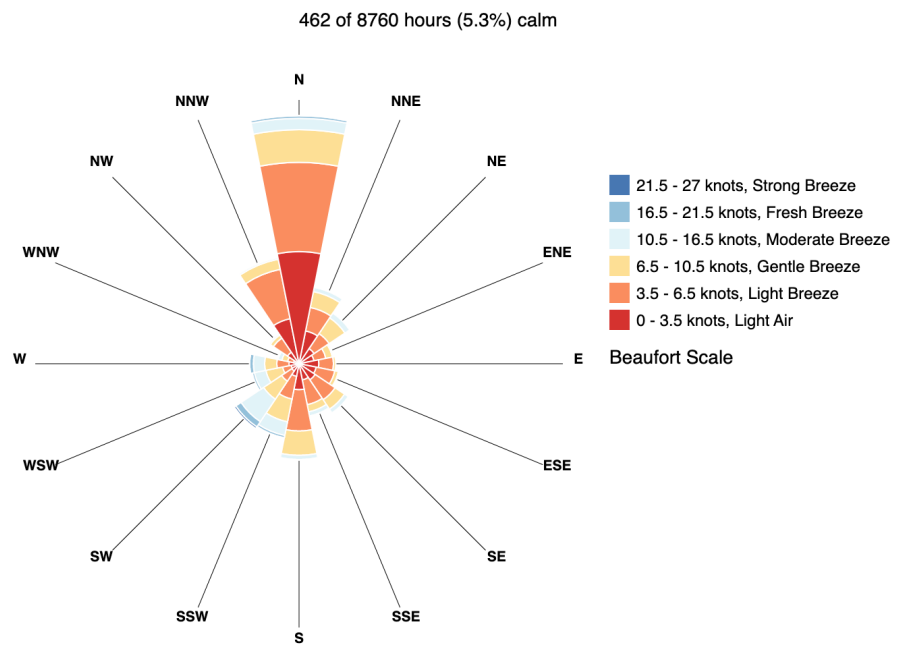


FIGURE 10. WIND SPEED AND DIRECTION, MADRID.

The wind in Madrid in the summer season, from June to September, has a northerly direction, and has low speeds classified according to the Beaufort scale as light breeze.

Madrid – Passive strategies

Once the characteristics of the locality have been identified, together with the climatic data, they are then charted within the Givoni diagram to identify the passive strategies for summer applicable in Madrid. According to the data obtained from Climate Consultant, during the summer months 30% of the total hours are spent in comfort, however, for the remaining 70% of the time passive strategies need to be implemented. The percentage of hours over the total needed to be in comfort is not exclusive for the same passive strategy. This means that during the same hours, it may be necessary to apply one or more strategies. Below is a list of these strategies with the percentage of hours in which their application is useful to reach comfort:

Evaporative cooling (39,5%)

Mass cooling (39,5%)

Solar protection (31,5%)

Natural ventilation (15,4%)

As can be seen, evaporative cooling will be the main strategy to be implemented. Mass cooling also proves to be a beneficial strategy in summer and can be used in combination with night ventilation when temperatures drop sufficiently to achieve a cooling effect. Sunscreens

will also be necessary, mainly during times of high solar radiation incidence.

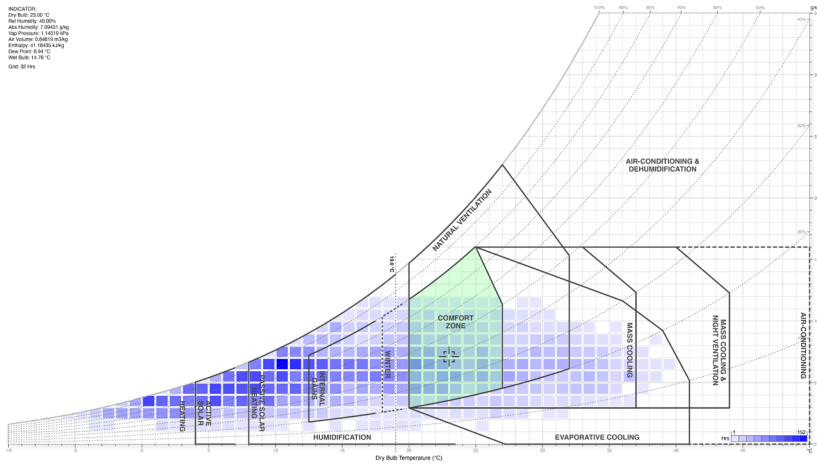


FIGURE 11. GIVONI DIAGRAM, MADRID.

● Barcelona

Barcelona’s climate presents hot summers with average temperatures of between 22°C (June) and a maximum of 25°C during the months of July and August. Peak temperatures exceed 32°C and minimum temperatures do not usually fall below 18°C. These are also characterized by high levels of relative humidity, with an average minimum of 65% in June and 70-71% for the months of July and August. Figure X shows that in the hottest months, the minimum relative humidity values occur between 9 hrs and 16 hrs, coinciding with the hours when the highest temperatures of the day are observed.

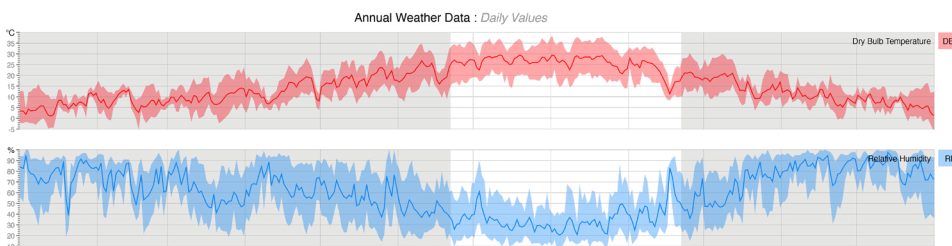


FIGURE 12. TEMPERATURE AND RELATIVE HUMIDITY ANNUAL DATA, BARCELONA.

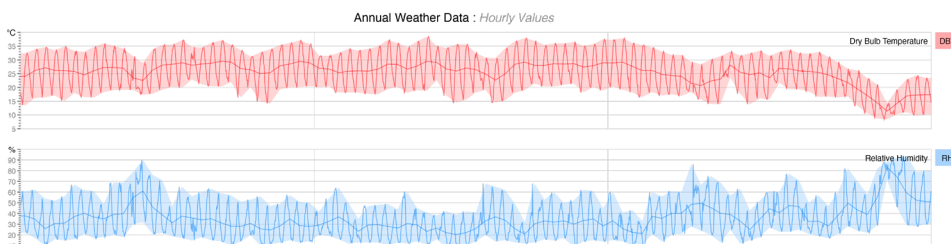
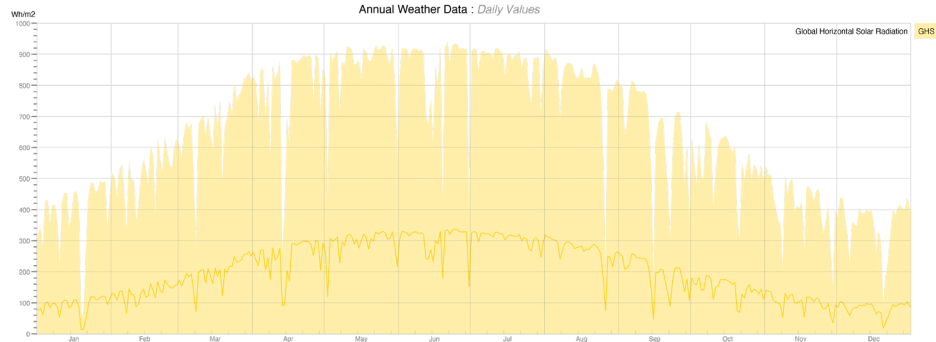


FIGURE 13. TEMPERATURE AND RELATIVE HUMIDITY SUMMER DATA, BARCELONA.

FIGURE 14. GLOBAL HORIZONTAL RADIATION, BARCELONA.



In Barcelona, global horizontal solar radiation values do not exceed 320 Wh/m2 (June) and their variation is between 110-300 Wh/m2 until August.

In June, sun protection can help to improve comfort conditions, especially from 11 hrs onwards. In July, on the other hand, sun protection is necessary between 9-19 hours. In August, between 10-18:30 hrs and in September, protection against solar radiation is no primarily necessary, although if it is used it could improve comfort conditions.

FIGURE 15. SUN SHADING CHART, BARCELONA. CLIMATE CONSULTANT.

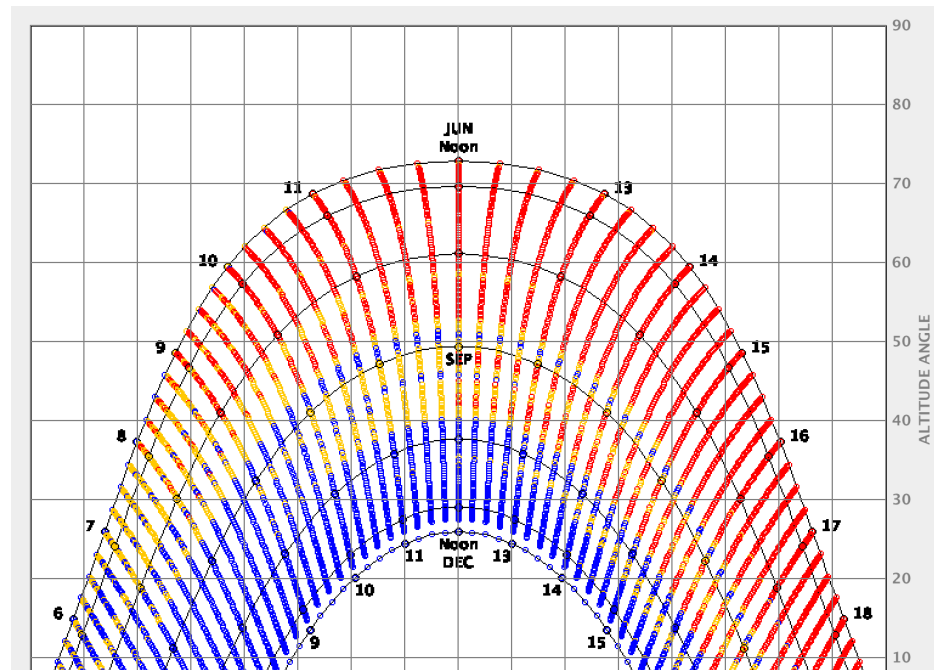


FIGURE 16. TEMPERATURE, RELATIVE HUMIDITY, WIND DIRECTION AND WIND SPEED MONTHLY AVERAGE DATA, BARCELONA.

BARCELONA	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT	OCT	NOV	DEC
Temperature (C°)	9	10	12	14	18	22	25	25	23	18	14	10
HR (%)	76	71	66	73	70	65	70	71	70	73	73	70
Wind direction	10	350	0	220	80	210	10	350	10	350	0	10
Wind speed (m/s)	5	3	4	4	4	4	3	3	4	3	4	4

Precipitation in Barcelona decreases during the summer season, reaching a monthly average of 27 mm in July. The months with the highest rainfall are autumn, reaching a monthly average of 94 mm in October.

BARCELONA	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT	OCT	NOV	DEC
Precipitation (mm)	39	39	43	54	48	37	27	43	82	94	64	44

FIGURE 17. AVERAGE MONTHLY PRECIPITATION, BARCELONA.

In June (Figure 18), the hours of comfort are mainly from 18 hrs until 9 hrs of the following day. In July and August, on the other hand, only in the early hours of the morning until 8 hrs in the morning conditions are suitable for thermal comfort. Therefore, during the whole afternoon thermal discomfort is found.

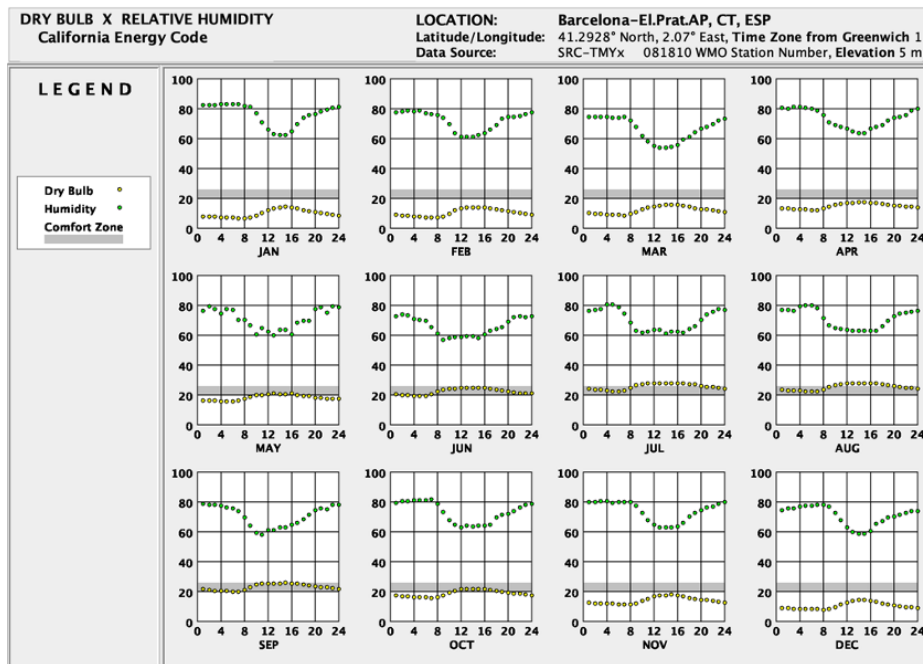


FIGURE 18. DRY BULB TEMPERATURE AND RELATIVE HUMIDITY MONTHLY AVERAGE HOURLY DATA, BARCELONA. CLIMATE CONSULTANT.

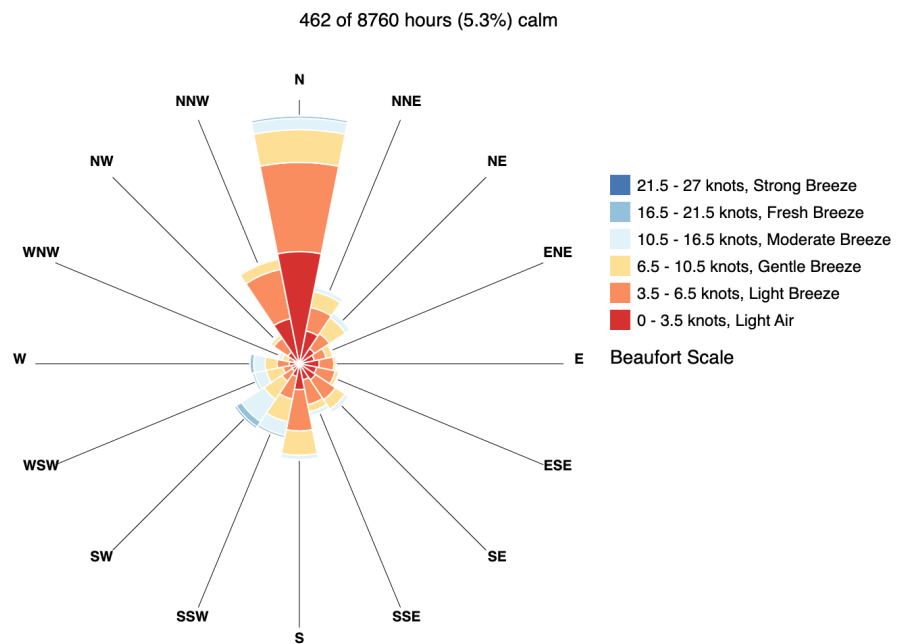


FIGURE 19. WIND SPEED AND DIRECTION, BARCELONA.

As for the wind, in the summer months it comes mainly from the south-southwest, and in the months of July, August and September, its direction comes mostly from the north. The speed on the Beaufort scale corresponds to a light breeze for this time of year.

Barcelona – Passive strategies

According to the Givoni diagram, in Barcelona during the summer months, 20.5% of the total hours are in comfortable conditions. For the rest of the time, it will be necessary to apply the following passive strategies. with the percentage of comfortable hours using selected strategiesThe percentage of hours over the total needed to be in comfort is not necessary for the same passive strategy. This means that during the same hours, it may be necessary to apply one or more strategies.

Natural ventilation (53,3%)

Dehumidification (40,8%)

Solar protection (36,5%)

Mass cooling (8%)

Evaporative cooling (1,8%)

In Barcelona, with its hot and humid summer climate, the main strategies will be natural ventilation and dehumidification of the air to reduce the thermal sensation. Sunscreens will also be necessary to use, especially during the hours of highest solar incidence. As for mass cooling, its percentage is very low compared to the use of the other strategies, and

considering that it is of the fixed type, i.e., it is not a strategy that can be chosen at certain times due to the fact that the building structures are permanent, this strategy is discarded. The same situation for evaporative cooling, since the climate is hot and humid, this strategy will have to be of the indirect type and its implementation requires more complex applications.

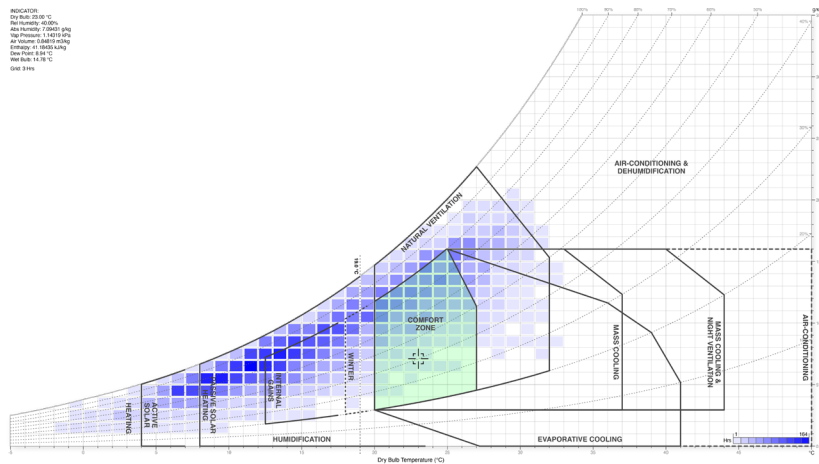


FIGURE 20. GIVONI DIAGRAM, BARCELONA.

4.2.2. Greece

Thessaloniki is situated towards the north of Greece at latitude 40° 38' 37» on the shores of the Gulf of Thermaicum in the Aegean Sea. To the east, outside its municipal boundaries, is the Galikos River and to the east is Lake Koronoëia. To the west, part of the town is backed by a mountain range with a north-west-south-east development. According to the Köppen classification, it corresponds to a Mediterranean-type climate characterised by mild, rainy winters and dry, hot or mild summers.

● Thessaloniki

Summers in Thessaloniki are hot, with an average maximum in July of 27°C, and a minimum of 25°C in June. In general, throughout the year, the temperature variation is not very marked, especially in winter. However, from May onwards and mainly during the summer months, the thermal oscillation is greater, being above 10°C. The daily average between July and August is in the range of 25-30°C, with peaks of over 37°C. The minimum values in the warmer months do not drop below 17°C. From mid-September onwards, temperatures start to drop.

FIGURE 21. TEMPERATURE AND RELATIVE HUMIDITY ANNUAL DATA, THESSALONIKI.

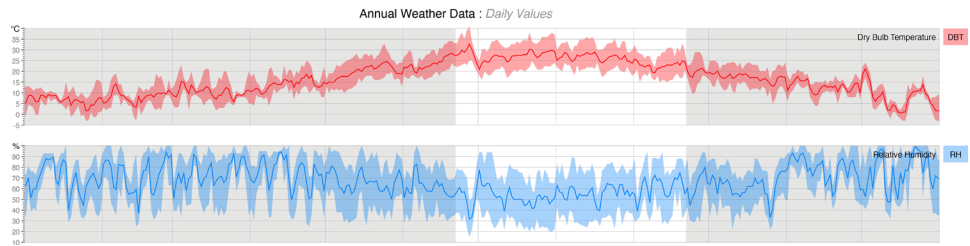


FIGURE 22. TEMPERATURE, RELATIVE HUMIDITY AND PRECIPITATION SUMMER DATA, THESSALONIKI.

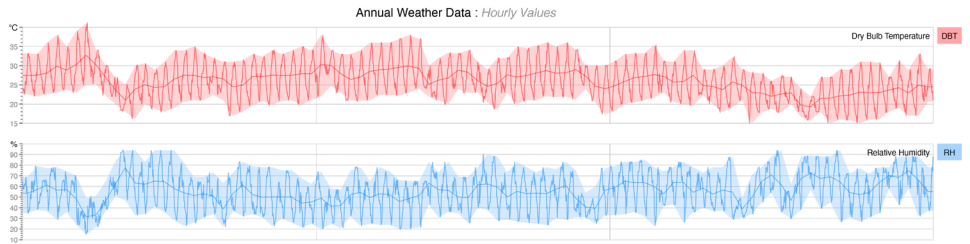
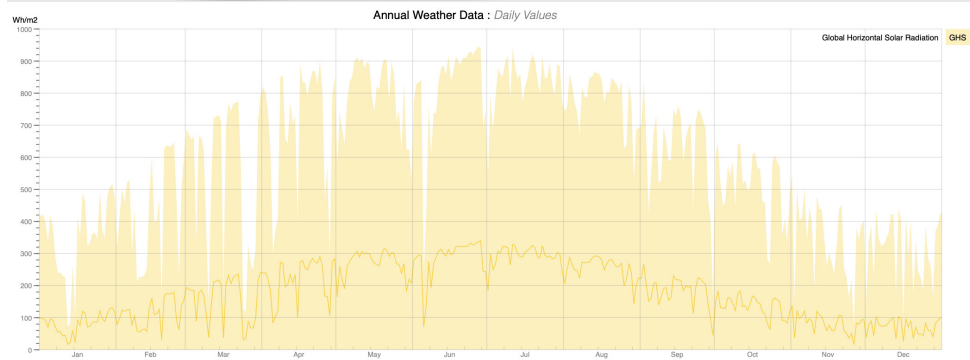


FIGURE 23. GLOBAL HORIZONTAL RADIATION, THESSALONIKI.



Global horizontal solar radiation, in the summer months, has a maximum daily average of 320 Wh/m² corresponding to the month of June; 310 Wh/m² in July; in August it does not exceed 300 Wh/m² and in September it does not reach 260 Wh/m². June and July are therefore the months with the highest values of global horizontal solar radiation.

With regard to the need for solar protection, the cylindrical solar chart shows that for the month of June, it is already necessary to have this passive strategy in place from 10 hours onwards, when the temperature exceeds 26°C. For the months of July, solar protection will be necessary from 8 hours onwards as temperatures exceed 26°C. In August, sun protection is required from 10 hours onwards, in September from midday. From June to August, sun protection is necessary until 19 hours.

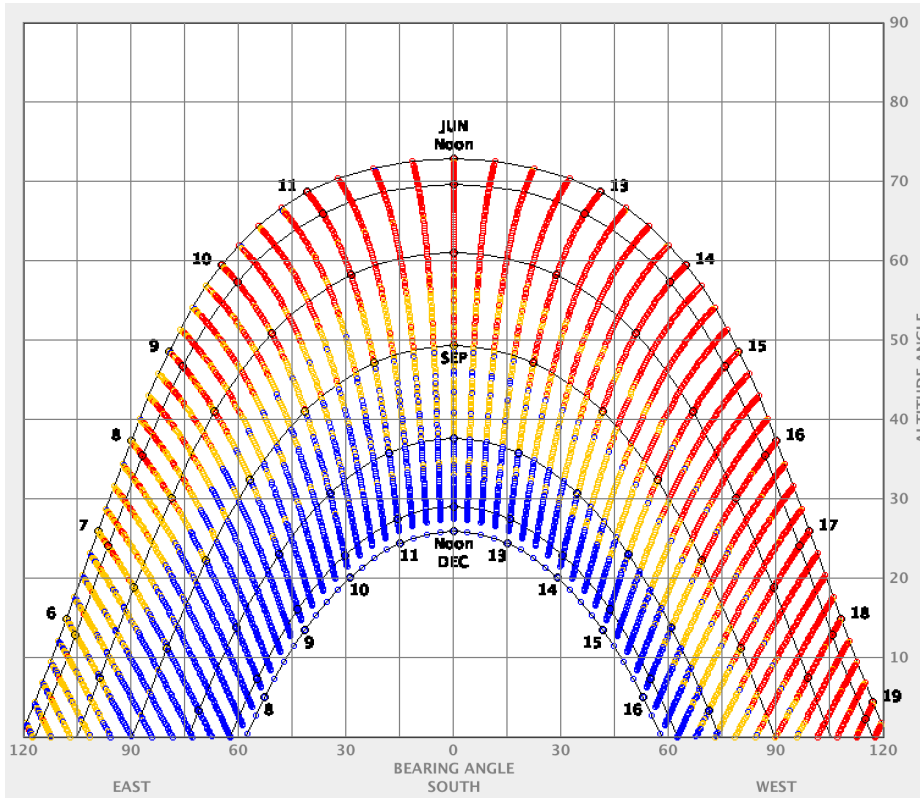


FIGURE 24. SUN SHADING CHART, THESSALONIKI. CLIMATE CONSULTANT.

Relative humidity drops during the summer season, with average monthly minimum values of 52% in July and a maximum of 61% in September. In the summer months, values of between 20-90% are observed at the extremes. The lowest relative humidity values coincide with the highest temperatures and are found between 16-18 hrs during the months of June, July and August. In September the minimum value is found at 16:00

THESSALONIKI	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT	OCT	NOV	DEC
Temperature (C°)	6	8	10	13	19	25	27	26	21	17	12	7
HR (%)	68	72	74	74	66	57	52	56	61	61	78	74
Wind direction	100	110	320	120	120	280	110	110	110	110	100	340
Wind speed (m/s)	2	2	3	2	2	2	3	3	2	2	2	3

FIGURE 25. TEMPERATURE, RELATIVE HUMIDITY, WIND DIRECTION AND WIND SPEED MONTHLY AVERAGE DATA, THESSALONIKI.

hrs.

In Thessaloniki, winters are rainy with a monthly average in December of 73 mm. In summer, rainfall decreases, however, it is still present with

THESSALONIKI	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT	OCT	NOV	DEC
Precipitation (mm)	53	50	60	59	71	52	46	46	53	61	63	73

FIGURE 26. AVERAGE MONTHLY PRECIPITATION, THESSALONIKI. CLIMATE CONSULTANT.

a monthly average value (the lowest of the year) of 46 mm in both July and August.

In terms of thermal comfort, in June and July, from 9 hrs to 11 hrs, temperatures exceed the comfort zone. In August, this situation is

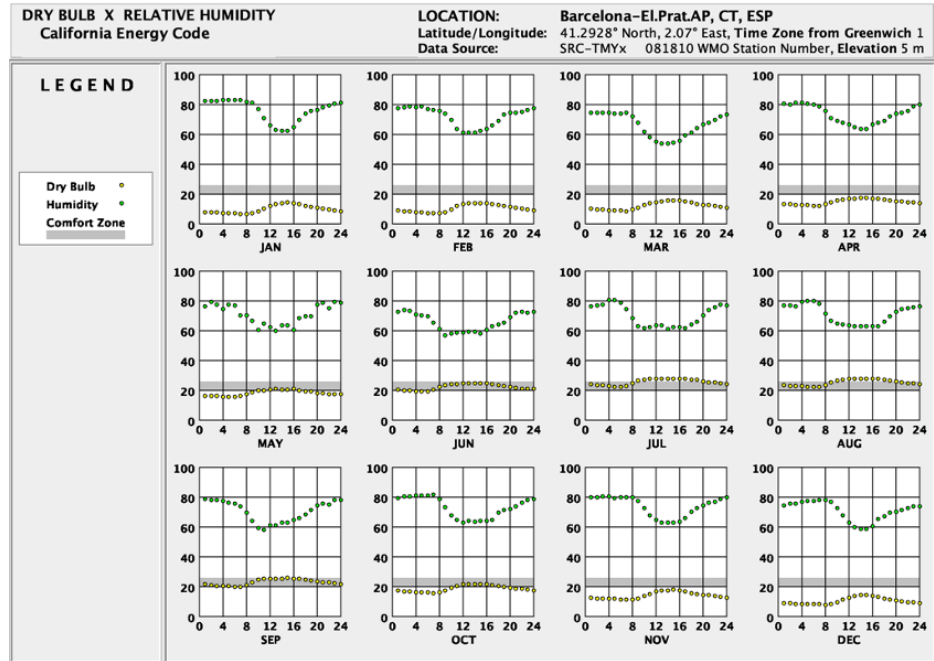


FIGURE 27. DRY BULB TEMPERATURE AND RELATIVE HUMIDITY MONTHLY AVERAGE HOURLY DATA, THESSALONIKI. CLIMATE CONSULTANT.

observed from 8 hrs to midnight. In September, the hourly gap of discomfort decreases, from midday to 20:00 hrs.

The wind in Thessaloniki, in the summer season, has a westerly direction in June, and for the rest of the summer months it is east-south-easterly.

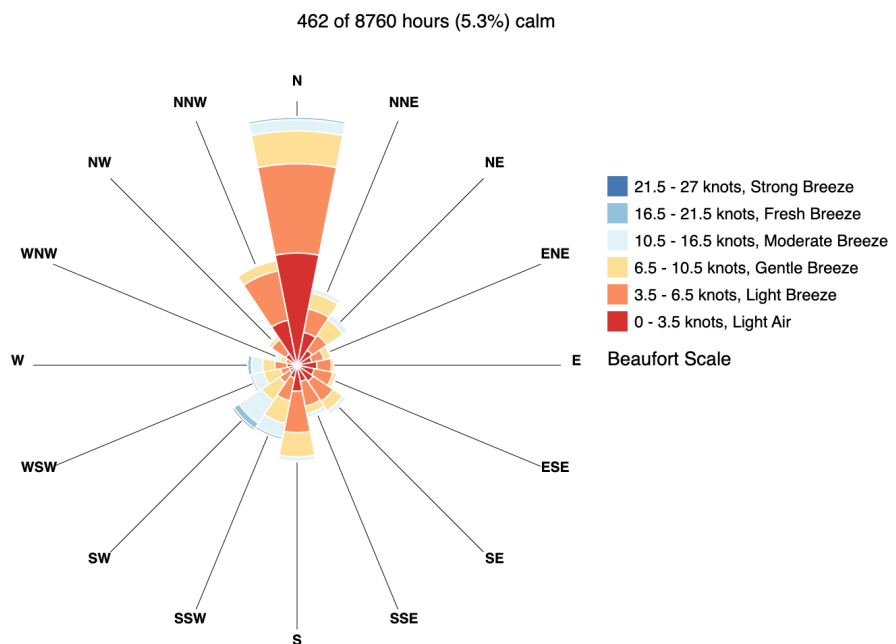


FIGURE 28. WIND SPEED AND DIRECTION, THESSALONIKI.

According to the Beaufort scale, the wind speed corresponds to a light breeze.

Thessaloniki – Passive strategies

According to the Givoni diagram, 24.9% of the total hours are in comfort conditions during the summer season. For the rest of the time, it will be necessary to apply passive strategies. The percentage of hours over the total needed to be in comfort is not necessary for the same passive strategy. This means that during the same hours, it may be necessary to apply one or more strategies.

Natural ventilation (38,5%)

Solar protection (35,7%)

Mass cooling (20%)

Dehumidification (16%)

Evaporative cooling (8,6%)

In Thessaloniki, the main passive strategies are natural ventilation

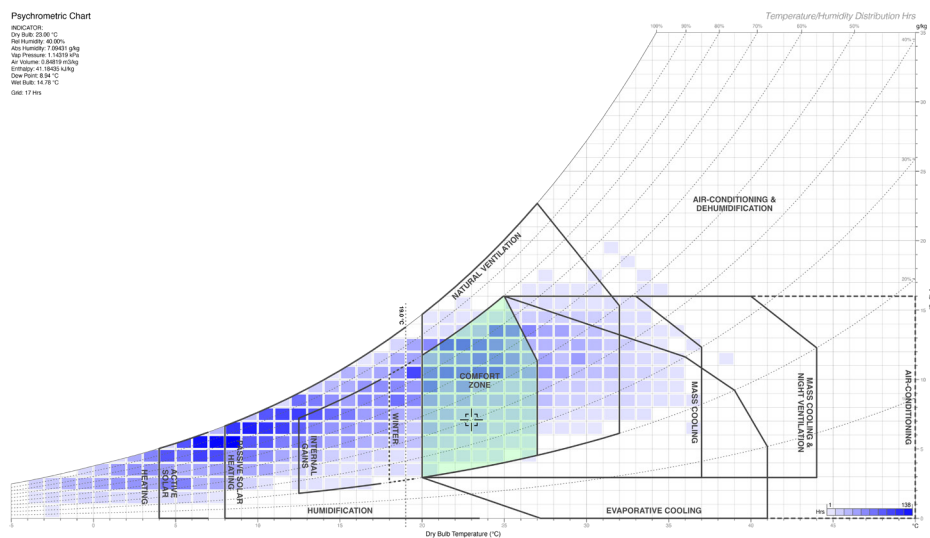


FIGURE 29. GIVONI
DIAGRAM, THESSALONIKI.

and solar shading. Mass cooling will also be a good strategy to apply especially when the facades oriented to a higher incidence of solar radiation, are devoid of solar protection.

4.2.3. Italy

The city of Parma is located in the north of Italy, 55 metres above sea level, at latitude 44° 48'05 «N. Separated from the Ligurian Sea to the south-west by the Apennine mountain range, it lies on the plain of the river Po.

The city is divided on the north-south axis by the river Parma and by the Barganza torrent.

● Parma

The average monthly temperatures in summer reach their maximum in July with 25°C, followed by August with 24°C. The daily temperature oscillation is normally around 10°C, although there can be a daily temperature difference of up to 15°C. This oscillation decreases considerably from October, November and December onwards. Daily temperature peaks

FIGURE 30. TEMPERATURE AND RELATIVE HUMIDITY ANNUAL DATA, PARMA.

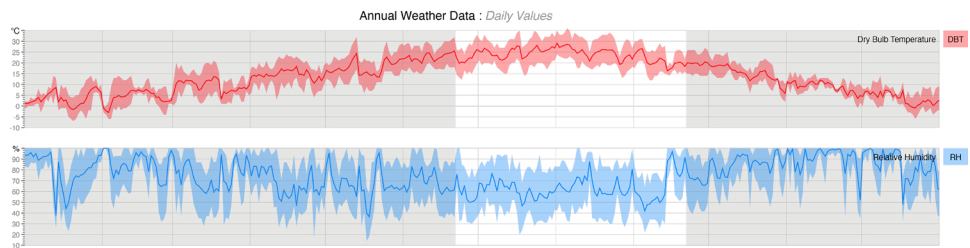


FIGURE 31. TEMPERATURE AND RELATIVE HUMIDITY SUMMER DATA, PARMA.

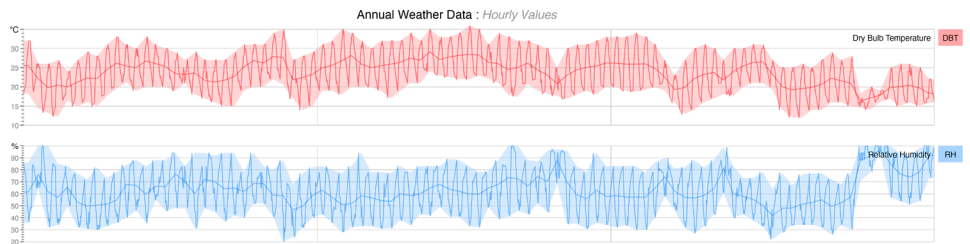
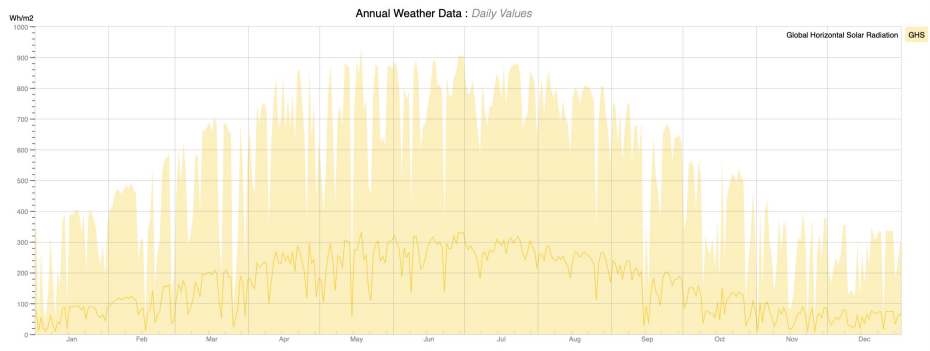


FIGURE 32. GLOBAL HORIZONTAL RADIATION, PARMA.



exceeding 35°C are observed during July and August. During the same months, the minimum temperature does not usually fall below 15°C.

The global horizontal radiation has a maximum hourly value in summer in the month of June with 906 Wh/m2, decreasing progressively until September with 755 Wh/m2. In June, the average daily values do not exceed 340 Wh/m2; in July, 320 Wh/m2; in August, 300 Wh/m2 and finally in September, 250 Wh/m2. June is therefore the summer month with the highest global horizontal radiation.

The cylindrical sun chart shows that in June, July and August, sun protection is necessary from around 9 hours until the end of the day (19

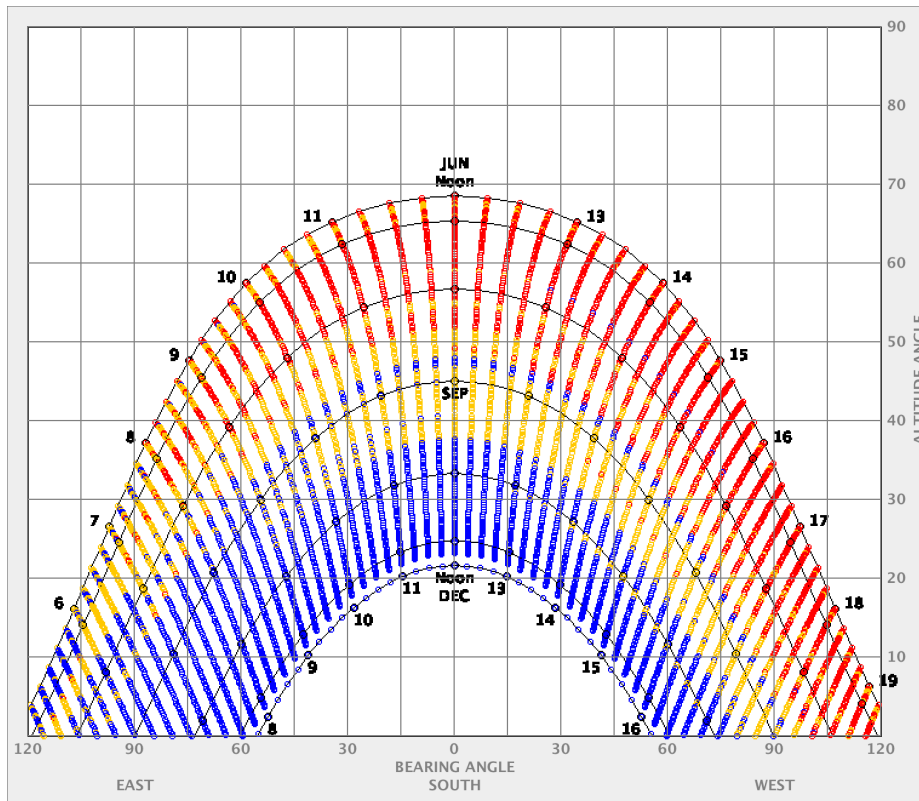


FIGURE 33. SUN SHADING CHART, PARMA. CLIMATE CONSULTANT.

hrs). In September, from midday onwards, although temperatures do not exceed 26°C, the use of sun protection could help to maintain thermal comfort.

The average monthly values of relative humidity in Parma do not show much variability, since they are between 61% (July) and 66% (September). The lowest relative humidity values coincide with the highest temperature

PARMA	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT	OCT	NOV	DEC
Temperature (C°)	3	4	9	14	17	22	25	24	20	14	9	3
HR (%)	79	85	74	67	67	65	61	64	66	85	91	84
Wind direction	230	230	240	90	230	230	230	240	240	240	100	250
Wind speed (m/s)	1	1	2	2	2	2	2	1	2	1	1	1

FIGURE 34. TEMPERATURE, RELATIVE HUMIDITY, WIND DIRECTION AND WIND SPEED MONTHLY AVERAGE DATA, PARMA.

values, so these minimum values are between 13-18 hours for the month of June, and in the months of July, August and September, the minimum is at 16 hours.

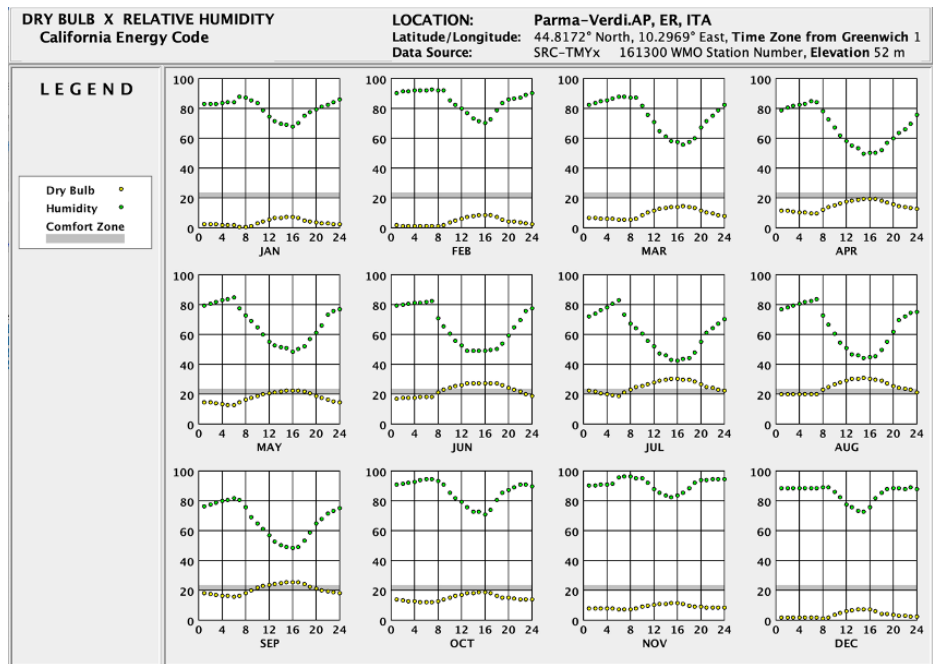
In Parma rainfall is marked by the spring and autumn seasons, with autumn being the rainiest. November, the rainiest month, has an average monthly rainfall of 106 mm. In summer, on the other hand, rainfall

FIGURE 35. AVERAGE MONTHLY PRECIPITATION, PARMA.

PARMA	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT	OCT	NOV	DEC
Precipitation (mm)	60	69	71	93	85	60	42	53	79	99	106	71

decreases significantly in relation to the months with the highest rainfall. July is the month with the lowest rainfall of the year, with a monthly average of 42 mm.

FIGURE 36. DRY BULB TEMPERATURE AND RELATIVE HUMIDITY MONTHLY AVERAGE HOURLY DATA, PARMA. CLIMATE CONSULTANT.



As regards the thermal comfort zone, in summer Parma does not reach the comfort zone between 9 and 8 hours in June and August; in July it extends a little further between 9 am and 9 pm and in September between 12 noon and 4 pm.

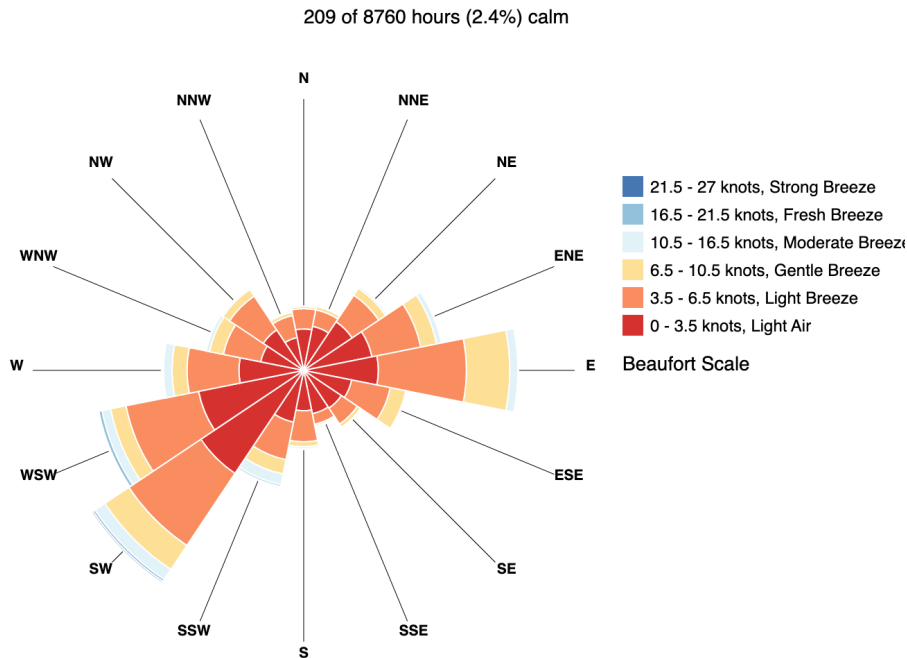


FIGURE 37. WIND SPEED AND DIRECTION, PARMA.

In the summer season in Parma, the wind is south-westerly, with speeds that according to the Beaufort scale correspond to a light breeze, except in August when the speed is a little lighter, corresponding to a light air.

Parma – Passive strategies

According to the Givoni diagram, 15,3% of the total hours are in comfort conditions during the summer season. For the rest of the time, it will be necessary to apply passive strategies. The percentage of hours over the total needed to be in comfort is not necessary for the same passive strategy. This means that during the same hours, it may be necessary to apply one or more strategies.

Solar protection (34,4%)

Natural ventilation (32,2%)

Mass cooling (24,9%)

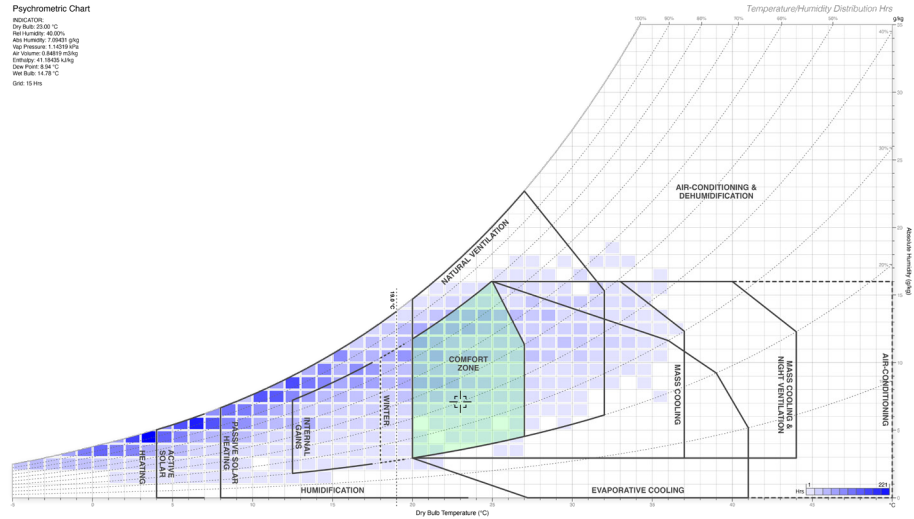
Evaporative cooling (12,4%)

Dehumidification (11,1%)

In Parma, the main passive strategy to be applied will be solar protection, followed by natural ventilation. The thermal oscillation during the summer months allows mass cooling to be useful as a passive strategy. Next,

it is observed that evaporative cooling and dehumidification are also recommended, although to a lesser extent. As mentioned above, the use of evaporative cooling in climates with a medium-high humidity level

FIGURE 38. GIVONI DIAGRAM, PARMA.



should be of the indirect type and therefore its application will be more complex. Therefore, this strategy is discarded. As for dehumidification, it should be used when high temperatures are reached in combination with high relative humidity. This strategy can be combined with natural ventilation.

4.2.4. Bulgaria

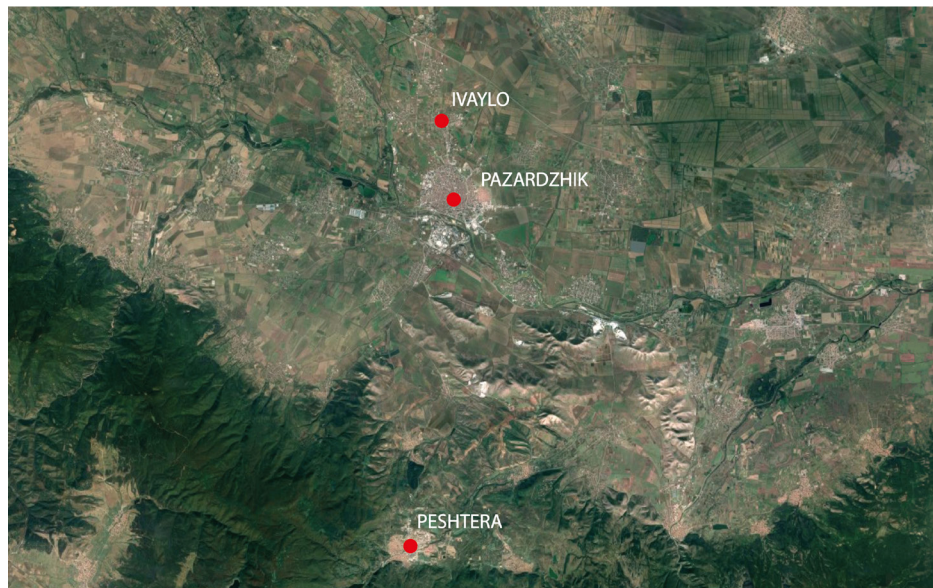


FIGURE 39. MAP LOCATION OF IVAYLO, PAZARDZHIK AND PESHTERA. BACKGROUND IMAGE: GOOGLE MAPS.

For Bulgaria, there are two locations where the project will be implemented: Peshtera and Pazardzhik. However, no EPW data were found from climate archives of stations specifically in each of the locations. Therefore, for the present study, data obtained from Ivaylo (Figure X), a town located approximately 6 km north of Pazardzhik, were used. The detailed climatic characterisation and selection of passive strategies will therefore be based on Ivaylo's climatic data on the understanding that it extends to both Peshtera and Pazardzhik. However, a brief general description for each of the localities is attached.

Pazardzhik

Located in central-western Bulgaria at 205 metres above sea level, at latitude 42°12'00 «N. The site area and its surroundings are situated on a plain. The Maritsa River flows through the town on a north-west-south-east axis and mountain ranges can be seen to the south-east and south.

Peshtera

The city is located at 461 metres above sea level, at latitude 42°02'02 «N. It is situated in one of the foothills of the Rhodope Mountains, at a distance of 18 kilometres from Pazardzhik to the south. It has the Stara river running through the town in the west-east direction, and the Kupena nature reserve to the south.

● Ivaylo

Average monthly summer temperatures reach a maximum in August with 24°C, followed by July with 23°C. There is not much temperature oscillation, although it tends to increase in the summer and decrease in the winter months. In general, temperature peaks do not exceed 35°C and minimum temperatures do not drop below 15°C during July and August.

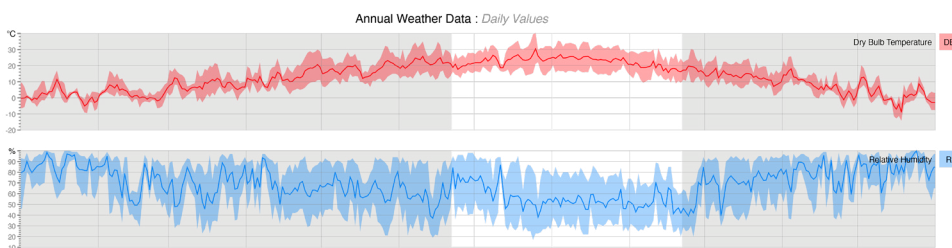


FIGURE 40. TEMPERATURE AND RELATIVE HUMIDITY ANNUAL DATA, IVAYLO.

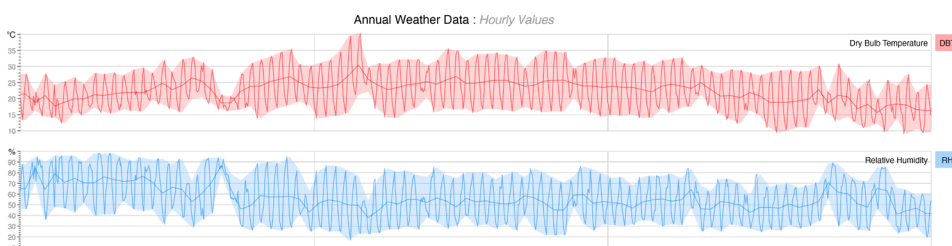
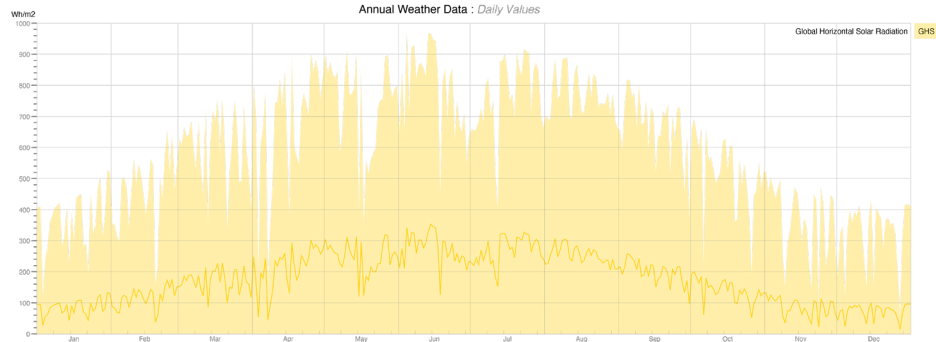


FIGURE 41. TEMPERATURE AND RELATIVE HUMIDITY SUMMER DATA, IVAYLO.

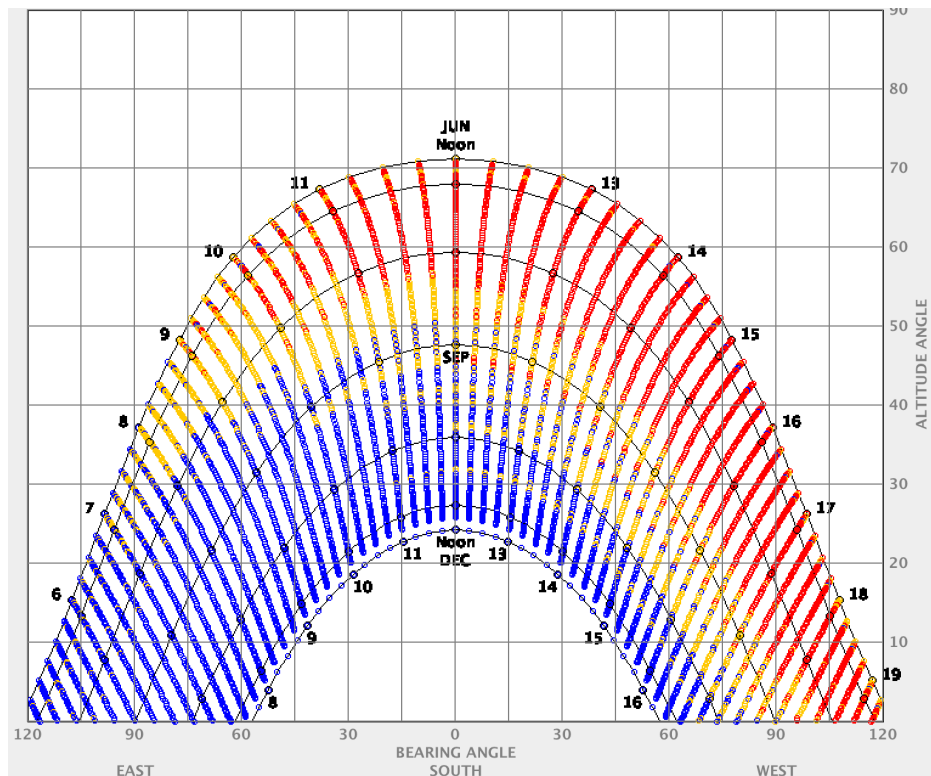
FIGURE 42. GLOBAL HORIZONTAL RADIATION, IVAYLO.



The global horizontal radiation shows average values exceeding 300 Wh/m² during both June and July. August and September show a decrease, with average values between 300 Wh/m² at the beginning of August and 100 Wh/m² at the end of September.

As for the need for sun protection in Ivaylo, during the months of June, July and August, the use of sun protection elements is required from 10 hrs onwards and extends until 19 hrs. In September, sun protection is not fully required until after midday.

FIGURE 43. SUN SHADING CHART, IVAYLO.



In terms of relative humidity, the average monthly values in summer are between 52-61%, with August being the driest month and June the wettest month of the summer. Relative humidity reaches its lowest values at the same time as the highest temperatures occur; this at 16 hours.

IVAYLO	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT	OCT	NOV	DEC
Temperature (C°)	1	2	7	13	17	21	23	24	18	13	7	1
HR (%)	86	71	67	68	65	61	58	52	52	71	78	84
Wind direction	270	290	70	260	290	290	270	270	290	270	250	290
Wind speed (m/s)	0	3	1	1	2	1	1	2	3	1	1	1

FIGURE 44. TEMPERATURE, RELATIVE HUMIDITY, WIND DIRECTION AND WIND SPEED MONTHLY AVERAGE DATA, IVAYLO.

Thermal comfort (Figure X) in June is reached from 9 hrs to 11 hrs and then from 9 pm to 11 pm. In July and August, thermal comfort is found from 9-10 hrs and then from 23-24 hrs. In September, with falling temperatures, the daylight hours are closer to the thermal comfort range of the central hours, being between 11-13 hrs and then from 19-20 hrs.

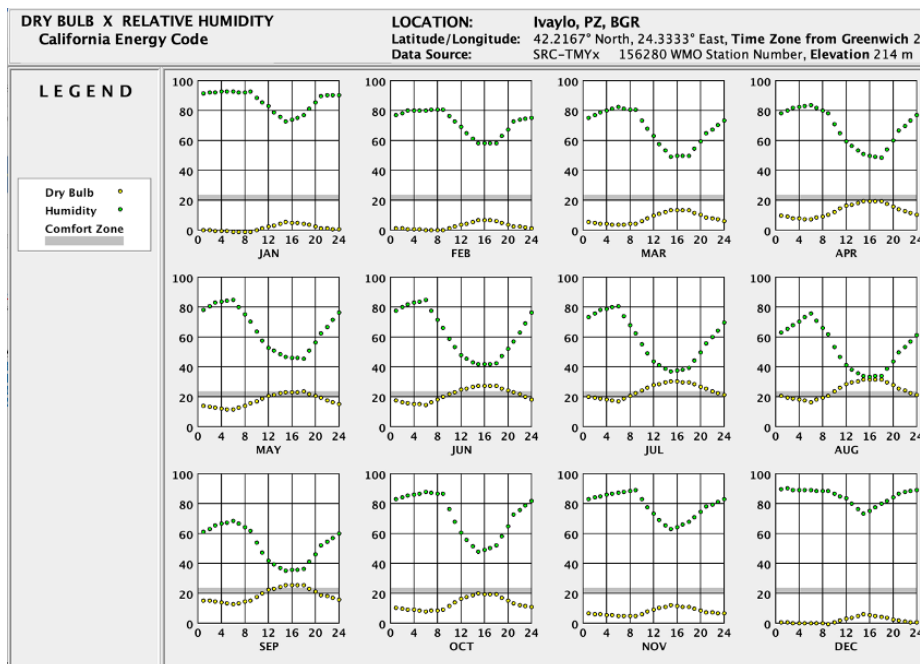


FIGURE 45. DRY BULB TEMPERATURE AND RELATIVE HUMIDITY MONTHLY AVERAGE HOURLY DATA, IVAYLO. CLIMATE CONSULTANT

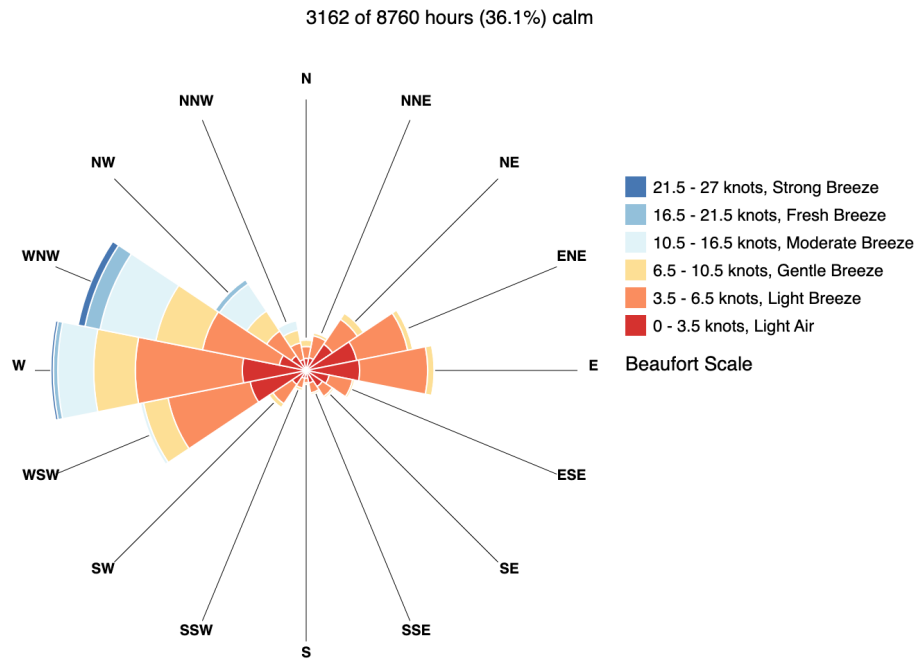


FIGURE 46. WIND SPEED AND DIRECTION, IVAYLO.

The wind in summer is predominantly westerly, and its speed increases as September approaches. According to the Beaufort scale, in June and July there is a light air, and in August and September there is a light breeze.

Ivaylo – Passive strategies

According to the Givoni diagram, 27,9% of the total hours are in comfort conditions during summer season.. For the rest of the time, it will be necessary to apply passive strategies. The percentage of hours over the total needed to be in comfort is not necessary for the same passive strategy. This means that during the same hours, it may be necessary to apply one or more strategies.

Solar protection (30,2%)

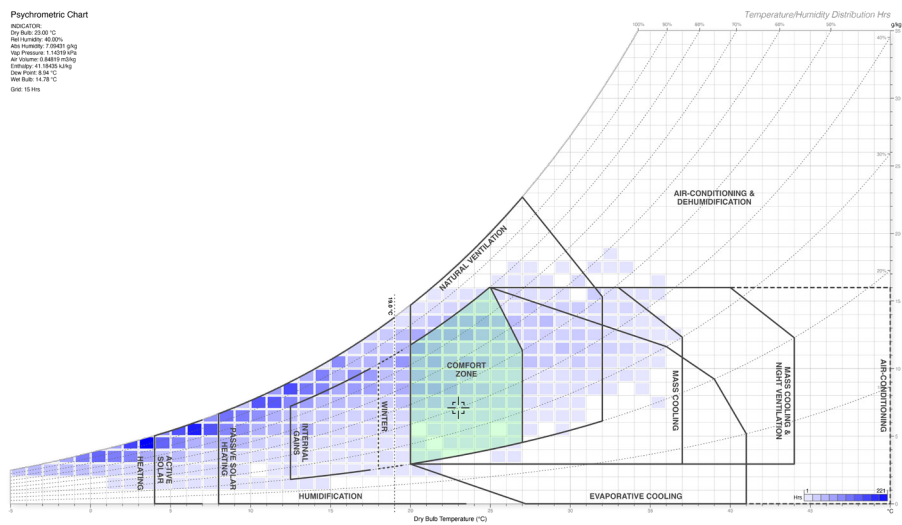
Mass cooling (28,2%)

Natural ventilation (16,3%)

Evaporative cooling (11%)

Dehumidification (3,9%)

For Ivaylo’s climate, the use of sun protection and mass cooling is recommended. The latter is recommended in combination with night ventilation. Evaporative cooling will have a greater effect if used when temperatures are high and relative humidity is low.

FIGURE 47. GIVONI
DIAGRAM, PARMA.

4.3. Summary of strategies

In the following section a summary of the passive strategies that can be applied according to each of the locations based on the climatic information analysed can be found. From the data obtained in the Climate Consultant software (Table 1), it can be seen that the localities with the lowest percentage of time in comfort without the application of passive strategies are Parma and Barcelona with 15.3% and 20.50% respectively. In contrast, Madrid has 30.9% of time in comfort, followed by Ivaylo with 27.90%.

In addition, the percentage of time in which, according to the values of temperature and humidity, it is necessary to apply passive strategies in order to reach the comfort zone has been detailed. For each of them, a percentage has also been specified, which allows an assessment to be made of which strategies are more necessary than others and that in parallel, these strategies can be combined with each other to increase the cooling effect. It is observed that for Madrid it is necessary to use evaporative cooling almost 40% of the time, due to the low relative humidity that characterises its dry summers. Conversely, Barcelona, with much more humid summers, will instead need to use natural ventilation as the main passive strategy, followed by dehumidification of the air as humidity with heat increases the thermal sensation.

In Parma and Thessaloniki, natural ventilation and solar protection will be more necessary, as well as the use of mass cooling. This strategy is even more important in Madrid where the temperature oscillation is

greater and therefore the use of mass cooling is more effective. On the other hand, in Barcelona, with a much lower temperature oscillation, this strategy will need to be applied in only 8% of the summertime.

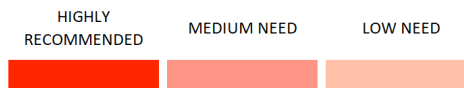
The following tables summarise the passive strategies to be implemented in each of the locations according to their level of need.

LOCATIONS	Confort hours
Madrid	30,90%
Barcelona	20,50%
Thessaloniki	24,90%
Parma	15,30%
Ivaylo	27,90%

TABLE 1. , COMFORT HOURS FOR EACH LOCATION.

Locations	PASSIVE STRATEGIES				
	Solar protection	Natural ventilation	Mass cooling	Evaporative cooling	Dehumidification
Madrid	Highly Recommended	Highly Recommended	Highly Recommended	Highly Recommended	-
Barcelona	Highly Recommended	Highly Recommended	Medium Need	Medium Need	Highly Recommended
Thessaloniki	Highly Recommended	Highly Recommended	Medium Need	Medium Need	Medium Need
Parma	Highly Recommended	Highly Recommended	Medium Need	Medium Need	Medium Need
Ivaylo	Highly Recommended	Highly Recommended	Highly Recommended	Medium Need	Medium Need

TABLE 2. LEVEL OF NEED FOR PASSIVE STRATEGIES.



Locations	PASSIVE STRATEGIES				
	Solar protection	Natural ventilation	Mass cooling	Evaporative cooling	Dehumidification
Madrid	31,50%	15,40%	39,50%	39,50%	0%
Barcelona	36,50%	53,30%	8%	1,80%	40,80%
Thessaloniki	35,70%	38,70%	20%	8,60%	16%
Parma	34,40%	32,20%	24,90%	12,40%	11,10%
Ivaylo	30,20%	16,30%	28,20%	11%	3,90%

TABLE 3. , PERCENTAGE OF HOURS OVER TOTAL REQUIREMENT IMPLEMENTATION OF PASSIVE STRATEGIES FOR EACH LOCATION.

5. Repository of solutions

The repository of solutions consists of 57 strategies for application at different levels of action where social activities take place. Generally, they have been divided into three categories, usage patterns, passive strategies, and active measures.

Firstly, it starts by carrying out a scan of strategies at individual behavior level linked to actions at the physical level which, due to the lack of comfort, evolve into passive actions on the immediate surroundings such as the household, the building, and the urban environment.

It is well known that if passive measures are not sufficient, active measures are used. In this regard, not all households have access to them, and therefore, this study has focused on the reduction of consumption within the home and the provision of information on the possibility of optimizing energy bills.

Individual strategies cards have been developed for each of the strategies in which qualitative information has been included as a guide for the application of each of them. It is important to note that many of them require technical advice to be applied efficiently. The contents of the cards will be described below to facilitate reading.

Personal behaviour

10 Fan

Level of action:
Use patterns 

Description:

An element used to promote the movement of indoor air. It can be used both as a fixed element on vertical and horizontal surfaces and as a mobile element.

Advantages:

Decreases the thermal sensitivity. Improves thermal comfort. Favors the movement of indoor air.

Disadvantages:

This is not a suitable strategy if the air temperature is above 32°C, as it would exceed the skin temperature and no longer produce a cooling sensation.

Impact:



Reiteration:



Expertise:



Winter application:



Recommendations:

Do not obstruct the fan and place it at the greatest linear distance from the room. Do not use the fan if the air temperature is above 32°C.

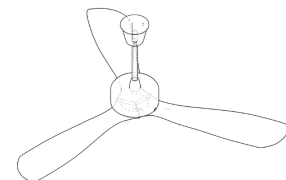


FIGURE 48 EXAMPLE OF STRATEGIES CARDS.

As the image shows (Figure X), both the category to which the named strategy belongs, and the level of action are identified in the upper band. For the informative detail, a series of sections can be seen, together with an image placed on the right. The items are as follows:

General description: This section will provide a brief description of the measure, detailing the most relevant characteristics. It is worth noting that for many of them there may be more than one variable.

Advantages: The most relevant advantages related to the general theme of improving thermal comfort in the summer season will be provided.

Disadvantages: As in the advantages section, the most relevant disadvantages related to the general theme of improving thermal comfort in the summer season will be provided.

Impact: A range of impact has been established, consisting of high, medium, and low, which is expressed using a figure.

● ○ ○ Low ● ● ○ Medium ● ● ● High

Reiteration: A range of reiterations has been established that consists of determining whether the measure has a single action or whether it requires periodic or continuous reiteration. It is expressed using a figure.

— ● — Punctual ● ● ● Periodical ——— Continuous

Expertise: The objective of this section is to guide the reader as to whether a strategy requires skilled labor or whether it could be carried out by households.

Winter application: The aim of this section is to guide the reader as to whether a strategy could also be applied and/or used in the winter period in pursuit of the same objective.

✔ Yes ↻ Neutral ⊘ No

Recommendations: The last section of the card consists of a series of important recommendations regarding the implementation of the strategy.

5.1. Usage patterns

The usage patterns category includes actions that involve the users and their actions on a physical level as well as their interaction with the functioning of their most private and immediate environment, such as the dwelling or any space that is constantly occupied by them.

5.1.1. Personal behaviour

Regarding the personal behavior category, a list of six strategies has been included, mainly aimed at mitigating the impact of high temperatures by intensifying actions to avoid possible heat stroke and therefore the negative consequences on health, especially in vulnerable populations such as the elderly, infants, pregnant women, and people with pathologies. This list includes strategies such as hydration, light clothes, light meals, showers, physical activity, and exposure to the sun.

5.1.2. Use patterns

In the category of strategies for usage patterns, a total of ten strategies have been listed, mainly aimed at pointing out good practices during the summer period and the impact of actions within the home to keep living spaces comfortable in the face of exposure to thermal extremes. Within this list are strategies such as cross ventilation, night ventilation, sun shading, etc.

5.2. Passive measures

Passive cooling measures connect refrigeration with energy saving needs. To do so, they make use of natural phenomena -such as temperature differences during the day and the night, thermal mass of materials, or thermal stability of underground soils- to incorporate it into a bioclimatic design, at different scales. In this report, we have divided passive measures into three big scales: urban, building, and housing. Each scale is interrelated with the other two, and some measures can be assigned to more than one scale. For example, urban greenery can affect the building scale, when trees project shadow on to the building's envelopes. What mainly differences one scale to another is the modes in which they can be designed and/or modified. Urban scale measures normally depend on urban plans and programs (for example, reduction of car usage reduction), building scale depends on architectural design, and the housing scale is closely related to dweller activities.

5.2.1. Urban level

Urban passive cooling strategies can be divided into four categories: surfaces replacement, promoting blue and green infrastructure, enhancing natural ventilation corridors, and incorporating auxiliary shading systems to the urban scape. Urban surfaces can be replaced by means of decreasing its heat absorbance and inertial mass. To help the buildings to reduce internal temperatures by using natural ventilation at night, it is important to reduce the thermal inertia of the urban surfaces. When thermal inertia is high (for example, in dense built environments),

temperatures don't decrease at night, as materials are expelling heat to the urban atmosphere. Using light-colored also helps to reduce the absorbance of heat in the urban surfaces, by reflecting sunlight to higher levels of the atmosphere. Furthermore, urban greenery helps decrease temperatures by the double effect of solar shading and evaporative cooling due to the evaporation of moisture contained in the tree foliage. Blue infrastructure, from fountains to irrigation systems, generates the same kind of passive cooling effect. Other urban-scale strategies are pointed out in this catalogue, such as those oriented to direct sunlight obstruction and natural ventilation promotion.

5.2.2. Building level

Buildings take advantage of urban cooling measures, incorporating fresh air from the urban atmosphere into the building. Natural ventilation stands out as the most important strategy for passively lowering internal temperatures. To generate nice natural ventilation, facing openings are desirable, set-in opposite sides of the building spaces. Also, patios can contribute to this measure, as temperatures tend to be lower due to the little contribution of sunlight. Another passive cooling measure that is relevant on the building scale is the use of thermal inertia by strategically incorporating high density materials. These materials, when kept out of direct solar radiation, cool down at night and help to maintain the interior spaces at lower temperatures during the day. Again, the vegetation incorporated into the building is important due both to its shadowing and evaporative cooling effects.

5.2.3. Housing level

Inside the dwellings, there are also some passive strategies that can be highlighted. The most important part in reducing solar gains (the increasing of temperature due to direct solar light) is to protect the openings from sunlight. By using awnings, blinds, shutters, and other shading elements, this can be achieved. Also, improving the glazing characteristics helps to protect the interior spaces from overheating in summer, and provide better isolation. Vegetation can also be introduced to housing spaces, refreshing the atmosphere through the effect of evaporative cooling.

5.3. Active measures

Sometimes, passive measures are insufficient to provide comfort temperatures, especially during heatwave events. Active measures help cool the spaces, by incorporating external energy into cooling devices. Regarding the housing scale, AC systems are frequently used to rapidly

decrease internal temperatures. The problem with the usage of this type of technology is that they contribute to the UHI effect by expelling hot air into the urban atmosphere, named anthropogenic heat. Other active measures are related to decreasing the usage of energy in the house, by choosing efficient equipment and lightbulbs.


5.3.1. Consumption patterns

As noted in the previous paragraph, active measures mostly concern the use of housing technologies. An important part of energy improvement is related to the choice of energy efficient equipment, but another part depends directly on the use of the equipment. Through responsible consumption, savings can be made to reduce the energy bill. Furthermore, prioritizing passive means of cooling (for example, using natural night ventilation instead of AC systems) favors the same objectives.

Repository of solutions

Personal behaviour

1 Hydration

Level of action: **Personal** 

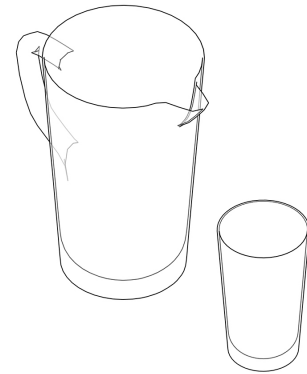
Description:
Drinking water is one of the most important habits during hot periods of time.

Advantages:
Body thermal regulation.

Disadvantages:
-


Impact: ● ● ● **Reiteration:** — **Expertise:** ✓ **Winter application:** ✓

Recommendations:
Keep cool and hydrated drinking water regularly, and avoiding sugary, alcoholic or caffeinated drinks.



Personal behaviour

2 Light clothes

Level of action: **Personal** 

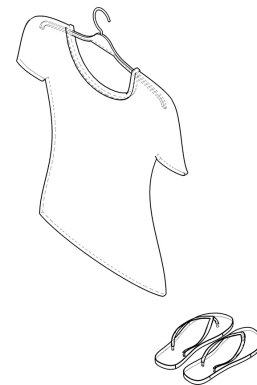
Description:
Light-coloured clothes made of transpirable materials provide hydrothermal relief and help the body to regulate its temperature.

Advantages:
Providing sun protection, reduces heat absorption and helps release the body heat.

Disadvantages:
-

Impact: ● ● ● **Reiteration:** — **Expertise:** ⊘ **Winter application:** ⊘

Recommendations:
Wear light clothing. Transpirable materials are cotton, linen or natural silk. Cover your head with a hat or cap and wear sunglasses to protect your eyes from sun exposure.



Personal behaviour

3 Light meals

Level of action: **Personal** 

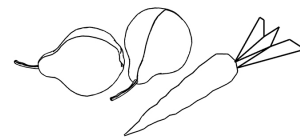
Description:
Fresh and light meals decrease metabolic rates and prevent from suffering heat strokes.

Advantages:
Reducing the body's heat generation during the digestion. Also reducing the heat generated while cooking. Light meals might help saving energy and their preparation is usually faster.

Disadvantages:
-


Impact: ●●○ **Reiteration:** — **Expertise:** ~ **Winter application:** ~

Recommendations:
Prioritise the consumption of fresh fruit and vegetables as they contain a high percentage of water in their composition, helping the body's hydration and good nutrition.



Personal behaviour

4 Showers

Level of action: **Personal** 

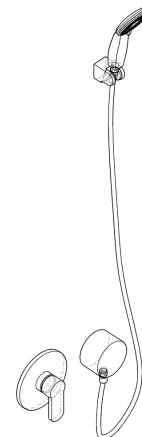
Description:
Short and cold showers help to cool down the body and reduce the usage of water during drought periods

Advantages:
Lowering body temperature, providing a relief feeling and increase thermal comfort.

Disadvantages:
They might lead to an increase of water consumption.

Impact: ●●○ **Reiteration:** — **Expertise:** ⊘ **Winter application:** ⊘

Recommendations:
Avoid using very cold water, since this can trigger the generation of body heat. Prioritise showers over baths.



Personal behaviour

5 Physical activity

Level of action: **Personal** 

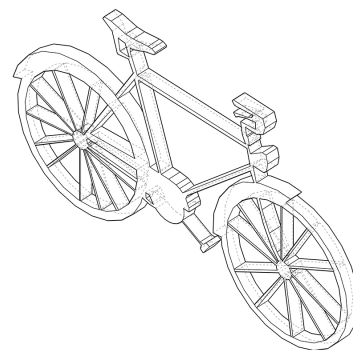
Description:
Physical activity is recommended in the early hours of the day to promote healthy habits and prevent from overheating risk

Advantages:
In the morning, the lowest temperatures of the day prevail. Solar radiation is minimum since it is mostly blocked by buildings and trees. Physical activity in the morning helps regulate the circadian rhythm.

Disadvantages:
Early morning physical activity can reduce sleep time or alter sleep patterns.

Impact: ●●● **Reiteration:** — **Expertise:** ⊘ **Winter application:** ⊘

Recommendations:
Avoid going out and performing strenuous activities during the hottest time of the day. Modifying activity habits and schedules might help avoiding the exposure to urban overheating.



Personal behaviour

6 Sun exposure

Level of action: **Personal** 

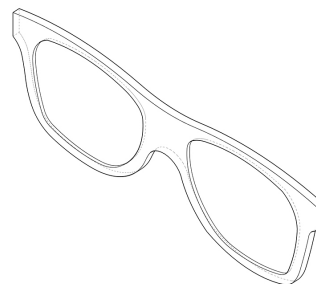
Description:
Sun exposure can be harmful during the hottest hours of the day. By reducing it and staying-walking in shadow spaces, we find important benefits.

Advantages:
-

Disadvantages:
Exposure to high temperatures during peak hours can lead to heat stroke, which can cause health damage.

Impact: ●●● **Reiteration:** — **Expertise:** ⊘ **Winter application:** ⊘

Recommendations:
If it is mandatory to stay outdoors, stay in the shade, wear heat-recommended clothing, apply appropriate sunscreen to the skin, drink water regularly, eat lightly and cool your head.



*Personal behaviour***7** Natural cross ventilation

Level of action:

Use patterns**Description:**

Cross ventilation is the flow of air through two or more openings in the same space. Better performance is achieved when the openings are located on opposite walls.

Advantages:

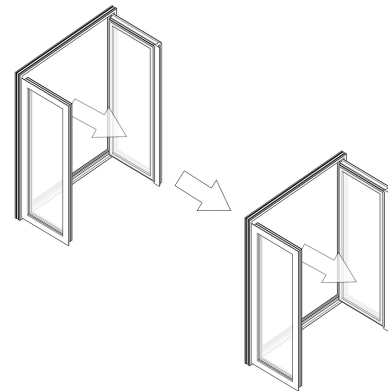
Air renovation. Improved thermal comfort. Indoor overheating reduction.

Disadvantages:

Depending on architecture design, the Venturi effect may occur, causing sudden and abrupt closure of openings.

Impact:**Reiteration:****Expertise:****Winter application:****Recommendations:**

Close windows when outdoor temperatures are high. Ensure communication between rooms. The faster the air moves, the cooler it feels.

*Personal behaviour***8** Night hours ventilation

Level of action:

Use patterns**Description:**

Natural ventilation produced during the hours of lower outside temperature (night and early morning).

Advantages:

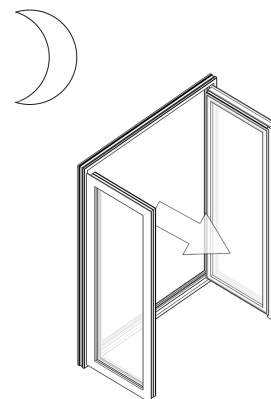
Air renovation. Ventilating off-peak times lowers the temperature inside the house, allowing the heat accumulated on the walls during the daytime hours of high temperatures to dissipate.

Disadvantages:

In the situation where there is no considerable drop in outside temperature, the expected effects may not occur.

Impact:**Reiteration:****Expertise:****Winter application:****Recommendations:**

Ensure the correct fair flow inside the building by opening doors and windows. Avoid sudden and abrupt closing of openings. Close windows and doors when outdoor temperature are high.



Personal behaviour

9 Domestic appliances

Level of action:
Use patterns 

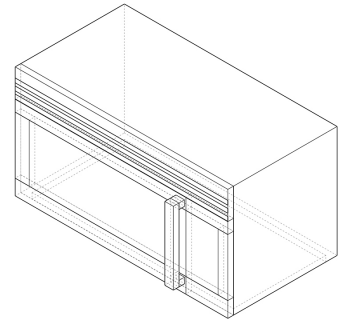
Description:
Use of kitchen appliances during the summer period.

Advantages:
Reducing the use of appliances that increase heat loads helps to reduce internal gains and therefore cooling needs.

Disadvantages:
Higher levels of indoor overheating, increasing discomfort levels.

Impact: ● ○ ○ **Reiteration:** — **Expertise:** ⊘ **Winter application:** ⊘

Recommendations:
Adjust food production habits in the household according to the season. Use electrical appliances that do not produce thermal loads. If necessary, use them only on specific occasions and for a short period of time.



Personal behaviour

10 Fan

Level of action:
Use patterns 

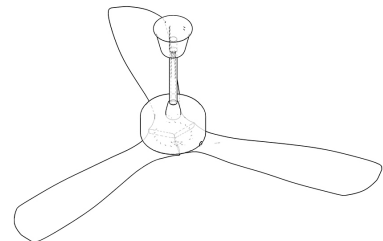
Description:
An element used to promote the movement of indoor air. It can be used both as a fixed element on vertical and horizontal surfaces and as a mobile element.

Advantages:
Decreasing the thermal sensitivity. Improving thermal comfort. Favoring the movement of indoor air.

Disadvantages:
This is not a suitable strategy if the air temperature is above 32°C, as it would exceed the skin temperature and no longer produce a cooling sensation.

Impact: ● ● ○ **Reiteration:** — **Expertise:** ⊘ **Winter application:** ⊘

Recommendations:
Do not obstruct the fan and place it at the greatest linear distance from the room. Do not use the fan if the air temperature is above 32°C.



*Personal behaviour***11** Sun protectionLevel of action:
Use patterns *Description:*

Use sun protection elements to prevent overheating of indoor and outdoor living spaces.

Advantages:

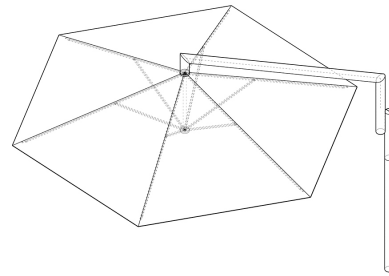
Blocking solar radiation and preventing from overheating. The use of shutters, awnings and blinds is compatible with natural ventilation.

Disadvantages:

Keeping shutters closed all day could increase the energy consumption associated with lighting.

Impact:*Reiteration:**Expertise:**Winter application:**Recommendations:*

Identify the path of sunlight and its incidence on the building envelope and, based on this analysis, use solar protection according to the orientation. Blinds and curtains are used for lighting control rather than comfort temperature control.

*Personal behaviour***12** Air-conditioning filterLevel of action:
Use patterns *Description:*

Periodically clean the filters of the air-conditioning units.

Advantages:

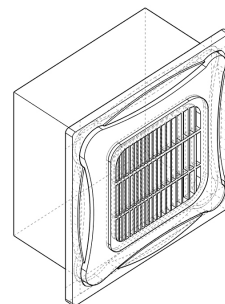
Improving performance and efficiency of air-conditioning equipment.

Disadvantages:

Not cleaning the filters can lead to produce bad smell and worsen air quality.

Impact:*Reiteration:**Expertise:**Winter application:**Recommendations:*

Clean air-conditioning filters approximately every 3 months.



Personal behaviour

13 Household use schedule

Level of action: **Use patterns** 

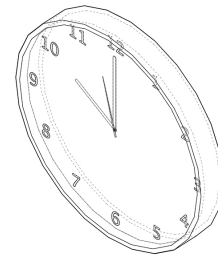
Description:
Knowing the periods when spaces will or will not be used in order to ensure the correct thermal conditioning.

Advantages:
Improving thermal comfort. Prevents indoor overheating.

Disadvantages:
-

Impact: ●●○ **Reiteration:** — **Expertise:** ⊘ **Winter application:** ⊘

Recommendations:
If a dwelling is unoccupied during the peak heat hours, ensure that the shutters are closed to prevent indoor overheating.



Personal behaviour

14 Wetting curtains

Level of action: **Use patterns** 

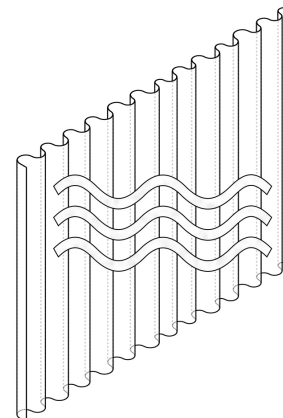
Description:
Wet curtains and combine with natural ventilation.

Advantages:
Facilitating the evaporative cooling process. Improving thermal comfort.

Disadvantages:
May cause damage to the blind fabric. Can lead to increased water consumption in the household.

Impact: ●○○ **Reiteration:** — **Expertise:** ⊘ **Winter application:** ⊘

Recommendations:
Moisten the curtain and hang it up wet. Use easily installed curtains. Combine this action with ventilation.



Personal behaviour

15 Wetting floors

Level of action:

Use patterns

**Description:**

Moistening horizontal surfaces such as indoor and outdoor floors (balconies) facilitates the evaporative cooling process.

Advantages:

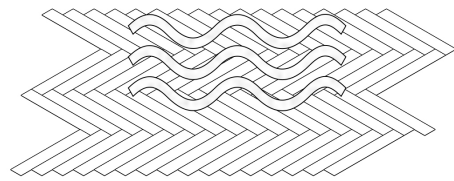
Moistening horizontal surfaces (indoor and outdoor floors) facilitates the evaporative cooling process, improving indoor comfort.

Disadvantages:

Wetting surfaces may not be as effective if the thermal characteristics of the surface are not known. For instance, a ceramic finish may accumulate more heat, so you may want to keep it in the shade. A wood finish has little inertia, and does not generate the same benefits. Can lead to increased water consumption in the household.

Reiteration:**Expertise:****Winter application:****Recommendations:**

In combination with the use of natural ventilation. Prioritise conservation of covering materials to avoid damage.



Personal behaviour

16 vegetation irrigation

Level of action:

Use patterns

**Description:**

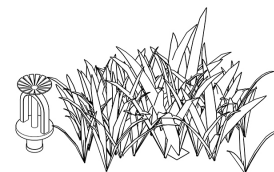
The watering of vegetation around the openings of the hose, together with natural ventilation, facilitates the evaporative cooling process.

Advantages:

Improving indoor comfort due to the presence of vegetation and its irrigation, that facilitates the evaporative cooling process.

Disadvantages:

The measure focuses on the irrigation of vegetation but not on the accumulation of water as these could accumulate heat and emanate bad smells.

Impact:**Reiteration:****Expertise:****Winter application:****Recommendations:**

Passive measures

17 New tree planting

Level of action:

Urban 

Description:

Trees provide general shading and consequent reduction of solar energy gains. They also allocate water in their foliage, that acts as a cooling agent when evaporating.

Advantages:

Increasing evaporative cooling and shading, thus reducing temperatures at street level. Filtering air pollutants. Increasing quality of life, urban climate, water retention, urban biodiversity and urban aesthetic.

Disadvantages:

Possible light reduction on lower building storeys. Increase in real estate prices due to improving urban environmental and maintenance. May increase water consumption related to irrigation.

Impact:



Reiteration:



Expertise:

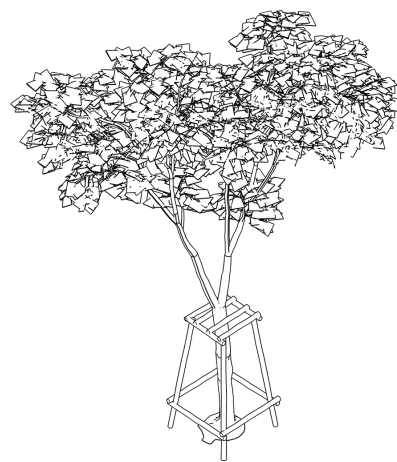


Winter application:



Recommendations:

Requires periodic maintenance. New planting trees should only be species appropriate to climate and site. It is very important not to create a "tunnel effect" by planting extensive vegetation in rows on narrow streets, increasing both pollutant concentrations and air temperature due to lack of ventilation.



Passive measures

18 Existing tree stock

Level of action:

Urban 

Description:

Existing trees can also promote urban cooling actions when restored, maintained and cared for.

Advantages:

Increasing evaporative cooling and shading, thus reducing temperatures at street level. Filtering air pollutants. Increasing quality of life, urban climate, water retention, urban biodiversity and urban aesthetic.

Disadvantages:

Possible light reduction on lower building storeys. Increase in real estate prices due to improving urban environmental and maintenance. May increase water consumption related to irrigation.

Impact:



Reiteration:



Expertise:

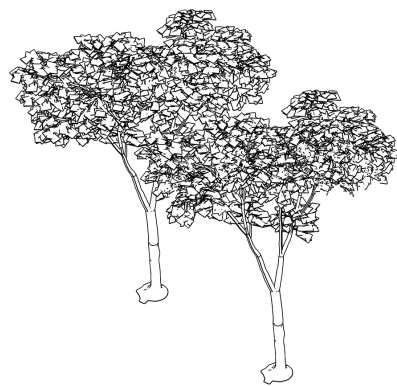


Winter application:



Recommendations:

Require periodic maintenance and review of systems and tree protection measures in place.



*Passive measures***19** Hedge or Shrubs

Level of action:

Urban **Description:**

Not only big trees generate passive cooling effects. Low size vegetation such as hedges or shrubs can allocate water in their leaves and provide freshness to the ground level.

Advantages:

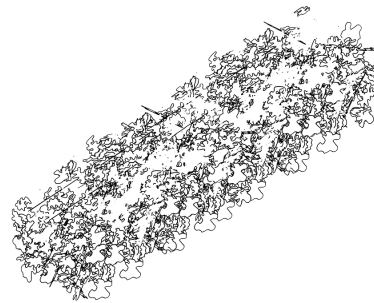
Increasing quality of life, urban climate, water retention, urban biodiversity and urban aesthetic. Shrubs are faster and cheaper to replace.

Disadvantages:

Pruning hedges could be difficult. Lack of space on pavements. Visual obstruction of parallel pedestrian or cycle paths. Costly maintenance.

Impact:**Reiteration:****Expertise:****Winter application:****Recommendations:**

Require periodic maintenance. Existing planting require review of systems and tree protection measures in place. New planting trees should only be species appropriate to climate and site.

*Passive measures***20** Grass or meadow

Level of action:

Urban **Description:**

Similar to hedges, planting substrates act as a cooling agent by providing permeable substrate.

Advantages:

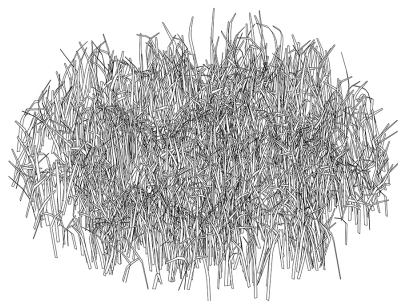
Increasing quality of life, urban climate, water retention, urban biodiversity and urban aesthetic.

Disadvantages:

Lack of space on pavements. High maintenance. May increase water consumption related to irrigation. Because of existing installations (gas, power lines, etc.) it is often impossible to plant trees or shrubs.

Impact:**Reiteration:****Expertise:****Winter application:****Recommendations:**

Require periodic maintenance. Street verges should be at least 2 m or wider to have an impact on climate.



Passive measures

21 Unplanned vegetation

Level of action:

Urban 

Description:

Natural unplanned vegetation can emerge when retiring heavy concrete soils and asphalt, which increase urban warming phenomenon. By substituting dense elements by those permeable and less massive, overwarming is reduced.

Advantages:

Increasing water retention and urban biodiversity.

Disadvantages:

Associated with untidiness. Invasive plant species can occur or dominate.

Impact:



Reiteration:



Expertise:

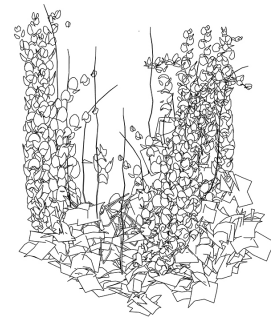


Winter application:



Recommendations:

Awareness-raising measures necessary to increase acceptance.



Passive measures

22 Concentrated gardens

Level of action:

Urban 

Description:

By concentrating planting of different species, different objectives can be achieved: temperature reduction at different heights, water retention and permeability in the soil and the increasing of biodiversity

Advantages:

Increasing quality of life, urban climate, water retention, urban biodiversity and urban aesthetic. Recreation spaces.

Disadvantages:

Costly maintenance.

Impact:



Reiteration:



Expertise:



Winter application:



Recommendations:

Require periodic maintenance. New planting trees should only be species appropriate to climate and site.



*Passive measures***23** Plant pots

Level of action:

Urban *Description:*

Empty pots can be use as spaces to promote greenery

Advantages:

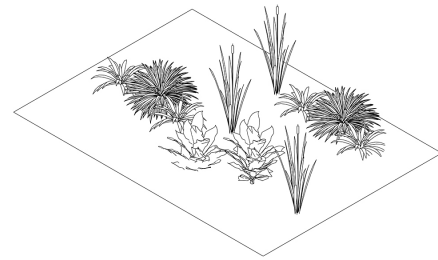
Urban aesthetic. Temporary and movable. Increasing water retention and urban biodiversity.

Disadvantages:

High maintenance. Frost protection necessary. Visual obstruction for traffic. Vandalism.

Impact:*Reiteration:**Expertise:**Winter application:**Recommendations:*

Maintenance and irrigation are required.

*Passive measures***24** Rainwater detention

Level of action:

Urban *Description:*

Water can act as a cooling agent by evaporating. When water evaporates, it captures energy from the environment, decreasing temperatures. Rainwater retention and storage helps to reduce water and energy consumption.

Advantages:

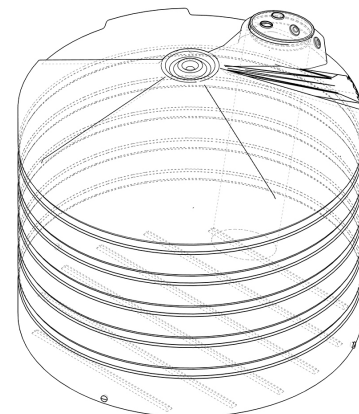
Saving drinking water used for plant irrigation. Benefits to biodiversity. Helping to decrease urban temperatures.

Disadvantages:

Structural and precautionary actions are needed.

Impact:*Reiteration:**Expertise:**Winter application:**Recommendations:*

Capturing and storing rainwater requires a lot of management and planning.



Passive measures

25 Permeable soils

Level of action:

Urban 

Description:

Permeable soils help to reduce water waste.

Advantages:

Relieving drainage loads in the event of heavy rainfall. Mitigating flooding by slowing and reducing runoff. Providing rainwater to soil, plants and groundwater. Increasing air quality and biodiversity.

Disadvantages:

Increased humidity in places where this could not be desirable.

Impact:



Reiteration:



Expertise:

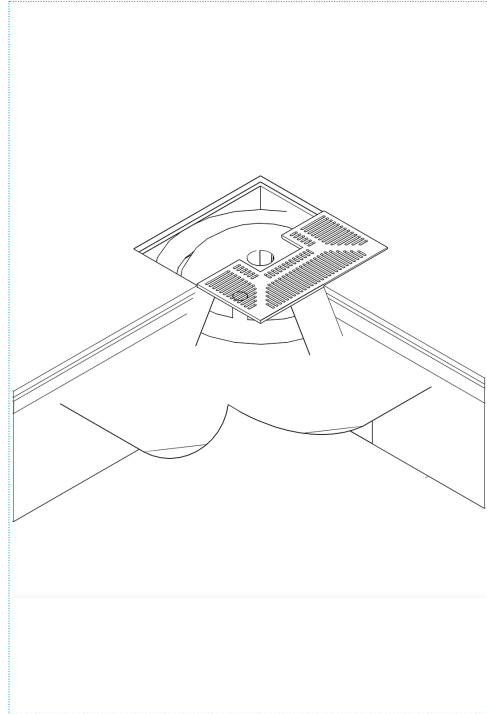


Winter application:



Recommendations:

Require rainwater management and planning.



Passive measures

26 Water fountain

Level of action:

Urban 

Description:

Fountains help to reduce temperatures. Water bodies can have a negative effect in terms of passive urban cooling, as their thermal inertia is higher to the surroundings. By fragmentating water into smaller particles, they become easier to evaporate and produce cooling effects.

Advantages:

Increasing urban aesthetic. Reusing rainwater.

Disadvantages:

High maintenance and construction costs

Impact:



Reiteration:



Expertise:

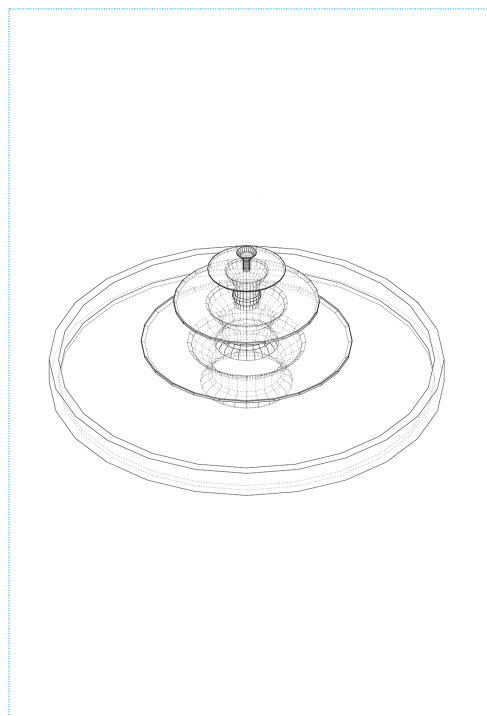


Winter application:



Recommendations:

Require compliance with health regulations.



Passive measures

27 Sprinkler irrigation

Level of action:



Description:

Irrigating systems help to maintain flora and freshness in the lower parts of the urban atmosphere.

Advantages:

Benefits to biodiversity. Helping to decrease urban temperatures.

Disadvantages:

Structural and precautionary actions are needed.

Impact:



Reiteration:



Expertise:

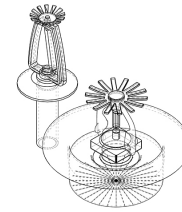


Winter application:



Recommendations:

Require rainwater management and planning. Require compliance with health regulations.



Passive measures

28 Diffusers

Level of action:



Description:

Diffusers play a similar role to fountains, adding direct skin cooling if located over pedestrians.

Advantages:

Improving thermal comfort.

Disadvantages:

Increased humidity in places where this could not be desirable. May increase drinkable water consumption.

Impact:



Reiteration:



Expertise:

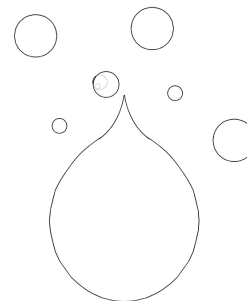


Winter application:



Recommendations:

Require compliance with health regulations.



Passive measures

29 Shading open-air spaces

Level of action:



Description:

The highest rates of energy gains of dwellings in summer are due to solar heating, in temperate climates. By incorporating solar obstruction elements such as sunshading, pergolas and awnings, an important reduction of overheating risk can be achieved.

Advantages:

Upgrading of open spaces. Improves thermal comfort. Beneficial for pedestrians.

Disadvantages:

High maintenance. Depending on the shading element, it may interfere with ventilation. Could suffer vandalism.

Impact:



Reiteration:



Expertise:

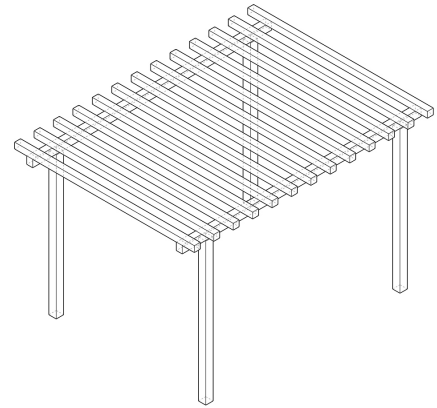


Winter application:



Recommendations:

Require periodic maintenance. Remove in winter period.



Passive measures

30 Pavement painting

Level of action:



Description:

Large dark urban surfaces on hot days cause high heat absorption and the stored heat is released at night, preventing densely built-up areas from cooling down. Painting surfaces with light colours could reduce heat gain.

Advantages:

Increasing quality of life, urban climate and urban aesthetic. Some materials could help to absorb and evaporate water.

Disadvantages:

May be costly. Can cause high levels of reflectance causing discomfort to the immediate environment.

Impact:



Reiteration:



Expertise:

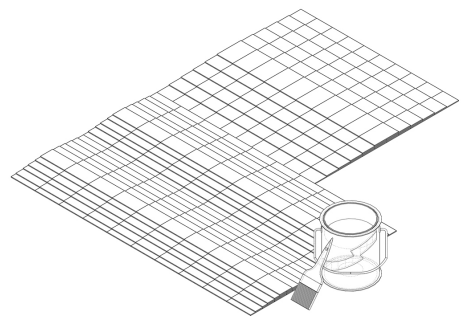


Winter application:



Recommendations:

Study the level of reflectance to avoid discomfort on the surrounding buildings. Ensure compliance with urban signage regulations in the intervention areas. Use permeable materials to favour water absorption.



Passive measures

31 Pavement replacement

Level of action:



Description:

Permeable surfaces favour evaporation and infiltration of water and tend to heat up slightly less during the day than asphalt areas.

Advantages:

Increasing urban climate, water retention and depending on design it could improve urban aesthetic.

Disadvantages:

May be costly. Materials could not meet accessibility criteria nor be appropriate for traffic areas.

Impact:



Reiteration:



Expertise:

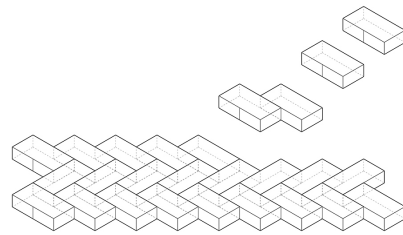


Winter application:



Recommendations:

Require compliance with urban regulations. Prioritising materials of potential reuse



Passive measures

32 Green walls

Level of action:



Description:

Green walls can act both as overheating mitigation features -by solar obstruction- and as passive coolers -by means of evaporative cooling

Advantages:

Increasing water retention, urban biodiversity and urban aesthetic.

Disadvantages:

Depending on vegetation may require ground contact. May increase water consumption related to irrigation.

Impact:



Reiteration:



Expertise:



Winter application:



Recommendations:

Vegetation require periodic maintenance. Provide wall maintenance.



Passive measures

33 Green roofs

Level of action:

Building 

Description:

Greening the building's envelope (roofs and facades) serves as a thermal buffer, protecting the construction from solar gains and providing a fresh "skin" due to evaporative cooling of the water that is located in the plants

Advantages:

Protecting the roof from UV radiation. Improving thermal comfort in rooms directly beneath the green roof during summer. Increasing quality of life, urban climate, water retention, urban biodiversity and urban aesthetic. Recreation spaces.

Disadvantages:

High construction costs. Possibly not suitable for heritage conservation. May increase water consumption related to irrigation.

Impact:



Reiteration:



Expertise:

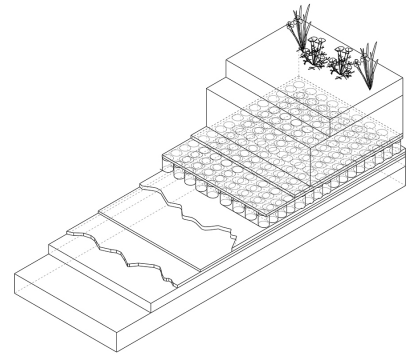


Winter application:



Recommendations:

Vegetation require periodic maintenance. Provide roof maintenance.



Passive measures

34 Green facades

Level of action:

Building 

Description:

Green facades can act both as overheating mitigation features -by solar obstruction- and as passive coolers -by means of evaporative cooling

Advantages:

Increasing thermal insulation. Filtering air pollutants. Increasing quality of life, urban climate, water retention, urban biodiversity and urban aesthetic.

Disadvantages:

High construction costs. Possibly not suitable for heritage conservation. May increase water consumption related to irrigation.

Impact:



Reiteration:



Expertise:

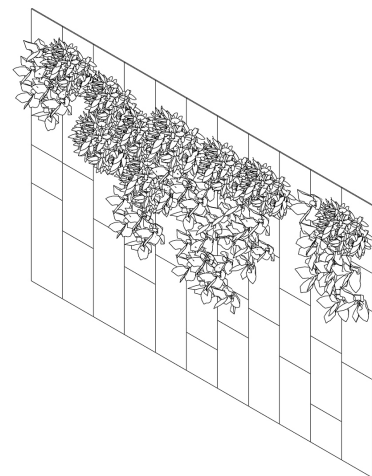


Winter application:



Recommendations:

Vegetation require periodic maintenance. Provide wall maintenance.



Passive measures

35 Crossed ventilation

Level of action:

Building 

Description:

One of the best strategies in dry and temperate climates is natural ventilation during the night and first hours in the morning, when temperatures are the lowest. For this strategy to work in the best way, openings must face each other and chimney ventilation should be enhanced.

Advantages:

Renovation of air. Improving thermal comfort. Indoor overheating reduction.

Disadvantages:

Difficult to implement in heritage and existing buildings.

Impact:



Reiteration:



Expertise:

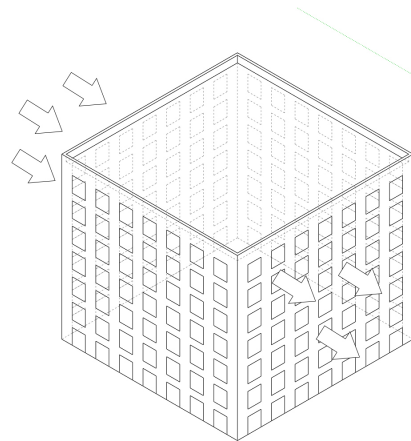


Winter application:



Recommendations:

Promoting passive cooling designs at building level. Ensure communication between bottom and top of the building.



Passive measures

36 Installation of external insulation systems

Level of action:

Building 

Description:

External wall cladding with thermal insulation.

Advantages:

Improving envelope thermal performance. Reducing air-conditioning energy consumption.

Disadvantages:

Possibly not suitable for heritage. High construction costs. As a summer season measure its effect may be limited, if not combined by passive cooling measures.

Impact:



Reiteration:



Expertise:

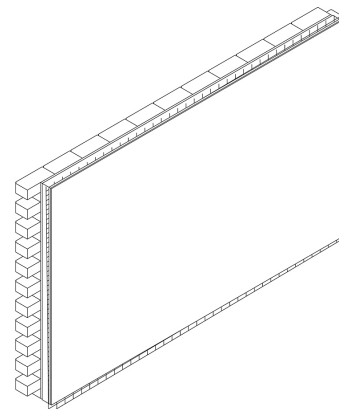


Winter application:



Recommendations:

Technical advice is required. It is recommended to have carried out accessibility works in order not to break the tightness achieved in the future.



Passive measures

37 Facade painting

Level of action:

Building



Description:

Large dark building surfaces on hot days cause high heat absorption and the stored heat is released at night, preventing densely built-up areas from cooling down. Painting surfaces with light colours could reduce heat gain.

Advantages:

Reducing air conditioning needs. Improving indoor thermal comfort, thus increasing quality of life.

Disadvantages:

Possibly not suitable for heritage. Conflict with the need of solar heat gains during winter season.

Impact:



Reiteration:



Expertise:

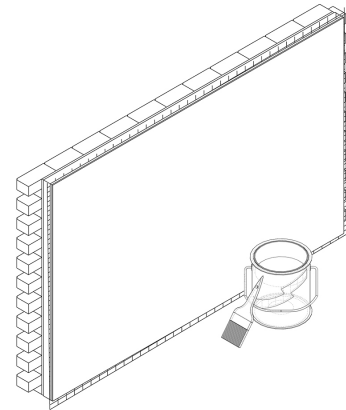


Winter application:



Recommendations:

Using light-coloured surface materials with a low thermal mass. Combine this action with other passive ones.



Passive measures

38 Roof painting

Level of action:

Building



Description:

Large dark building surfaces, such as roofs and facades, on hot days cause high heat absorption and the stored heat is released at night, preventing densely built-up areas from cooling down. Painting surfaces with light colours could reduce heat gain.

Advantages:

Reducing air conditioning needs. Improving indoor thermal comfort, thus increasing quality of life.

Disadvantages:

Possibly not suitable for heritage. Conflict with the need of solar heat gains during winter season.

Impact:



Reiteration:



Expertise:

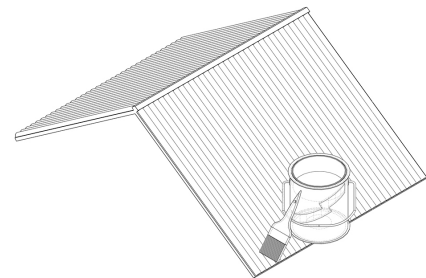


Winter application:




Recommendations:

There are special materials with higher reflectivity and the ability to dissipate the heat more quickly to the environment than conventional materials. Combine this action with other passive ones.



Passive measures

39 Self-supporting wall cladding with thermal insulation

Level of action:
Housing 

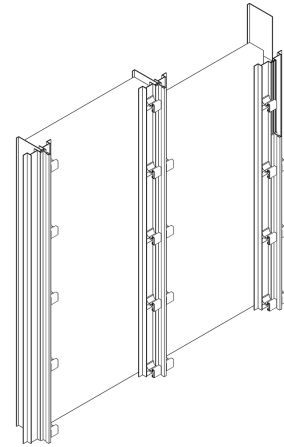
Description:
Interior wall cladding with a laminated plasterboard system. These are assembled on galvanised steel substructure between which the thermal insulation, usually rock wool with moisture barrier, is placed.

Advantages:
Improving envelope thermal performance.

Disadvantages:
Loss of interior space and reinstallation of electricity (boxes and mechanisms).

Impact: ●●● **Reiteration:** ● **Expertise:** ✓ **Winter application:** ✓

Recommendations:
Technical advice is required. A condensation study is recommended in case it is necessary to incorporate a vapour barrier.



Passive measures

40 Direct thermal insulated wall cladding

Level of action:
Housing 

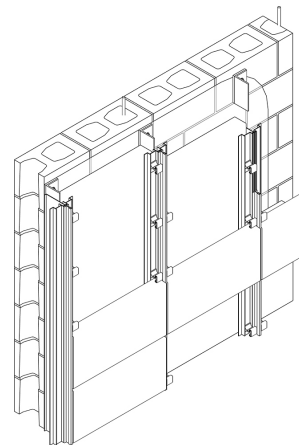
Description:
Interior cladding with laminated plasterboard system with built-in thermal insulation (EPS, mineral wool, cork). Applied directly on existing walls.

Advantages:
Improving envelope thermal performance. Quick implementation.

Disadvantages:
Loss of interior space and reinstallation of electricity (boxes and mechanisms). As a summer season measure its effect may be limited, if not combined by passive cooling measures.

Impact: ●●○ **Reiteration:** ● **Expertise:** ✓ **Winter application:** ✓

Recommendations:
Technical advice is required. A condensation study is recommended in case it is necessary to incorporate a vapour barrier.



Passive measures

41 Blown-in cavity insulation

Level of action:

Housing 

Description:

Thermal insulation in walls and ceilings by filling the inside of the air chamber with (40 mm average thickness).

Advantages:

Low impact of construction work on housing. Quick implementation.

Disadvantages:

The installation of the measure could be done from the inside of the house or from the outside, depending on the location of the house within the block. It may be difficult to get the material into the house. Once the insufflation has been completed, the affected walls must be filled and painted. As a summer season measure its effect may be limited, if not combined by passive cooling measures.

Impact:



Reiteration:



Expertise:

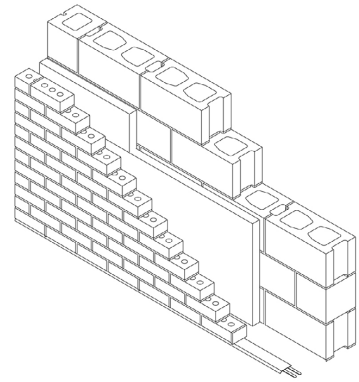


Winter application:



Recommendations:

Technical advice is required. A prior inspection should be carried out to check the interior condition of the air chamber.



Passive measures

42 Continuous painting

Level of action:

Housing 

Description:

Breathable mineral-based paints.

Advantages:

Quick and easy installation.

Disadvantages:

Limited impact.

Impact:



Reiteration:



Expertise:

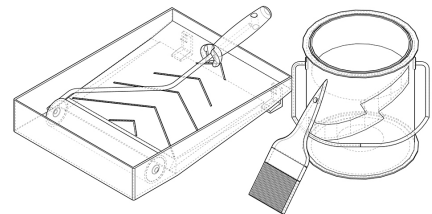


Winter application:



Recommendations:

Washable paint to be applied in three coats by roller. In case of plaster substrates a primer coat must be applied. Avoid synthetic-based paints.



Passive measures

43 Replacement of openings

Level of action:
Housing 

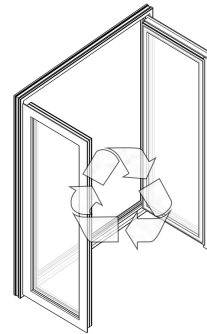
Description:
Aluminium frames with thermal break or PVC, 4/16 Argon insulating double glazing + We/4 low emissive + solar control, with PVC shutter box and aluminium shutter slats.

Advantages:
Improving thermal insulation and reduces infiltration losses.

Disadvantages:
It can be costly.


Impact: ●●● **Reiteration:** ● **Expertise:** ✓ **Winter application:** ✓

Recommendations:
If aluminium windows are used, give priority to windows with thermal break.



Passive measures

44 Double openings

Level of action:
Housing 

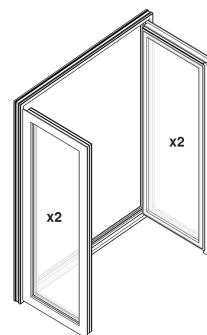
Description:
Sliding door and window frames made of aluminium with or without thermal break in white with 4/8/4 transparent double glazing, fitted on the exterior or interior face forming a double window with the existing one.

Advantages:
Improving thermal insulation and reduces infiltration losses.

Disadvantages:
This double window system makes it difficult to clean the leaves. The sliding sash system limits the opening of the entire window opening.

Impact: ●●● **Reiteration:** ● **Expertise:** ✓ **Winter application:** ✓

Recommendations:
Place the best-performing window on the inside.



Passive measures

45 Roller shutter box insulation

Level of action:

Housing 

Description:

Installation of thermal insulation (EPS) inside the shutter box.

Advantages:

Quick and easy installation. Limited thermal gains and losses.

Disadvantages:

-

Impact:



Reiteration:



Expertise:

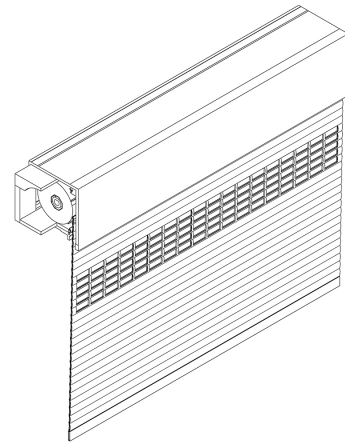


Winter application:



Recommendations:

Place the material on the inside front of the roller shutter box. Can be combined with reflective insulation foil to reinforce the thermal insulation of the box.



Passive measures

46 Weatherstrip

Level of action:

Housing 

Description:

Strip, usually of plastic material, which is placed on doors and windows.

Advantages:

Reducing infiltration. Quick and easy installation. Improving thermal insulation. Improving acoustic insulation.

Disadvantages:

Limited impact

Impact:



Reiteration:



Expertise:

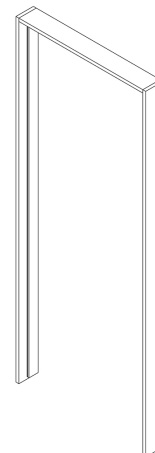


Winter application:



Recommendations:

Clean the adhesion surfaces.



*Passive measures***47** Disused gas vents in facades

Level of action:

Housing *Description:*

Cover pre-existing gas vents using thermal insulation foam.

Advantages:

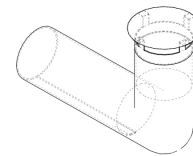
Low impact of construction work on housing. Quick implementation.

Disadvantages:

-

Impact:*Reiteration:**Expertise:**Winter application:**Recommendations:*

If possible, remove the grids and seal the inner side of the hole.

*Passive measures***48** Blinds

Level of action:

Housing *Description:*

Opaque curtain located on the inside of the dwelling or reflective curtain located on the outside of the dwelling.

Advantages:

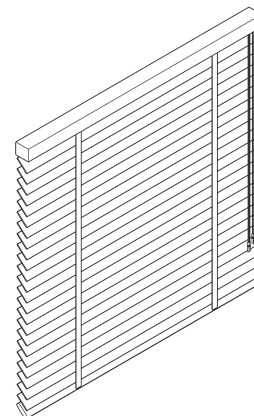
Improving aesthetics and lighting control.

Disadvantages:

The cost may be higher depending on the material and size of the curtain. It does not prevent solar radiation from penetrating through the window.

Impact:*Reiteration:**Expertise:**Winter application:**Recommendations:*

It should be light-coloured to reflect as much radiation as possible in summer conditions. In the case of opaque curtains, it is advisable to have a double curtain to allow light to pass through during the day.



Passive measures

49 Awnings

Level of action:

Housing 

Description:

Awning with two supports and aluminium structure, in white, manual arm, with acrylic fabric.

Advantages:

Avoiding solar gain while maintaining illumination. Mobile measure adaptable to weather conditions and needs.

Disadvantages:

Dirt (lighter shades) and aging (darker shades)

Impact:



Reiteration:



Expertise:

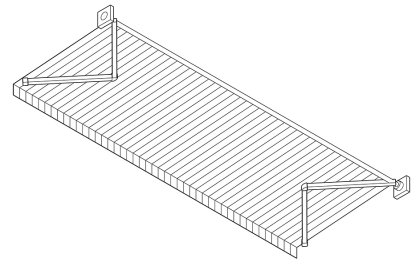


Winter application:



Recommendations:

Install on façades where it is necessary to protect from sunlight after a study of solar obstructions. Separate from the façade for air circulation. Use light colours for better performance.



Passive measures

50 Indoor / Outdoor shadow elements

Level of action:

Housing 

Description:

Exterior shutter made of wood, aluminium, steel or PVC with fixed slats, with two folding leaves. Wooden or PVC shutter located on the inside. Can be opaque or with slats.

Advantages:

The mobility of the slats allows the entrance of light and sunlight to be regulated at any time of the year. Indoor shutter: easy and cost-effective to install.

Disadvantages:

Wooden slats may require more active maintenance as they can be damaged by humidity. The protection on the inner side is not efficient in the summer season.

Impact:



Reiteration:



Expertise:

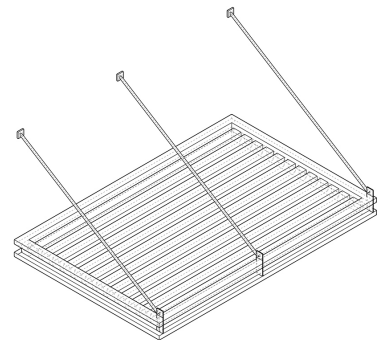


Winter application:



Recommendations:

-



Passive measures

51 Shutter

Level of action:

Housing 

Description:

Rolling shutter with 60 mm high extruded aluminium security slats, white, equipped with shaft, discs, capsules and all its accessories, with manual operation by means of belt and catcher.

Advantages:

Privacy control and adjustable sunlight barrier.

Disadvantages:

If the shutter box is not well insulated, thermal losses and gains can occur.

Impact:



Reiteration:



Expertise:

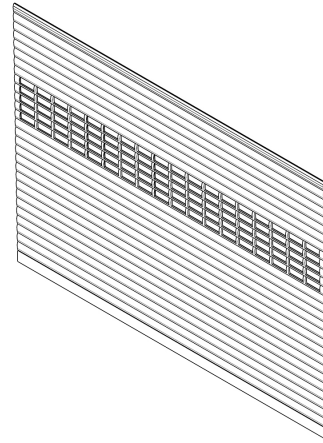


Winter application:



Recommendations:

It is important to make a good external seal to prevent moisture infiltration. If it is installed on the outside, the top cover of the roller shutter box must have a slope and a drip tray for water drainage.



Passive measures

52 Solar control film

Level of action:

Housing 

Description:

Polyester solar control film, with modified acrylic as adhesive. Modify the radiant surface of the glass, reducing solar irradiation gains in summer conditions.

Advantages:

Easy to install and cost-effective solution.

Disadvantages:

It is useful in the summer period but may be counterproductive during the winter.

Impact:



Reiteration:



Expertise:



Winter application:



Recommendations:

The solar control film should be placed on the outer face of the exterior glass.



Passive measures

53 Vegetation

Level of action:

Housing 

Description:

Vegetation placed indoor or outdoor. Extendable window support for placing of pots with vegetation.

Advantages:

Simplicity of installation.

Disadvantages:

Limited impact.

Impact:



Reiteration:



Expertise:



Winter application:



Recommendations:

-



Active measures

54 Air-conditioning use

Level of action:

Housing 

Description:

Make conscious use of air-conditioning equipment by setting the temperature to around 25 °C.

Advantages:

Possibility to control indoor thermal comfort conditions.

Disadvantages:

High energy consumption. Does not guarantee indoor air renewal.

Impact:



Reiteration:



Expertise:

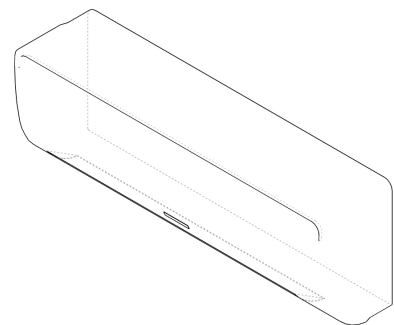


Winter application:



Recommendations:

It is recommended to not set the air conditioning temperature to very low temperatures to avoid a high indoor/outdoor contrast. Keep windows and doors closed to prevent leaks. Do not expose the thermostat of the equipment to nearby heat sources.



Active measures

55 Lighting

Level of action:

Housing *Description:*

Use of LED or energy-saving lightbulbs.

Advantages:

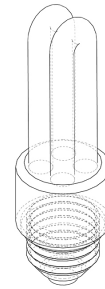
Reducing of electricity consumption. Reduction of internal thermal loads.

Disadvantages:

Higher costs.

Impact:*Reiteration:**Expertise:**Winter application:**Recommendations:*

-



Active measures

56 Energy consumption measuring

Level of action:

Housing *Description:*

Use of electricity consumption measuring devices.

Advantages:

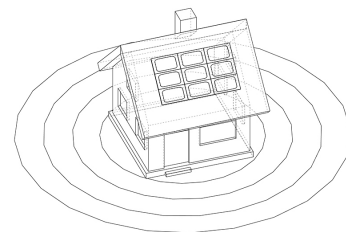
Monitoring electric consumption of specific devices. Possibility of programming the switching on and off of electrical appliances.

Disadvantages:

Some models may require more advanced technological knowledge.

Impact:*Reiteration:**Expertise:**Winter application:**Recommendations:*

The most useful way of using these elements is by programming the switching on and off of equipment such as electric water heaters or air-conditioning units.



Active measures

57 Equipment performance

Level of action:

Housing 

Description:

Energy efficiency of both domestic hot water and air-conditioning equipment and household appliances.

Advantages:

Energy saving. Monetary savings.

Disadvantages:

Higher primary purchase cost.

Impact:



Reiteration:



Expertise:

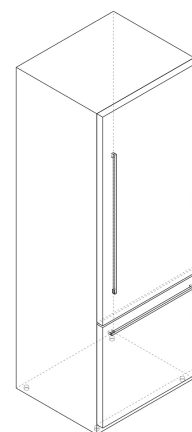


Winter application:



Recommendations:

Avoid equipment standby. Ensure that disused equipment is unplugged.



A+++

6. Energy bills

Not all households have an air conditioning system, and it is known that energy poor households make a restrictive use of heating and cooling as they cannot afford associated energy bills. These materials aim to help households with their own energy bills reading and make them understandable. By reviewing tariffs and knowing their energy rights and social tariffs available, potential beneficiaries can request them and build their own criteria on which services and costs can modify to save money and energy. In this solution, key strategies to optimize energy bills and access to social tariffs are explored.

The guides are designed following this structure:

1. The first section includes a state of art of energy market for each location, explaining how the energy gets homes, and how energy prices are set. By reviewing how energy is generated, distributed, and commercialized and explaining how energetic markets work, households understand the whole energy system and how does each part affect directly or indirectly to their energy bills.
2. Energy bills images both sides are included, identifying, and explaining each part.
3. Information about energy rights and opportunities is included. Here, social tariffs, energy bonus, and other resources are showed, incorporating required documentation and criteria. A list of main contacts and information points, if available, are given.

COLOR CODING OF LABELS

Bulgaria

Greece

Spain

Italy

Energy bills. Bulgaria

COOLTORISE

*Raising summer energy poverty awareness
to reduce cooling needs*



Bulgaria

Electricity

Electricity market.

The electricity market in the Republic of Bulgaria is in the process of gradual liberalization, which started in 2004 and continues even today. It consists of two segments, a segment with regulated prices and a segment with freely negotiated prices, or the so-called free market.

- Regulated electricity market (with fixed prices – regulated by the State), and
- Fully liberalized electricity market

Regulated market of electricity in Bulgaria

In the regulated segment, electricity prices are defined by the Energy and Water Regulatory Commission (EWRC), which is a state body, and consumers are served by end suppliers (subsidiaries of electricity distribution companies) distributed on a territorial basis. Currently, this segment includes only household consumers (households). From 1st of July 2021, all business consumers were positioned onto the free/liberalized market. Therefore, only household consumers remained on the regulated market. The main electricity supplier for households in the region of Pazardzhik is the Austrian company EVN. It is the same in both target pilot territories in Bulgaria, Pazardzhik and Peshtera, there is practically only one supplier of electricity (EVN) and only one supplier of natural gas (Overgas).

Liberalized (free) market of electricity in Bulgaria

In the free segment, customers can change their electricity supplier without being affected by their geographical location. Consumers continue to pay for transmission and access to the grid to which they are connected (there are two types of grid: transmission or distribution). In the free market, the EWRC does not determine the price of electricity. The Commission only has the role of a regulator that monitors market participants. It has the power to determine the Electricity Trading Rules (ETS), the amount of network charges, and the «Liabilities to society» taxation. Electricity on this market is purchased from traders, industrial end users, and network operators at freely negotiated prices and / or from the platforms of the Bulgarian Independent Energy Exchange (BIEE).

Bulgaria

Electricity

EVN

6

Фактура № 1801513428 *ОРИГИНАЛ* - детайлна информация
 Отчетен период: 01.02.2022 - 28.02.2022

Номер ел-мер	Часова зона	Показания ново	Показания старо	Разлика	Конст.	Сужебно кВтч	Приспад. кВтч	Общо кВтч	Начисл. кВтч	Цена лв/кВтч Мрежа	Цена лв/кВтч Енергия	Стойност лева
За отчетен период: 01.02.2022-28.02.2022												
013016659	Д	4127	3897	230	1	0	0	230	230	0.37552		86.37
013016659	Н	311	300	11	1	0	0	11	11	0.37552		4.13
Задължения към обществото										241	0.00718	1.73
Пренос по ел.разпред. мрежа до обект на Ниско напрежение										241	0.03783	9.12
Пренос и достъп през/до електропреносната мрежа										241	0.01197	2.89
Достъп до разпределителната мрежа											0.02060	3.46
Предоставена мощност = 6.000 кВт												
Отчетен период: 01.02.2022-28.02.2022												
ИТ N: 02										ГР. ПАЗАРДЖИК УЛ.		(Сума 107.70 лв)
Общо активна енергия (кВтч):								241				

7

***Рекапитулация по цени на електрическа енергия/без ДДС/**

КВАР	кВтч	Ед.цена	Сума/лева/
Ел. енергия Идеал от 01.02.2022 до 28.02.2022			
	11	0.37552	4.13
Ел. енергия Идеал от 01.02.2022 до 28.02.2022			
	230	0.37552	86.37
	241		90.50
Начислен акциз по 2.00 лв/Мвтч. върху 241 квтч. активна енергия			
	241	0.00718	1.73
Задължения към обществото			
	241		92.71
	Брой	Ед.цена	Сума/лева/
Административна такса обслужване			
	1	2.99000	2.99
			95.70

8

Рекапитулация по цени и надбавки по Чл.7 от НРЦЕЕ за разпределение на електрическа енергия/без ДДС/

КВАР	кВт	кВтч	Ед.цена	Сума /лева/
Пренос по ел.разпред. мрежа до обект на Ниско напрежение				
		241	0.03783	9.12
Пренос и достъп през/до електропреносната мрежа				
		241	0.01197	2.89
Достъп до разпределителната мрежа				
	6		0.02060	3.46
				15.47

*** Цените за задължения към обществото и мрежовите услуги са определени с Решение № Ц-27/01.07.2021 г. на КЕВР.**

Доставчик/Вложител:
 EVN България Електроснабдяване ЕАД
 Търговец свободен пазар
 ул. Христо Г. Данов 37
 4000 Пловдив, България
 Тел. +359 (0) 07001 7777
 e-mail: info@evn.bg

Вписано в Търговския регистър към
 Агенцията по вписванията с
 ЕИК 123526430,
 ИН по ДДС BG123526430
 Акцизен № BG00300050001

Ситибанк Н.А. София
 СПБVGSF
 BG39 СПИ 9250 1000 1090 01

6. Detailed statistics
 7 and 8. Additional taxes
 imposed.

FIGURE 50 INVOICE FOR
 ELECTRICITY SUPPLY. (P.2)
 BULGARIA

Electricity invoice.

1) Recipient of invoice and address of the recipient – this is normally the owner of the real estate (house, flat, etc.).

2) Date of issue and maturity data: the maturity date is very important, because a user must pay the bill until this date. After this date, there is a 10-day period, where delay interests can be imposed, and the supplier of electricity can warn the recipient. If the recipient does not pay his/her bill again, then follows a cutoff from the grid.

3) Some personal data related to the 'Client ID number' - with this number, the customer is identified in front of the supplier. This box also contains information about the address of consumption. It can be different from the address of the recipient of the invoice. It also contains information about the reporting period, which is normally one month.

4) This is the core part of the bill, showing the number of kWh of electricity consumed during the reporting period, and the total costs for the consumed electricity. It also contains information about the different taxes imposed on the consumer. In the case of the liberalized market, these additional taxes are:

- Obligation to society fee
- Excise duty
- Administrative service fee
- Transmission through the electricity distribution network
- Transmission and access through / to the electricity distribution network
- Access to the distribution grid

Then 20% of VAT is imposed, and the end rows show if some compensations are imposed or not. Due to extremely high electricity prices at the beginning of 2022, the Bulgarian Government took an emergency decision to compensate end users on the liberalized market for a period of 3 months.

5) Section 5 of the invoice explains the different ways and methods of payment such as bank account payment, cash terminals, online payment methods, etc. Consumers can choose the most convenient way of paying their monthly bill. At the end of this section, a date is indicated - the final payment date (maturity date), and a warning statement in bold, which says: "If that maturity date is not respected, 10 days after it the electricity supply could ceased".

Bulgaria

6) Some detailed statistics of the consumption is shown there, such as number of kWh consumed, how many of them were during the day tariff and how many of them are from the nearby tariff. The night tariff starts at 10 p.m. and continues until 6 a.m. Normally, the price of the night tariff is lower than the price of the daily rate. However, in the case of liberalized market, the contracted price is only one, and it is not affected by night or daily consumption.

7) and 8) explain some additional taxes imposed on the consumer such as the obligation to society fee, excise duty, administrative service fee, etc., and how these fees are calculated based on the number of kWh consumed.

Resources and information about rights and opportunities

Since Bulgarian households are still positioned on the regulated market, there are no social tariffs yet. However, the Bulgarian government works on the implementation of social policy with reduced rates of electricity for vulnerable groups of citizens once the market becomes completely liberalized.

The vulnerable groups proposed in the draft version of the Regulation for social tariffs of electricity are the following:

- Citizens over the age of 70 years, living alone and receiving income only from pensions up to the amount of the determined poverty line in the country for the respective year.
- Persons with more than 90% reduced working capacity and with appointed extra care.
- Families with children with disabilities and with appointed extra care.
- Persons and families who receive targeted heating assistance under the Social Assistance Act.

The defined aid will cover the necessary basic electricity needs for households, respectively:

- Up to 100 kWh per month for a person / household using the services of central heating or natural gas for domestic water heating, or
- Up to 150 kWh for a person / household using an electric hot water boiler, outside the heating needs.

Other nonfinancial measures, which will aim to protect vulnerable consumers include:

- Creating a register of vulnerable customers who could not be cut off from the electricity grid due to their health condition – for people with life-sustaining equipment in their homes (leading role of the Ministry of Health).
- Prohibition to cut off the electricity supply during the winter period for a period of 30 days after the set final date for payment for persons with over 90% of reduced working capacity, and with appointed extra care.
- Opportunity for debt restructuring.
- Communication campaign.
- Impartial and reliable tools, on-line platforms, and other tools for comparing the prices of different electricity suppliers.

Electricity Bulgaria

- Code of Ethics – rules for the good behavior of suppliers in relation to the supply of electricity.

The supply of electricity is carried out based on a contract concluded under general conditions between the owner of the property (household) and the respective electricity distribution company. Pursuant to this contractual legal relationship, the parties assume several rights and obligations, and the main obligation of the electricity distribution company is to supply electricity and the consumer – to pay its value. If the electricity distribution company does not fulfill its obligations for electricity supply, if there are no objective reasons for this, such as force majeure, the company is liable for failure to fulfill its contractual obligation and owes compensation for damages based on Art. 82 of the Obligations and Contracts Act.

Compensation for failure to comply with the obligation to supply electricity is due to all direct and immediate damages resulting from failure to comply with the obligation. This compensation covers both property and no property damages.

The situation is like the contractual relations related to water and gas supplies. In case the respective provider does not supply at all or does not provide quality service for which the supplier is responsible, the latter, on a contractual basis, owes compensation for non-performance of its contractual obligations. The affected consumers can claim both pecuniary and nonpecuniary damages.

Cut off electricity due to overdue invoices.

If a citizen does not pay their electricity bills within the maturity date, then the electricity supply company gives another 10 days to inform the citizen about overdue invoices. If the citizen does not pay again, then the company can cut the electricity supply to its client. In case of such a situation, the electricity supply can be restored only after the reasons that led to this situation are resolved, that is, payment of overdue invoices and payment of a connection fee for recovery. The company offers two options, express and ordinary. When paying for express recovery (the fee is 38 BGN), the recovery of electricity takes up to 6 astronomical hours, and for the regular one (cost of fee is 19 BGN) – up to 12 o'clock on the next working day.

Main contacts:

The company that supplies electricity on the regulated market (to households) is EVN. The following contact details can be used by their customers in the Peshtera and Pazardzhik municipalities.

- For electricity supply and services: Tel. 0700 1 7777 – Monday to Friday, from 8 am to 5 pm.
- For network issues and lack of supply: Tel. 0700 1 0007 (+359 32 970007), 24 hours, 7 days a week.
- For checking of electricity bill: 0700 1 0207 (+359 32 970777), 24 hours, 7 days a week.

Bulgaria

Gas

Gas market.

Currently, both markets exist in Bulgaria: a regulated market and a free/liberalized market, but Bulgaria depends entirely on one source of supply. Local production is minor and there are no reversible connections to neighboring countries. These factors determine the uncertainty of supply, as well as insufficient competition on the gas market.

Overgas Networks SA serves the largest number of customers - 57,816, which represents 66% of all natural gas consumers in the country, followed by Aresgaz SA (successor of Rila Gas SA and CTK AD) with 11,615 consumers, who represent 13% of all natural gas customers, Sevlievogaz-2000 SA with 4,609 consumers or 5.3% of the total number, Balkangaz 2000 AD with 4,065, which is 4.7%. The total number of gas distribution companies' consumers in 2016 increased from 81,620 in 2015 to 87,274, which is an increase of almost 7% in one year. The number of household customers increased by 7% and the number of business customers by 5%.

The main national gas pipeline passes through the Pazardzhik district and feeds the towns of Pazardzhik and Peshtera. The total length of the gas pipeline built on the territory of the district is 69,100 m. Most industrial companies and those of the public sector in both towns, such as schools, hospitals, and administration buildings, have been gasified. The percentage of households, however, that use this type of energy in everyday life is quite insignificant. The total annual consumption of natural gas is 19,400,000 normal m³, divided into the following sectors: industry 58%, public sector 31%, households 11%. Natural gas supply is carried out by the national utility company Overgas Networks SA.

The maps of the gas distribution network in the municipality of Pazardzhik and in the municipality of Peshtera are shown below.

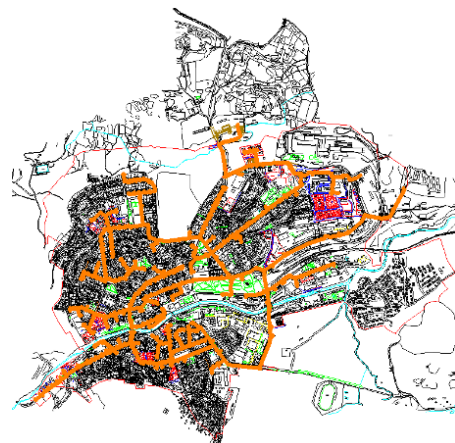
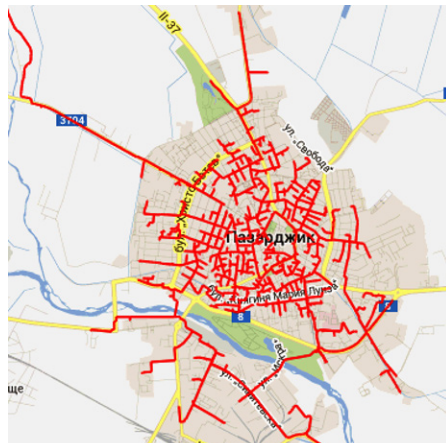


Figure 51 and 52 Gas distribution network in Pazardzhik city & Map of the gas distribution network in town of Peshtera

Gas Bulgaria

ОРИГИНАЛ

ФАКТУРА №7122092707
Дата на издаване: 31.12.2020; Място на съставяне: ПАЗАРДЖИК
СРОК ЗА ПЛАЩАНЕ: 11.01.2021

ДОСТАВЧИК
ОВЕРГАЗ МРЕЖИ АД
Гр. СОФИЯ 1407 ул.ФИЛИП КУТЕВ № 1;
Идент. номер: 130533432
ДДС номер: BG130533432
Разпл. с-ка: BG57UNCR70001522677108
Код: UNCRBGSF; Банка: УНИКРЕДИТ БУЛБАНК АД

ПОЛУЧАТЕЛ
ПАЗАРДЖИК ул. ... ул.
Идент. номер:
ДДС номер:
ОБЕКТ: гр. ПАЗАРДЖИК 4400 ул.

Абонатен №:
4400 кв.* ул.
ет.
4400 ПАЗАРДЖИК

1131

Партида: Абонатен №: ...

Наименование на стоката/услугата	Мярка	Количество	Един. цена	Стойност
Разпределение на природен газ от 01.12.2020 до 31.12.2020	MWh	0.01054	25.84	0.27
Снабдяване с природен газ за Декември 2020	брой	1.000000	3.13	3.13
Доставка на природен газ от 01.12.2020 до 31.12.2020	MWh	0.010540	27.70	0.29
Пренос през газопреносната мрежа				0.01
Достъп до газопреносната мрежа				0.02
Акциз ставка в лв: 0.00 лв	GJO	0.037900	0.00	0.00
Данъчна основа на доставката:				3.72
Дата на данъчното събитие или на плащането: 31.12.2020				
Ставка на ДДС:20% / ДДС на данъчната основа:				0.74
Основание за нулева ставка / неначисляване на ДДС:				
ДДС е изискуем от получателя на основание чл.				
ДДС е изискуем от придобиващия				
Сума за плащане: (четири лв. и 46 ст.)				4.46

Начин на плащане: По банков път

Стойката е получена от Съставил: Полина Ценова

ПОЛУЧАТЕЛ (Подпис)

Разходомер №	Старо	Ново	Коефициент на коригиране	Коригирано количество	Коефициент на преобразуване	Количество енергийни единици (1)
7A12164	12404	12405	1.0420	0.001 x 1000m ³	10.540 kWh/m ³	0.010540 MWh

(1) Коефициентът за преобразуване е определен от оператора на преносната мрежа, като представителна калоричност за месец декември 2020 г.

Ако сте заменили с природен газ: Дивелово гориво, Пропан-бутан, Електрическа енергия, Вие намалите разходите си за енергия

0.84 лв. 2.95 лв. 1.06 лв. 3.59 лв.
0.42 лв. 1.06 лв. 1.48 лв. 3.59 лв.

Национален телефон: 0700 11 110
Аварийен телефон: 0800 11 211
gas@overgas.bg
www.overgas.bg

Уважаеми клиенти, за месец декември, Овергаз понижава цената на природния газ за своите битови потребители с 0,9% на сто на мегаватчас. Срок за плащане: 11.01.2021г. В случай, че дължимата сума не бъде заплатена в указания срок дължите неустойка в размер на 1/360 от законната лихва /ОЛП + 10 пункта/ на дължимата сума за всеки просрочен ден до датата на окончателното ѝ заплащане. Съгласно Чл. 55.3. от общите условия за разпределение и снабдяване с природен газ на потребители за битови нужди, при неплащане газоподаяването ще бъде прекратено в 8.00 часа на 22-01-2021. Повече информация може да получите на телефон 070011110 (на цената на градски разговор); електронна поща: gas@overgas.bg или www.overgas.bg

1. Personal data.
2. ID number
3. Supplu service id.
4. End date for payment
5. Readings and conversion.
6. Conversion factor.
7. Payment terms.
8. Quantity of natural gas consumed.
9. Total price.

FIGURE 53 INVOICE FOR NATURAL GAS SUPPLY. BULGARIA

Bulgaria

Gas

Gas invoice.

1. Personal data of the citizen/consumer of natural gas.
2. Unique identification number which is used by the company to store data about the consumer in their database.
3. The supply service is pointed in numbers because this is a monthly fee that is not dependent on gas consumption.
4. End date for paying the bill without penalties.
5. Readings were measured by the gas metering device at the beginning and end of the reporting period and recalculated in energy units (MWh) through a conversion factor.
6. Conversion factor - This parameter is defined by the meteorological and geographical characteristics of the respective region and is calculated according to an established methodology of the State Energy and Water Regulatory Commission.
7. This part of the invoice describes what the payment terms are and what interest rate is imposed after the maturity date. It also defines the exact date and time when the connection to the network can be cut because of an inability to pay the bill.
8. The quantity of natural gas consumed during the reported period, normally 1 month.
9. The total price represents the sum of values of several services:
 - distribution of natural gas.
 - supply of natural gas.
 - transmission through the gas distribution network.
 - access to the gas distribution network.

Resources and information about rights and opportunities

There are no social tariffs for vulnerable households to support bills for natural gas.

Similarly, to the supply of electricity, the supply of natural gas is carried out based on a contract concluded under general conditions between the owner of the property (household) and the respective gas supplying company. For the Cooltorise pilot region in Bulgaria, this is the company of Overgas Networks SA. Pursuant to this contractual legal relationship, the parties assume several rights and obligations, and the main obligation of the gas supplying company is to supply natural gas and the consumer to pay its value. If the company does not fulfill its obligations for gas supply, and there are no objective reasons for this, such as force majeure, the company is liable for failure to fulfill its contractual obligation and owes compensation for damages based on Art. 82 of the Obligations and Contracts Act.

The compensation for failure to fulfill the obligation to supply natural gas is due to all direct and immediate damages resulting from failure to fulfill the obligation. This compensation covers both property and no property damages.

Main contacts:

The company supplying natural gas on the regulated market (to households) is Overgas Networks SA. The following contact details can be used by their customers in the Peshtera and Pazardzhik municipalities:

For households in Peshtera municipality:

Address: 13 P. Goranov Street, Peshtera 4550

Fixed number: +359 350 64149

Work time with clients:

Monday-Friday: 08:30 h to 17:30 h. Lunch break: 12:00 - 13:00 h

For households in Pazardzhik municipality:

Address: 30 Bulair Street, Pazardzhik 4400

Fixed number: +359 34 405318, mobile phone: +359 882 173 956

Work time with clients:

Monday-Friday: 08:30 h to 17:30 h. Lunch break: 12:00 - 13:00 h

Bulgaria

Water

Water supply.

The supply of water in the Cooltorise pilot regions in Bulgaria is carried out by two municipal companies:

- For the municipality of Pazardzhik, this is the municipal company 'Water supply and sewerage services' Ltd.
- For the municipality of Peshtera, this is the municipal company 'Water supply, sewerage and construction' Ltd.

The first company services 55 settlements in the municipalities of Pazardzhik, Septemvri, Lesichovo, and Belovo. In the Municipality of Pazardzhik the company takes care of the water supply of 32 settlements, in the Municipality of Septemvri 15, in the Municipality of Lesichovo 7 and in the Municipality of Belovo for the village of Akandzhievo. The total number of citizens served by «Water Supply and Sewerage Services» Ltd. is more than 160,000 people. The population density in the region covered by this company is 134 people/km², which is significantly above the average for Pazardzhik province 62 people/km² and Bulgaria 66 people/km², which represents a good precondition for a sustainable development of water and sewerage services in the region.

The second company provides water and sewerage services in the municipality of Peshtera to end users. The total population living in the region covered by this company is 24037 people, and 100% of this population has access to the 'water supply' service, and the 'sewerage' services are used by 22,856 people. The regulated activities are provided in the town of Peshtera, the village of Radilovo, the village of Kapitan Dimitriev and the resort village 'St. Constantine'.

Water Bulgaria

Вик

ФАКТУРА
ОРИГИНАЛ

№ 1102126624
Дата на издаване: 20.04.2022
Известие към фактура №:

1

ПОЛУЧАТЕЛ	ДОСТАВЧИК
ЕГН/ЕИК №:	"Водоснабдяване и канализационни услуги" ЕООД
ИН по ЗДДС №:	ЕИК №: 205323041
Адрес: ПАЗАРДЖИК	ИН по ЗДДС №: BG205323041
	Адрес: гр. Пазарджик, ул. "Втори януари" б
	Разпл.с-ка: BG59 UBBS 8241 1010 0087 15
	UBBSBGSF ТБ ОББ АД ПАЗАРДЖИК

Адрес на обекта: ПАЗАРДЖИК Показания: старо: 587
Период на отчет: 15.03.2022 - 12.04.2022 ново: 592
Партиден №: 11320021 Име на обекта: 086 разлика: 3
За ОВ: 3032000 старо: 25960 Ново: 26233 Разлика: 273 ; Сбор от инд.: 273 ; за разпр.: 0 ; Добавка към Инд.Вод.: 0

№	Описание	Мярка	Количество	Ед. цена	Стойност
1	Вода	куб.м	5,000	0.89	4.45
2	Канал	куб.м	5,000	0.12	0.60
3	Пречистване	куб.м	5,000	0.36	1.80
4					

Данъчна основа:	6.85
Данъчна ставка ДДС:	20%
Стойност на ДДС:	1.37
Сума за плащане:	8.22

Словом: осем лева и 22 ст.

Основание за нулева ставка/неначисляване на ДДС:

5

Дата на данъчното събитие: 20.04.2022
Място на сделката: ПАЗАРДЖИК

Начин на плащане:
в брой / пл.нареждане / пл.искане /
Съставил: 132.Ели Николова Цокова

Разплащането следва да става в 30 дневен срок от датата на фактуриране чрез незабавно инкасо, с платено нареждане, в брой на касите на „Вик“ - Пазарджик, през интернет чрез системата на E-PAY, в офисите на EASYPAY. След този срок се начислява лихва за просрочие и дружеството ще предприеме действия за спиране на водоснабдяването. Другите сметки са:
BG68FINV91501017239163 BIC-FINV9150 - ПИБ АД ПАЗАРДЖИК, BG29CECB979010H8867400 BIC-CECBVGSF - ЦКБ АД КЛОН ПАЗАРДЖИК

ПРИ НЕТОЧНИ ДАННИ УВЕДОМЕТЕ ИНКАСАТОРА, ПОДАЙТЕ СИГНАЛ НА ТЕЛ: 034444340 ИЛИ НА WWW.VIKPZ.COM.

СТР. 1/1

1. Consumers personal data.
2. Consumers unique identification number.
3. Water consumption expressed in m³.
4. Different services provided by company details.
5. Payment terms.

FIGURE 54 INVOICE FOR WATER AND SEWERAGE SERVICES SUPPLY. BULGARIA

Water invoice.

1. This part contains some personal data of the citizen/consumer of water and sewerage service like the family name, postal address of the citizen.

2. This part contains some specific data related to the client: a unique identification number which is used by the company to store data about the consumer in their database; address where the service is delivered and an ID of the address.

3. This part contains data about readings from the water metering device, i.e. the number of cubic meters of water at the beginning of the reported period and the number of cubic meters of water at the end of the reported period – usually one month.

4. This part of the invoice shows information about the different services provided by the company:

- Delivery of water.
- Sewerage service.
- Water purification.

Each of these services is calculated by multiplying its unit price by the number of cubic meters of water consumed during the reported period.

5. This part contains information about payment: how the consumer can pay the invoice, what the payment term is, what follows in case the consumer could not pay on time.

Resources and information about rights and opportunities

There are no social tariffs for vulnerable households to support bills for water and sewer service. Similarly, to the supply of electricity, the supply of water and sewerage service is carried out based on a contract concluded under general conditions between the owner of the property (household) and the respective company which delivers water. For the Cooltorise pilot region in Bulgaria, these are the two companies mentioned above, and they are both managed by the respective municipal administration in Peshtera and Pazardzhik. Pursuant to this contractual legal relationship, the parties assume several rights and obligations, and the main obligation of the water supplying company is to supply clean and drinkable water, as well as to maintain the sewerage system in a good condition and the consumer to pay the value of these services. In case the company does not fulfill its obligations and stops delivery of these services, if there are no objective reasons for this, such as force majeure, the company is liable for failure to fulfill its contractual obligation and owes compensation for damages based on Art. 82 of the Obligations and Contracts Act. The compensation for failure to fulfill the obligation to provide the above services is due to all direct and immediate damages resulting from failure to fulfill the obligation. This compensation covers both property and non-property damages.

Main contacts:

The companies supplying water and sewerage services on the territory of the municipalities of Peshtera and Pazardzhik are two municipal companies.

For households in Peshtera municipality:

'Water supply, sewerage, and construction' Ltd.

Address: 14-16 Dimitar Gorov Street, Peshtera 4550

Telephone number (general enquiries): +359 350 62184

Telephone number (technical problems): +359 893 046705 (24 hours, 7 days a week)

Work time with clients:

Monday-Friday: 08:30 to 17:30 h

For households in Pazardzhik municipality:

'Water supply and sewerage services' Ltd.

Address: 2 Yanuari Street, Pazardzhik 4400

Telephone number (general enquiries): +359 34 444340

Telephone number (technical problems): +359 34 456180 (24 hours a day, 7 days a week)

Work time with clients:

Monday-Friday: 08:00 to 17:00 h.

Energy bills. Greece

COOLTORISE

*Raising summer energy poverty awareness
to reduce cooling needs*



Greece

Water

Electricity market.

References electric bill

Ministry of the Environment,
Energy and Climate: <https://ypen.gov.gr/energeia/ilektriki-energeia/lianiki-agera/timologisi-ilektrikis-energeias/>

PCC: <https://www.dei.gr/en/>

ZENITH: <https://zenith.gr/el/>

WATT-VOLT: <https://www.watt-volt.gr/>

RAE: <https://www.rae.gr/>

HENDO: <https://deddie.gr/el/deddie/to-diktuo-ilektrismou/>

IDIKA: <https://www.idika.gr/kot/>

E-NOMOTHESIA: <https://www.e-nomothesia.gr/energeia/koine-upourgike-apophase-upen-dee-23632-859-2022.html>

<https://www.e-nomothesia.gr/energeia/koine-upourgike-apophase-upen-dee-124788-2150-2021.html>

In Greece, electricity is distributed to different private or public suppliers through two semi-public operators and their networks, the Independent Power Transmission Operator (IPTO) and the Distribution Network Operator (HENDO). IPTO, the only energy supplier in the country, manages the operation of the power distribution network, as well as its development and maintenance. IPTO is responsible for the transmission of high voltage electricity through pylons, from power plants to urban areas. Then, HENDO ensures that the power supply can reach all residents and properties. HENDO is the subsidiary organization of DEH and has an independent and impartial profile. DEH (PPC) is the main energy producer with several power plants in the country. For example, DEH has developed four electricity generating units in Ptolemaida in the region of Western Macedonia and is currently constructing a new SES unit to replace them to eliminate the use of coal. DEH also has two thermal power units in Megalopolis. In addition, the company maintains many power plants in Crete, Evia, and on several islands, while it has built 22 hydroelectric plants on the mainland.

Generation -> Transport -> HENDO/PPC -> Region Units -> Suppliers -> Distribution -> Consumption

PPC (DEH)

DEH is a semipublic company, which means that some of the shareholders come from the public sector. In particular, 34,12% of the shares belong to The Hellenic Corporation of Assets and Participations S.A. (HCAP). Institutional investors and the public have 55,88%, while Selath Holdings has 10%. DEH draws energy from its electric power generating plants that are in several parts of the country (Florina, Western Macedonia, Attica, Crete, etc.) and distributes its energy products to the customers. The price of the kWh ranges between 0,11058€ and 0,11936€ depending on the consumption. Additionally, DEH rewards consistent customers by offering special discounts. For example, the 'Monthly Billing' program encourages customers to pay their electricity bills before the expiration date to benefit from the 5% consistency discount or to prepay their annual bills to receive a 2% discount. The company is very flexible when it comes to unpaid electricity bills, as it offers debt settlement.

Water **Greece**

<i>Payment in advance and instalments calculation</i>		
<i>Debt</i>	<i>Advance payment percentage</i>	<i>Number of monthly installments</i>
<i>Up to €500</i>	<i>10%</i>	<i>5</i>
<i>From €500 to €1.000</i>	<i>10%</i>	<i>8</i>
<i>From €1.000 to €2.000</i>	<i>15%</i>	<i>12</i>
<i>From €2.000 to €3.000</i>	<i>20%</i>	<i>18</i>
<i>Over €3.000</i>	<i>First option: 20%</i>	<i>18</i>
	<i>Second option: 30%</i>	<i>24</i>

Furthermore, the company does not have a debt limit that determines whether the electricity supply is interrupted or not.

Based on the instructions of the RAE (Regulatory Authority of Energy), the energy suppliers, semi-public and private, should follow the 'Debt flagging' program, which is a system that categorizes clients according to their debts and the ability to pay back. Energy suppliers can mark 'red' households with high debts and 'green' households that have completed a debt settlement. The RAE declares that if the customer has at least two unpaid bills, the supplier has the right to shut off the power supply through HENDO.

Private suppliers

Greece has a liberalised energy market (Government Gazette B' 832/2013), which means that any power company can provide electricity to properties and currently approximately 25 private suppliers are active. They receive power from PPC (DEH) units and distribute it to their clients throughout the country through IPTO and HENDO networks. The price of the kWh starts from 0,03949€ and many of the private suppliers offer premium packages and discounts on bills that combine electricity and natural gas. Moreover, they anticipate the settlement of debts upon the request of the client. However, in case of bankruptcy of clients, the supplier has the right to ask HENDO to shut off the electrical supply. The customer then must pay 'reconnection charges' to restore the power supply. Moreover, most private suppliers have reward programs that encourage their customers to pay their bills in time to gain discounts and bonuses.

Greece

Electricity

In general, the electricity bill consists of “electricity supply charges” that are determined by each energy supplier and additional state charges such as “regulated charges” and “charges payable to third parties” that are regulated by the government and the RAE. In particular, the ‘regulated charges’ are applied to all customers that are part of the national electric system regardless of their power supplier and serve the development and operation costs of IPTO and HENDO. The charge covers the RES Levy (ETMEAR) which is a contribution towards the elimination of greenhouse gas emissions. It also contains the cost of public service obligations (PSOs) that aim to support customers of vulnerable groups with specific social characteristics. In addition, ‘the fees payable to third parties’ cover municipal taxes and National Television (ERT).

Electricity Greece

ΔΕΗ Α.Ε.
Χαλκοκωνδύλη 30, 104 32 Αθήνα,
Α.Φ.Μ. 090000045, Δ.Ο.Υ. Φ.Α.Ε ΑΘΗΝΩΝ
del.gr

ΕΥΠΗΡΕΤΗΣΗ ΠΕΛΑΤΩΝ ΔΕΗ
☎ **800 900 1000** (ΔΩΡΕΑΝ)
📍 ΚΑΤΑΣΤΗΜΑ ΚΟΡΩΠΙΟΥ
ΒΙΣΣΗ/ΝΟΥ 250-ΓΥΛΙΑΚΕΡΗ 194 00

ΕΥΠΗΡΕΤΗΣΗ ΔΕΔΔΗΕ
☎ **11500**
☎ **2111900500**
Πληροφορίες ή Βλάβες
Καταμέτρηση



183 070096

Όνοματεπώνυμο Πελάτη
Διεύθυνση Επίδοσης

Κωδικός ηλεκτρονικής πληρωμής
RF959077380008212345XXXXXX



00000231,00 1

Εκκαθαριστικός λογαριασμός

Τιμολόγιο: **Γ1 Οικιακό Τιμολόγιο**

Διεύθυνση ακινήτου: **Διεύθυνση Ακινήτου**

Επόμενη καταμέτρηση:
Αριθμός παραχής: **123456789-012**

Χρεώσεις προμήθειας ΔΕΗ	130,27 €
Ρυθμιζόμενες χρεώσεις	83,05 €
Έναντι Κατανάλωσης	-37,07 €
Διάφορα - Δήμος - ΕΡΤ	22,39 €
ΦΠΑ	24,36 €
Προηγούμενο Αναεξόφλητο Ποσό	
Αγοράστε το εάν έχει πληρωθεί	
Συνολικό ποσό πληρωμής	*231,00 €

ΠΟΣΟ ΠΛΗΡΩΜΗΣ
***231,00€**

ΕΞΟΦΛΗΣΗ ΕΞΕ
05/10/2020

Λογαριασμός εξοφλούμενος από την Όνομα Τράπεζας



Σκανάρτε
για άμεση εξόφληση

Η κατανάλωσή σας

Κατανάλωση Ηλεκτρικής Ενέργειας **1445 kWh**

Περίοδος Κατανάλωσης **11/05/2020 - 11/09/2020**

Ημέρες **126**

Ημέλια Έκδοση **11/09/2020**

Α/Α Λογαριασμού **11111111**

Εξοφλήστε ηλεκτρονικά τον λογαριασμό σας χωρίς χρέωση στο del.gr, με χρήση καρτών VISA, MasterCard, Maestro καθώς και καρτών Diners Club έκδοσης της Alpha Bank.

Για οποιοδήποτε θέμα σχετικά με τον λογαριασμό σας καλέστε στο **800 900 1000** (ΔΩΡΕΑΝ).

Κλείστε τώρα ραντεβού, εύκολα & γρήγορα, σε ένα από τα επιλεγμένα καταστήματα, με ένα κλικ στο del.gr

4



Μια ανάσα από το μέλλον.

GreenPass

Η νέα, πρόσθετη υπηρεσία από τη ΔΕΗ που εγγυάται πικρή όση ενέργεια καταναλώνεις στο σπίτι σου, τόσο παράγεται για εσένα από ανανεώσιμες πηγές.

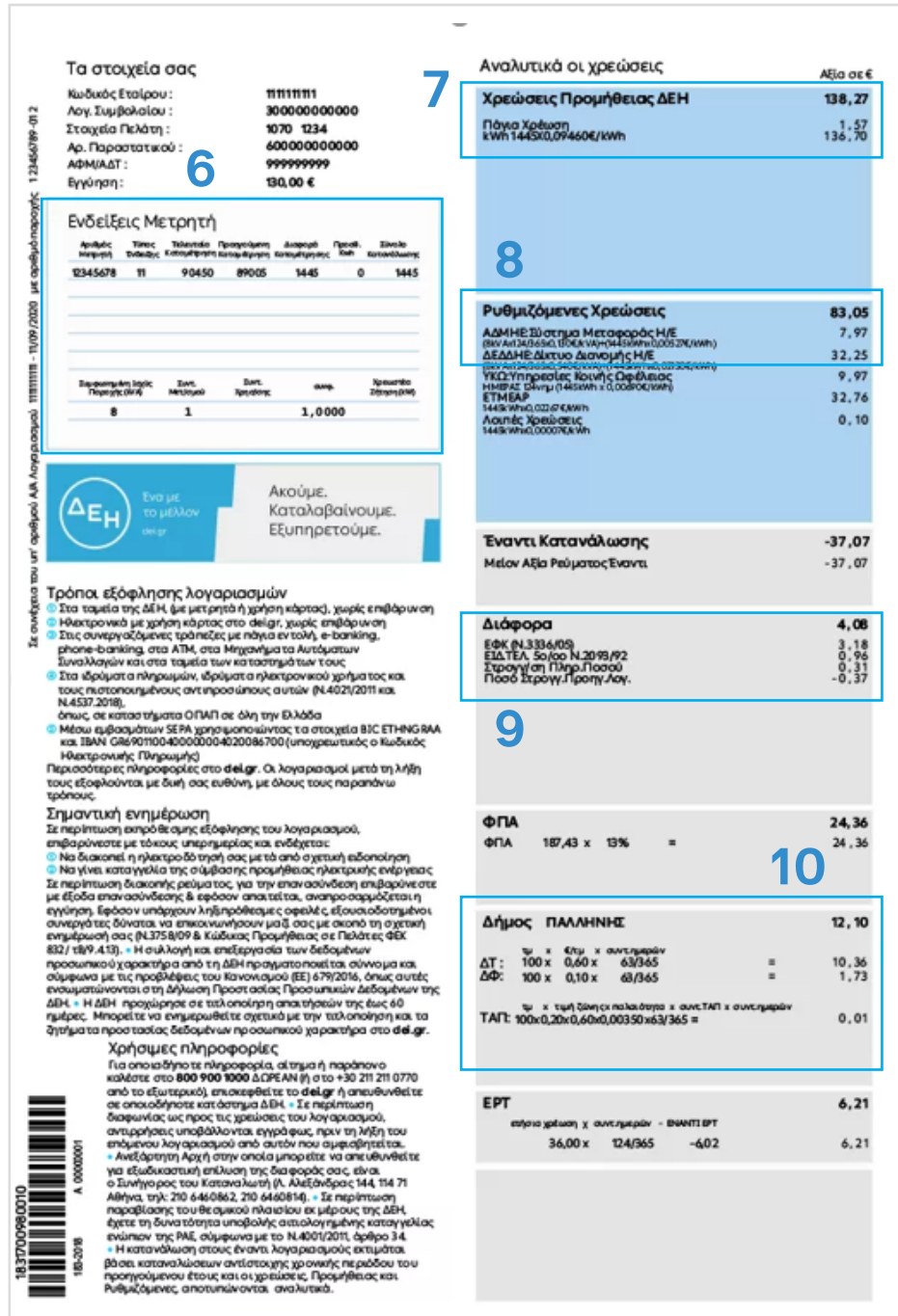
Ενεργοποίησε το τώρα με χρέωση 0,80€/μήνα και ΔΩΡΟ ΟΙ 3 ΠΡΩΤΟΙ ΜΗΝΕΣ.
Μάθε περισσότερα στο del.gr ή καλώντας δωρεάν στο 800-900-1000.

1. E-bill payment code.
2. Type of bill.
3. Payment details.
4. Details of charges.
5. Consumption details.

FIGURE 55 P. 1 INVOICE FOR WATER AND SEWERAGE SERVICES SUPPLY. GREECE

Greece

Electricity



- 6. Detailed table on consumption and associated data.
- 7. Supply charges.
- 8. Regulated charges.
- 9. Various charges details.
- 10. Municipality charges.

FIGURE 56 P. 1 INVOICE FOR WATER AND SEWERAGE SERVICES SUPPLY, GREECE

Water and sewerage services invoice.

1. E-bill payment code
2. Type of bill:

Actual bill: the actual power consumption for the standard 4-month metered period, reduced by the amount already charged previously in the interim Estimated Bill.

Interim estimated bill: The estimated consumption value from the previous bills of the customer in the same period (for example, from last year the for the same month).

Exceptional: a bill issued outside regular metering dates (e.g., due to a bill correction).

Final: The bill is issued after the termination of the energy supply contract.

Customer estimated: A bill based on the metering and consumption data provided by the customer.

Type of tariff: 1 Residential Tariff, 1N Residential Tariff, myHomeENERGY, Business 21 etc, according to the agreed energy supply contract. In cases of customers who have been included to the Registry of Vulnerable or have received the Social Tariff, there is an extra indication depending on the induction category.

Next Metering: The arranged date of the next metering by HEDNO.

Supply Number: A unique number for each property, placed under the meter.

3. Payment details:

Total amount due: The total amount and any previous remaining amount.

Payment deadline: The final date to pay so that it is considered a timely payment.

Bill paid by the [BANK NAME]: It appears on customers who have activated the direct bank debit order.

4. Details of charges:

PPC Electricity Supply Charges: The total of electricity supply charges based on the electricity consumed and the current pricelist. It includes the cost and other PPC expenses for supplying energy to the customers as well as discounts, if any.

Greece

Electricity

Regulated Charges: They are applied to all customers that use the National Electricity System, regardless of the chosen power supply provider. It includes the following: a) IPTO, Independent Power Transmission Operator charges, b) HENDO, Hellenic Electricity Distribution Network Operator charges, c) Public Service Obligations (PSOs), and d) RES Levy (ETMEAR) for the sustainable development of green energy e) Other Charges: Estimated consumption: The amount of the estimated bill that has been charged/credited.

Various – Municipality – ERT Various: Various charges/credits: A) electricity, in addition to supply charges, regulated and estimated charges, B) charges attributed to the state. Municipality: Charges payable to third parties collected by PPC and attributed to the relevant institutions. The municipality charges (MT, MD, RET) are added on every bill regardless of the type. ERT: It includes the respective duty to ERT S.A.

VAT: The Supply Charges, the Regulated Charges and the Excise Duty are subject to VAT charge whereas the Special Duty 5%, the price roundups, and charges payable to third parties (MT, MD, RET) are not subject to VAT.

5. Consumption details:

Electricity Consumption: The total consumption for the respective period.

Consumption period and Days: Consumption period for which you are charged.

A/A Bill and Issue Date: Both are tax voucher elements.

6. The table demonstrates the following.

- a) The metering result number and type of indication (e.g., day or night).
- b) Meter readings and total consumption.
- c) Agreed capacity for energy supply (kVA), according to the connection agreement.
- d) Transform coefficient: The coefficient by which the metered consumption is multiplied to calculate the actual consumption. If, for example, the coefficient is 40 and the recorded consumption is 100 this means that the period covered in the bill, 4.000 kWh (=40X100) were consumed. This only refers to supplies with agreed energy supply greater than 85 kVA.
- e) Usage Rate: Considered for certain customers and indicates the efficient use of the energy that had been absorbed by the network.
- f) Power Capacity Factor (συνφ): Considered for certain customer categories that have agreed to a higher power supply and calculated for consumptions regarding active and reactive power.

Electricity **Greece**

g) Chargeable demand (KW): Calculated in power supplies that are higher than 35 kVA and indicates the maximum power required for the period covered by the bill.

7. PPC supply charges: The electricity charge is calculated based on the power consumed in relation to the current price list. It includes the cost and other expenses for supplying electricity to customers.

8. Regulated charges: IPTO (Independent Power Transmission Operator): Operation, maintenance, and development of the High Voltage Transmission Network (e.g., power plant), to ensure the country's electricity supply. HEDNO (Independent Electricity Distribution Network Operator): Operation, maintenance, development of the medium- and low-voltage distribution network. PSOs (Public Service Obligations): Charge for services such as supplying power to consumers living in non-interconnected islands and the special tariff for the Social Tariff beneficiaries. ETMEAR: The special duty to develop the use of renewable energy sources for electricity. Various charges: Charges imposed by the current legislations that aim to ensure the smooth Market operation.

9. Various: It includes all various charges/credits for:

Electricity charges and credits:

- a) Charges and credits generated by selling the energy produced by photovoltaic systems,
- b) corrective entries,
- c) rounded amounts,
- d) Network work charges (e.g., meter check, supply adjustments, fuse fusion, etc.)

State charges and credits:

- a) ED (N.3336/05): Excise duty is collected by PPC through the electricity bills and is then rendered to the State. The Excise Duty is only charged on actual bills and is calculated based on consumption.
- b) Special Levy 5% (N.2093/92): Special Levy 5% is collected by PPC, through the electricity bills and rendered to the State. The Special Levy 5% is calculated based on the electricity consumed, surcharged by the excise duty.

10. Municipality charges: Calculation:

- a) Municipal taxes and duties: (Size of property in m²) X (rate for municipal tax/duty) X (billing period) / 365 days
- b) Real Estate Tax: (Size of property in m²) X (band rate) X (age factor) X (real estate tax rate) X (billing period) / 365 days

Greece

Electricity

1. Total amount and due date.
2. Customer's name and address.
3. Bill type (actual/estimated), type of tariff, metering period, and identifiers.
4. E-bill payment code.
5. Percentage of charging categories: electricity, regulated charges, VAT.
6. Consumption details: kWh/day and average 24h kWh consumption.

The image shows a digital electricity bill from Watt+Volt in Greek. The bill is divided into several sections, each highlighted with a blue box and a number:

- 1:** Total amount and due date: **ΤΟ ΣΥΝΟΛΟ ΣΑΣ 21,22€**. Due date: **ΠΛΗΡΩΜΗ ΕΩΣ 07/04/2022**. Includes a note about a -2,30 € credit.
- 2:** Customer's name and address: **ΠΕΛΑΤΗΣ ΠΕΛΑΤΟΠΟΥΛΟΣ ΚΗΦΙΣΙΑΣ 217Α 15124 ΑΘΗΝΑ**.
- 3:** Bill type and identifiers: **ΣΤΟΙΧΕΙΑ ΛΟΓΑΡΙΑΣΜΟΥ**. Includes meter ID (1-23456789-10), account ID (1234567), and metering period (16/03/2022 to 01/04/2022).
- 4:** E-bill payment code: **ΚΩΔΙΚΟΣ ΗΛΕΚΤΡΟΝΙΚΗΣ ΠΛΗΡΩΜΗΣ 12345678912345678912**.
- 5:** Percentage of charging categories: **ΑΝΑΛΥΣΗ ΧΡΕΩΣΕΩΝ ΠΕΡΙΟΔΟΥ**. Shows 32,08% (12,96€) for electricity, 16,24% (6,56€) for regulated charges, and 51,68% (20,88€) for VAT.
- 6:** Consumption details: **ΠΡΟΦΙΛ ΚΑΤΑΝΑΛΩΣΗΣ**. Shows a 24-hour average consumption of **0,19 kWh**.

At the bottom, there is a promotional banner for **zero** (zero kWh) with the text: **ΡΕΥΜΑ σε ΤΙΜΗ ΚΟΣΤΟΥΣ ΔΩΡΟ η Χρέωση zero για 3 μήνες ΜΗΔΕΝ ρήτρα αναπροσαρμογής ΜΗΔΕΝ πάγια**.


FIGURE 57 IMAGE OF ELECTRICITY BILL (PRIVATE COMPANY). 1ST PAGE GREECE

Electricity Greece

watt-volt.gr
info@watt-volt.gr

Εξυπηρέτηση πελατών: 183 83
Κυβερνητικές Σάββατο και αργίες
από τις 09:00 π.μ. - 21:00 μ.μ.

WATT AND VOLT A.E.
ΕΜΠΟΡΙΑ ΚΑΙ ΠΡΟΜΗΘΕΙΑ ΗΛΕΚΤΡΙΚΗΣ ΕΝΕΡΓΕΙΑΣ
Λ. ΚΗΦΙΣΙΑΣ 217Α, 151 24, ΜΑΡΟΥΣΙ
ΑΦΜ: 998283692, ΔΟΥ: ΦΑΕ ΑΘΗΝΩΝ
ΑΡΙΘΜ. ΜΗΤΡΟΥΥ ΣΥΜΜΕΤ: 29XBLACKPEARL-T



WATT+VOLT
ΠΕΥΜΑ | ΑΕΡΙΟ

ΕΝΔΕΙΞΕΙΣ ΜΕΤΡΗΤΗ

ΔΙΑΣΤΗΜΑ ΚΑΤΑΝΑΛΩΣΗΣ: από 15/11/2021 ΕΩΣ 14/03/2022 (59 ημέρες)
ΕΠΟΜΕΝΗ ΚΑΤΑΜΕΤΡΗΣΗ: 08/07/2022

	ΚΩΔΙΚΟΣ	ΤΕΛΕΥΤΑΙΑ	ΠΡΟΗΓΟΥΜΕΝΗ	ΣΥΝΤΕΛΕΣΤΗΣ ΚWh	ΚΑΤΑΝΑΛΩΣΗ	ΠΡΟΣΘΕΤΟΣ ΚWh	ΑΡΙΘΜΟΣ ΜΕΤΡΗΤΗ
ΚΑΝΟΝΙΚΟ	11	47528	47535	1	23	0	00005308
ΜΕΙΩΜΕΝΟ/ΠΡΟΣΘΕΤΟ	12	23898	23898	1	0	0	00005308
ΑΕΡΙΟ	0	0	0	0	0	0	0
ΕΝΔΕΙΞΕΙΣ Φ/Β	0	0	0	0	0	0	0
ΕΝΔΕΙΞΕΙΣ Φ/Β	0	0	0	0	0	0	0
ΝΕΟ ΥΠΟΛΟΙΠΟ Φ/Β							
ΣΥΜΒ. ΙΣΧΥΣ		25,00 ΚVA			ΧΡΕΩΣΤΕΑ ΖΗΤΗΣΗ 0,0 ΚW		cost: 1000000

ΑΝΑΛΥΣΗ ΧΡΕΩΣΕΩΝ ΛΟΓΑΡΙΑΣΜΟΥ

Η ανάλυση χρεώσεων λογαριασμού με την ανάλυση χρεώσεων περιόδου, μπορεί να διαφέρει λόγω ανεξάρτητων υπολοίπων, κτλ.

ΧΡΕΩΣΕΙΣ ΗΛΕΚΤΡΙΚΟΥ ΡΕΥΜΑΤΟΣ 12,96€

Πάγιο 8,03€
Χρέωση Ενέργειας 23,00kWhx0,066000€/kWh 1,52€
Πίστωση Ταμείου Ενεργειακής Μετάβασης -0,92€
Πίστωση Ταμείου Ενεργειακής Μετάβασης 3,00kWhx0,330000€/kWh -0,39€
Πίστωση Ταμείου Ενεργειακής Μετάβασης 6,00kWhx0,365000€/kWh -0,99€
Ρύθμιση Αναπροσαρμογής - Αυξημένα κόστης ενέργειας λόγω ενεργειακής κρίσης (C) 5,71€

ΡΥΘΜΙΖΟΜΕΝΕΣ ΧΡΕΩΣΕΙΣ 6,56€

Χρέωση Χρήσης Συστήματος 1,21€
25,000 ΚVA x 0,130000 €/KVA x 12/365 1,08€
23,00 ΚWh x 0,00560 €/kWh 0,13€
Χρέωση Χρήσης Δικτύου Διανομής 4,80€
25,000 ΚVA x 0,520000 €/KVA x 12/365 4,31€
(23,00 ΚWh / 1000000) x 0,02130 €/kWh 0,49€
Υπηρεσίες Κοινής Ωφέλειας 0,16€
23,00 ΚWh x 0,00690 €/kWh 0,16€
Λοιπές Επιβαρύνσεις 0,00€
23,00 ΚWh x 0,00007 €/kWh 0,00€
Ειδικό Τέλος Μείωσης Εκπομπών Αερίων Ρύπων 0,39€
23,00 ΚWh x 0,01700 €/kWh 0,39€

ΣΥΜΠΛΗΡΩΜΑΤΙΚΕΣ ΧΡΕΩΣΕΙΣ 0,00€

ΑΞΙΑ ΡΕΥΜΑΤΟΣ ΠΡΟ ΦΠΑ (€) 19,52€

ΤΕΛΗ & ΦΟΡΟΙ 20,88€

ΔΗΜΟΣ ΚΑΣΣΑΝΔΡΑΣ 20,71€
Δημοτικό Τέλη 17,69€
103 x 1,90 x 33/365
Δημοτικός Φόρος 0,84€
103 x 0,09 x 33/365
Τέλος Ακίνητης Περιουσίας 2,18€
103 x 1100,00 x 0,60 x 0,000300 x 33/365
Αναδρομική Χρέωση Δήμων 0,00€
Χρέωση ΕΡΤ 0,00€
Ειδικό Τέλος 0,5% 0,10€
Ειδικός Φόρος Κατανάλωσης ΦΠΑ 0,39x16% 0,05€
Τόση Υπερμετρίως 0,02€
Ειδικό Τέλος ΑΠΕ 0,00€

ΠΡΟΗΓΟΥΜΕΝΟΣ ΟΦΕΙΛΕΣ 0,00€

ΣΥΜΜΕΤΟΧΗ ΣΕ ΠΡΟΩΘΗΤΙΚΗ ΕΝΕΡΓΕΙΑ 0,00€

ΕΝΕΡΓΕΙΑΚΕΣ ΥΠΗΡΕΣΙΕΣ 0,00€

Smartwatt
Χρέωση 0,00€
Επιδότηση 0,00€
Penalty 0,00€
Διάστημα 0,00€
Άλλες Υπηρεσίες
Χρέωση 0,00€
Επιδότηση 0,00€
Penalty 0,00€
Διάστημα 0,00€
Λοιπές χρεώσεις υπηρεσιών 0,00€
ΦΠΑ 0,00€
Τόση Υπερμετρίως 0,00€
Προηγούμενος Οφειλές 0,00€
Ενεργειακών Υπηρεσιών 0,00€

ΜΕΙΟΝ ΕΝΑΝΤΙ ΑΞΙΑΣ ΡΕΥΜΑΤΟΣ -19,18€

ΣΥΝΟΛΟ ΛΟΓΑΡΙΑΣΜΟΥ ΡΕΥΜΑΤΟΣ 21,22€

ΓΕΝΙΚΟ ΣΥΝΟΛΟ ΛΟΓΑΡΙΑΣΜΟΥ 21,22€

7

8

9

10

12

11

13

14

- 7. Metering indicators: Consumption in comparison with the agreed kWh power.
- 8. Electricity charges.
- 9. Regulated Charges.
- 10. Complementary charges.
- 11. Municipality charges.
- 12. Electricity value before VAT and other services or promotional activities.
- 13. Deduction of the estimated interim amount.
- 14. Total cost to be paid.

FIGURE 58 IMAGE OF ELECTRICITY BILL (PRIVATE COMPANY). 2ND PAGE. GREECE

98

Greece

Electricity

watt-volt.gr
info@watt-volt.gr

Εξυπηρέτηση πελατών: **183 83**
Καθημερινές, 9:00πμ και αργίες
από τις 09:00 πμ - 21:00 μμ



WATT+VOLT
ΡΕΥΜΑ | ΑΕΡΙΟ

ΕΝΗΜΕΡΩΣΗ ΠΕΛΑΤΩΝ

Η τροπολογία πραγματοποιήθηκε με μοναδική χρέωση λόγω της εφαρμογής του προγράμματος "Συνέχεια". Είναι δίκαια σας και το σταθερό κομμάτι ήτρεκα.

Σε περίπτωση παραβίασης του θεσμικού πλαισίου ομίλους του Προγράμματος, έχει τη δικαιοσύνη καταγγελίας ενώπιον της Ρυθμιστικής Αρχής Ενέργειας (ΡΑΕ) (Αρ.34 Ν.4001/2011) και του Συνέταρου του καταναλωτή. Ανεπιθύμητες τροποποιήσεις για το Κοινωνικό Οικιακό Τιμολόγιο και τους Ειδικούς Πόρους είναι δημοσιευμένες στην ιστοσελίδα της εταιρείας watt-volt.gr. Για να ενημερωθείτε για τις νέες προοπτικές υπηρεσιών παρακολούθησης και διαχείρισης ενέργειας παρακολουθήστε να επικοινωνήσετε με το Τμήμα Εξυπηρέτησης Πελατών στο 183 83.

Βάσει Απόφασης ΡΑΕ υπ αριθμ. 492/2021 η ρυθμιζόμενη χρέωση αλλάζουν από 1/8/2021 (www.rae.gr).

Εξυπηρέτηση / Βλάβες / Καταμέτρηση / Επόμενη καταχώρηση ένδειξης στον ΔΕΔΔΗΕ: 11 500 (χρέωση με βάση το τιμολόγιο του τηλεφωνικού κώδικα σας παρόλο που η κιν. τηλεφωνία) ή στο **211 900 500** (για αποφυγή πρόσθετης επάρχυνσης) ή στο **www.deddie.gr**

€ ΤΡΟΠΟΙ ΠΛΗΡΩΜΗΣ

ΔΙΚΤΥΟ ΚΑΤΑΣΤΗΜΑΤΩΝ WATT+VOLT
Στα καταστήματά μας με μετρητά και οποιαδήποτε πιστωτική/κρεστική κάρτα VISA, MASTERCARD χωρίς κόστος συναλλαγής.

WATT+VOLT E-PAY
Μέσω της ιστοσελίδας μας watt-volt.gr με την υπηρεσία WATT+VOLT Payou με κρέωση οποιαδήποτε πιστωτικής κάρτας VISA, MASTERCARD και κρεστική VISA ELECTRON.

ΤΗΛΕΦΩΝΙΚΑ
Επικοινωνήστε με το Τμήμα Εξυπηρέτησης Πελατών στο 183 83 και εξοφλήστε με κρέωση της πιστωτικής ή κρεστικής σας κάρτας.

ΠΛΗΡΩΜΗ ΜΕΣΩ QR CODE
Κατεβάστε μία δωρεάν εφαρμογή QR CODE συμβατή με «Εξέλιξη» τηλεφώνου, και σκανάρτε τον κωδικό QR.

ΔΙΚΤΥΟ VIVA
Μέσω του δικτύου VIVA Payments, και με εξοφλήση με μετρητά σε 100 σημεία πανελλαδικά.

ΠΑΓΙΑ ΕΠΙΤΟΛΗ
Μέσω πάγια εντολής με κρέωση τραπεζικού λογαριασμού ή οποιαδήποτε πιστωτικής κάρτας VISA ή MASTERCARD.

ΤΡΑΠΕΖΕΣ
Σε καταστήματα ελληνικών τραπεζών.

ΔΙΚΤΥΟ ΚΑΤΑΣΤΗΜΑΤΩΝ ΕΛΤΑ
Σε οποιαδήποτε κατάστημα των ΕΛΤΑ με τη μέθοδο της Ταχυπληρωμής.

WINBANK EASYPAY
Μέσω του συστήματος easypay της Τράπεζας Πειραιώς.

WEB BANKING
Μέσω της τραπεζικής πλατφόρμας web banking των τραπεζών Πειραιώς/Eurobank/Alpha Bank/Εθνική Τράπεζα.

Για τη δική σας διευκόλυνση, να επιδεικνύετε πάντα τον **ΚΩΔΙΚΟ ΗΛΕΚΤΡΟΝΙΚΗΣ ΠΛΗΡΩΜΗΣ** σας:

€ ΚΩΔΙΚΟΣ ΗΛΕΚΤΡΟΝΙΚΗΣ ΠΛΗΡΩΜΗΣ: 12345678912345678912

 <p>WATT+VOLT ΡΕΥΜΑ ΑΕΡΙΟ</p> <p>ΑΡΙΘΜΟΣ ΠΑΡΟΧΗΣ: 1-23456789-10 ΠΕΡΙΟΔΟΣ ΚΑΤΑΝΑΛΩΣΗΣ: ΑΠΟ: 13/11/2021 ΕΩΣ: 14/03/2022</p>	<p>ΤΑΧΥΠΛΗΡΩΜΗ ΕΙΣΠΡΑΞΗ / ΜΕΤΑΒΙΒΑΣΗ</p> <p>Αριθμός Λογ/αγαίου Ταχυπληρωμής 131743-7 Τέλη</p>	<p>Χρονολογητό Σίματρο</p> 
	<p>WATT AND VOLT ΑΕ ΕΜΠΟΡΙΑ ΚΑΙ ΠΡΟΜΗΘΕΙΑ ΗΛΕΚΤΡΙΚΗΣ ΕΝΕΡΓΕΙΑΣ ΚΗΦΙΣΙΑΣ 217Α, ΜΑΡΟΥΣΙ 15124 ΑΦΜ: 998283692 - Δ.ΟΥ: ΦΑΕ ΑΘΗΝΩΝ</p>	
	<p>ΠΕΛΑΤΗΣ ΠΕΛΑΤΟΠΟΥΛΟΣ ΚΗΦΙΣΙΑΣ 217Α 15124 ΜΑΡΟΥΣΙ ΑΘΗΝΑ</p>	
	<p>Ποσό 21.22</p> <p>ΜΗ ΣΗΜΕΙΩΝΕΤΕ ΚΑΤΩ ΑΠΟ ΑΥΤΗ ΤΗ ΓΡΑΜΜΗ</p>	<p>20. Κωδικός</p>

H >759294425339966025< 21220> 1317437< 24>

15. Payment details.
16. Short paper version of the bill

FIGURE 59 IMAGE OF ELECTRICITY BILL (PRIVATE COMPANY). 3RD PAGE. GREECE

15

16

99

Electricity Greece

chargespot
powered by | WATT+VOLT |

Ενέργεια
που σε πάει
πιο μακριά

#naiginetai

Όλα γίνονται...
για την εξυπηρέτησή σου!

- Αυτοματοποιημένο IVR για ενημέρωση υπολοίπου και καταχώριση ένδειξης 24/7
- AI chatbot για συχνές απορίες
- Συνομιλία σε πραγματικό χρόνο μέσω Viber, Whatsapp ή Messenger
- MyWatt για παρακολούθηση κατανάλωσης, καταχώριση ένδειξης και πληρωμή λογαριασμών

183 83 2130 189199

Για τη δική σας διευκόλυνση, να επιδεικνύετε πάντα τον **ΚΩΔΙΚΟ ΗΛΕΚΤΡΟΝΙΚΗΣ ΠΛΗΡΩΜΗΣ** του λογαριασμού σας που αναγράφεται παρακάτω:

ΚΩΔΙΚΟΣ ΗΛΕΚΤΡΟΝΙΚΗΣ ΠΛΗΡΩΜΗΣ 12345678912345678912

17. Company contacts details

FIGURE 60 IMAGE OF ELECTRICITY BILL (PRIVATE COMPANY). 4TH PAGE GREECE

Greece

Electricity

Electricity invoice.

1. Total amount and due date
2. Customer's name and address
3. Bill type (actual/estimated), type of tariff, metering period, and identifiers
4. E-bill payment code
5. Percentage of charging categories: electricity, regulated charges, VAT.
6. Consumption details: kWh/day and average 24h kWh consumption
7. Metering indicators: Consumption in comparison with the agreed kWh power
8. Electricity charges: Total of electricity supply charges based on the electricity consumed and current pricelist. It includes the cost and other PPC expenses for supplying energy to the customers.
9. Regulated Charges: Use of the National Electricity System:
 - IPTO, Independent Power Transmission Operator charges,
 - HENDO, Hellenic Electricity Distribution Network Operator charges,
 - Public Service Obligations (PSOs) and
 - RES Levy (ETMEAR) for the sustainable development of the green energy
 - Other Charges
10. Complementary charges
11. VAT (Municipality – Various – ERT): Municipality: Charges payable to third parties collected by the supplier and attributed to the relevant institutions. Municipal charges (MT, MD, RET) are added to each bill regardless of type. ERT: It includes the respective duty to ERT S.A.
12. Electricity value before VAT, other services, other promotional activities
13. Deduction of the estimated interim amount
14. Total: The final amount of money the customer must pay, after calculating the value of the energy, the VAT and other charges, and potential previous balances.
15. Ways of paying (online, banks, physical shops)
16. Short paper version of the bill
17. Company contacts details

Electricity **Greece****Resources and information about rights and opportunities**

The Ministry of the Environment, Energy and Climate has established a Social Residential Tariff (STR) with Decision No. Δ5-ΗΛ/Β/Φ29/16027/6.8.10 (Government Gazette 1403/Β/06.09.2010) to protect and support consumers of vulnerable groups. According to Law 4001/2011, vulnerable customers are considered the customers that deal with energy poverty, health issues in general, and especially those who require mechanical support from medical devices, elderly customers, and customers in remote/marginalized areas.

In particular, the Ministerial Decision (Government Gazette 242/Β/01.02.2018) declares the categories of beneficiaries, the discounts offered, and the membership criteria. According to the instructions, there are two categories of customers who can benefit from the STR: consumers that meet the criteria for the Social Solidarity Payment and consumers with a specific annual income. In fact, they should have the following financial characteristics.

Household line-up	Income threshold
One-person household	€ 9.000
Household with two adults or a single parent family with one child	€ 13.500
Household with three adults and one child or a single parent family with two children	€ 15.750
Household with three adults or two adults and two children or a single parent family with three children	€ 18.000
Household with three adults and one child or two adults and three children or a single parent family with four children	€ 24.750
Household with four adults or two adults and four children or a single parent family with five children	€ 27.000

In this category of beneficiaries, the households with one or more individuals who are 67% disabled (income:8.000€) and the households with persons who require mechanical support from medical devices (income: 15.000€) also belong. Discounts, determined by the Ministry, should be implemented by all energy suppliers, semi-public and private. They are calculated on the 'supply charges' for daily consumption and there is also a residential night rate for night consumption. Beneficiary residents should apply every year through the IDIKA SA (e-Government Center for Social Security Services) and upload their personal data (social security number, income, etc.) as well as a valid certificate of Social Solidarity Payment.

TABLE OF SOCIAL RESIDENTIAL TARIFF DISCOUNTS		
Discount on electricity supply charges in €/kWh	SRT category A	KSRT category B
	0,075€/kWh	0,045€/kWh

Furthermore, HENDO has established a Residential Off-Peak Tariff which applies to all consumers who have an Off-Peak Tariff timetable. Power suppliers offer discounts to customers that consume electricity during specific hours, which are determined by HENDO. During the summer period (1st of May until 31st of October), between 23:00 and 7:00 am, consumers have electricity at a lower price, as well as during the winter period (1st of November until 30st of April) from 02:00 until 08:00 am

Greece

Electricity

and from 15:00-17:00 pm. For example, DEH charges the kWh at 0,07897€ during the night, while the private suppliers also provide discounts, e.g., 20% off.

In December 2022, the state, with the Ministerial Decision ΥΠΕΝ/ΔΗΕ/124788/2150/29-12-2021, announced that the support of households with high debts that do not have electricity or their power supply will be interrupted soon. It offers them a subsidy that will cover the cost of reconnection charges. Moreover, the state subsidizes the electricity bill of STR beneficiaries with 0,03€- 0,15€ per kWh depending on the consumption.

Every energy supplier has different deals and benefits, but in general, every company tends to reward its consistent clients by offering discounts or encouraging them to buy other energy products to be more benefited. For example, one of the private companies offers 20% off to all consistent customers and an additional 30% off in case they decide to choose them as their natural gas supplier as well.

- Distribution Network Operator (HENDO)

For general support and support of vulnerable customers and customers in need of social residential tariff discount: 800 400 4000 free of charge 24h service

Electricity

Greece

Greece

Gas

Gas market.

Natural gas in Greece is imported through the National Natural Gas System. The system consists of four main entry points such as Sidirokastro (borders of Greece-Bulgaria), Khpoi (borders of Greece-Turkey), Nea Mesimvria (connection of ESFA and TAP) and Agia Triada (entry point located in the terminal of liquid natural gas in Revithousa, in the wider area of Megara Attiki). Henceforth, it is provided in Region Units (as main Region Units are considered Attiki, Thessaloniki and Thessalia), in which Distributive Users are responsible for its distribution in municipalities, respectively. RAE oversees monitoring the proper function of the natural gas market in Greece, ensuring its fair distribution throughout the country. Furthermore, DESFA is responsible for the operation, management, and development of the National Natural Gas System (ESFA) and its interrelations in a technical and efficient manner. The main facilitators that are responsible for the distribution of natural gas in Greece are EDA in the Region Unit of Attiki, EDA THESS which is responsible for Thessaloniki-Thessalia Region Units, and DEDA which has undertaken the distribution of natural gas in each Regional Unit except for Attiki, Thessaloniki and Thessalia. Moreover, RAE has provided licenses for the distribution of natural gas to the HLIOXORA company, which is the facilitator of gas in the wider area of Evoia, and the HENGAS company. Considering the appliance pressure, the network distribution is clarified in the medium pressure network (19,0 bar) and the low-pressure network (0,025 - 4,0 bar) (RAE, 2022).

Generation – Entry Points – Region Units - Suppliers – Municipalities – Distribution – Consumption

Generation -> Transport -> HENDO/PPC -> Region Units -> Suppliers -> Distribution -> Consumption

Market - suppliers

The Law 2364/1995 (Government Gazette A '252 / 6.12.1995) initially regulated the market of natural gas in Greece, providing a constellation of rules regarding trade and distribution of gas. The Law 4336/2015 (Government Gazette A' 94/14.08.2015) sets out the current requirements for the natural gas system in Greece (DEPA, 2022).

According to the provisions of Ministerial Decision No. D1 / C / 400 (Government Gazette Issue B' 33/19.1.2007), companies importing natural gas into the National Natural Gas System are required to submit to RAE, data on the quantities and prices of imported natural gas. (RAE, 2022)

Gas **Greece**

According to RAE Decision 512/2021, the Invoice Gas Factors of the National Natural Gas System, in 2022 are defined for the Entry and Exit Points as demonstrated in the table below:

<i>Transfer System for each Entry Point</i>	<i>Transfer Charge Factor (€/kWh)</i>
Entry Point Sidirokastro-Khpoi-Nea Mesimvria	4,1717691
Entry Point Agia Triada	1,3247007
Exit Point North Zone	2,7290326
Exit Point South Zone	3,0732256

As regards the transfer invoice of new customers, in the first 6 months (Trial Period) the prices are estimated based on the net value of the natural gas as represented in the table down below regarding the north and south zone, respectively:

<i>Charge for a New Customer in North Zone</i>	0,0008368 €/kWh
<i>Charge for a New Customer in South Zone</i>	

Furthermore, considering the Ministerial Decisions 1428/2020 (Government Gazette B' 4925/09.11.2020), 1429/2020 (Government Gazette B' 4882/04.11.2020), 1430/2020 (Government Gazette B' 5072/17.11.2020) the gas prices that have been defined for each Regional Unit are represented by the table below:

Furthermore, considering the Ministerial Decisions 1428/2020 (Government Gazette B' 4925/09.11.2020), 1429/2020 (Government Gazette B' 4882/04.11.2020), 1430/2020 (Government Gazette B' 5072/17.11.2020) the gas prices that have been defined for each Regional Unit are represented by the following table:

Greece

Gas

<i>Regional Unit</i>	<i>Energy Charge for Households (€/kWh)</i>
<i>Attiki</i>	0,0142
<i>Thessaloniki</i>	0,0104
<i>Thessalia</i>	0,0106
<i>Stereia Ellada</i>	0,0203
<i>Central Macedonia</i>	0,0176
<i>Eastern Macedonia and Thrace</i>	0,0154
<i>Peloponnisos</i>	No data
<i>Western Macedonia</i>	0,0209
<i>Iperus</i>	0,0137

Comparing prices, it is unambiguous that the prices differ in Regional Units, and more specifically it is demonstrated that the Regional Units of Stereia Ellada and Western Macedonia are considered the most expensive.

Fysiko aerio (Semi-Public Company)

Fysiko Aerio (Elliniki Etairia Energias), is an affiliated company of DEPA (Public Gas Corporation) and is considered the main distributor of natural gas in Greece. 65% of DEPA belongs to the TAIPED (Public Greek Sector), while 35 % of it is in HELPE (Private Association) (Fysiko Aerio, 2022).

DEPA operates as the main facilitator of natural gas pipelines and liquid natural gas (LNG) in Greece. DEPA has signed long-lasting contracts with Gazprom Export, BOTAS, Sonatrach, and AGSC. A contract between DEPA and Gazprom Export, BOTAS and Sonatrach was signed in 2014, while another one with AGSC was signed in 2021. The main provider of natural gas is Gazprom Export (47%) which provides gas to the Sidirokastro entrance point. Its contract with DEPA expires in 2026. Additionally, BOTAS (17%) provides natural gas to the Khpoi Entry Point in Evros and Sonatrach (11%) provides liquid natural gas to the Greek market through the Agia Triada Entry Point (Revithousa). AGSC (24%) has been supplying the entrance point of Nea Mesimvria with natural gas since 2021. However, the DEPA aims to support suppliers and marketers from the eastern Mediterranean. In accordance with this, DEPA periodically conducts market analysis, to keep in touch with potential new marketers, focusing on enabling the Greek market and making it more competitive (DEPA, 2022).

Gas **Greece****Private suppliers**

In addition to DEPA and Fysiko Aerio, Law 4336/2015 set the requirements to support the liberalized natural gas market in Greece, giving the opportunity to a variety of Distribution Users (Private Suppliers) to supply natural gas to households and industry. It is obligatory for each distribution user to have permission to provide natural gas, verified by RAE, and simultaneously be submitted in the ESFA Users Record. Distribution Users must receive approved permission from DEPA's affiliated companies (EDA Attiki, EDA, e.g., Thessaloniki-Thessalia, DEDA) depending on the Regional Unit that they intend to offer their services (EDA Attiki, 2022)

Generally, the semi-public company and the private suppliers do not represent any differences, with respect to their operation or the way that they gain natural gas. Private suppliers are provided with natural gas by the semi-public marketer. All the regulations and pricing state policies above apply to all private suppliers as well. However, differentiations are shown in the offers they promote to their customers, according to the company policy.

Greece

Gas

1. Contact details: website and phone number of the company
2. Customer's details: service number, VAT number, special category etc.
3. Customer's name and address
4. Bill number, bill address, apartment floor
5. Type of tariff (residential, business) and type of bill (actual/interim estimated)
6. Total amount and due date
7. Consumption: period of metering,
8. E-bill payment code
9. Date of the next metering

1 www.fysikoaeerioellados.gr **ΚΑΛΕΣΤΕ 18 1133**

2 **Φυσικό αέριο**
ΕΛΛΗΝΙΚΗ ΕΤΑΙΡΕΙΑ ΕΝΕΡΓΕΙΑΣ
Παροχή Φυσικού Αερίου και Ηλεκτρικού Ρεύματος
Λεωφόρος Κηφισίας 7
11523, Αθήνα
Α.Φ.Μ.: 997104531 - ΔΟΥ: ΦΑΕ Αθηνών

3 ΟΝΟΜΑΤΕΠΩΝΥΜΟ
ΟΔΟΣ XX
12345 ΑΘΗΝΑ
87XXXXXXXXXX

4 Αριθμός λογαριασμού: XXXXXXXX X
Διεύθυνση ακινήτου: ΟΔΟΣ XX
ΤΚ ακινήτου & Πόλη: 12345 ΑΘΗΝΑ
Όροφος ακινήτου:

5 Τιμολόγιο: Αέριο οικιακό
Γεύμα υγιεινού ηλεκτρικό Τύπος λογαριασμού: Έναντι

6 Πόσο και πότε πρέπει να πληρώσω;
Ο λογαριασμός σας είναι:
€ 14,37
Με προθεσμία πληρωμής:
22/04/2021

7 Ημέρες Κατανάλωσης: 30 Ημερομηνία Έκδοσης: 01/04/2021
Τρέχουσα Περίοδος Τιμολόγησης: 02/03/2021 - 01/04/2021 109 (kWh) 48
Κατανάλωση Περαινής Περιόδου: kWh

8 Κωδικός ηλεκτρονικής πληρωμής:
RFXX90797XXXXXXXXXXXXXX

9 Επόμενη καταμέτρηση: 19/04/2021
19/04/2021 11500

FIGURE 61 IMAGE OF THE GAS BILL (FYSIKO AERIO). SINGLE SIDE. GREECE

Gas **Greece**

Gas invoice.

1. Contact details: website and phone number of the company
2. Customer's details: service number, VAT number, special category etc.
3. Customer's name and address
4. Bill number, bill address, apartment floor
5. Type of tariff (residential, business) and type of bill (actual/interim estimated)
6. Total amount and due date
7. Consumption: period of metering, date of bill issued, this year's consumption in comparison with last year's consumption in the same period.
8. E-bill payment code
9. Date of the next metering

Greece

Gas

- 1. Customer service and company's contact details
- 2. Customer's name and address
- 3. Total amount, due date, consumption period
- 4. E-bill payment code
- 5. Type of bill (actual/ interim estimated)
- 6. Percentage of charging categories:
- 7. Consumption details:

FIGURE 62 IMAGE OF GAS BILL (PRIVATE COMPANY). 1ST PAGE. GREECE

WATT+VOLT
PEYMA | AERIO

ΛΟΓΑΡΙΑΣΜΟΣ ΦΥΣΙΚΟΥ ΑΕΡΙΟΥ

Εξυπηρέτηση πελατών: 183 83
Καθημερινές, Σάββατο και αργίες από τις 09.00 - 21.00
watt-volt.gr | info@watt-volt.gr

ΠΕΛΑΤΗΣ ΠΕΛΑΤΗΣ
ΠΕΛΑΤΗ 58-60
12345 ΑΘΗΝΑ ΑΤΤΙΚΗ

Το συνολικό ποσό πληρωμής σας είναι: **XX,XX€**
και μπορείτε να το εξοφλήσετε μέχρι: **31/07/2019**
Αφορά το χρονικό διάστημα: **01/06/2019 έως 31/07/2019**
Δείτε Πώς μπορείτε να πληρώσετε στη Σελίδα 2

Ο Κωδικός Ηλεκτρονικής Πληρωμής σας: **RF12345678901234567890123 ΕΠΙΧΕΙΡΗΣΗ**

Εκκαθαριστικός ΤΙΜΟΛΟΓΙΟ

Κερδίστε χρόνο! Εξοφλήστε τον λογαριασμό σας με πάγια ενταλή κρέωσης του τραπεζικού σας λογαριασμού, δηλώνοντας στην Τράπεζά σας τον Κωδικό Ηλεκτρονικής πληρωμής.

Η Ανάλυση Χρεώσεων Περιόδου
Χρονικό διάστημα από 17/05/2017 έως 15/06/2017 (31 ημέρες)

- 43,88% **XX,XX€** ΧΡΕΩΣΕΙΣ ΠΡΟΜΗΘΕΙΑΣ
- 44,28% **XX,XX€** ΡΥΘΜΙΖΟΜΕΝΕΣ ΚΑΙ ΣΥΜΠΛΗΡΩΜ. ΧΡΕΩΣΕΙΣ
- 11,84% **XX,XX€** ΤΕΛΗ & ΦΟΡΟΙ

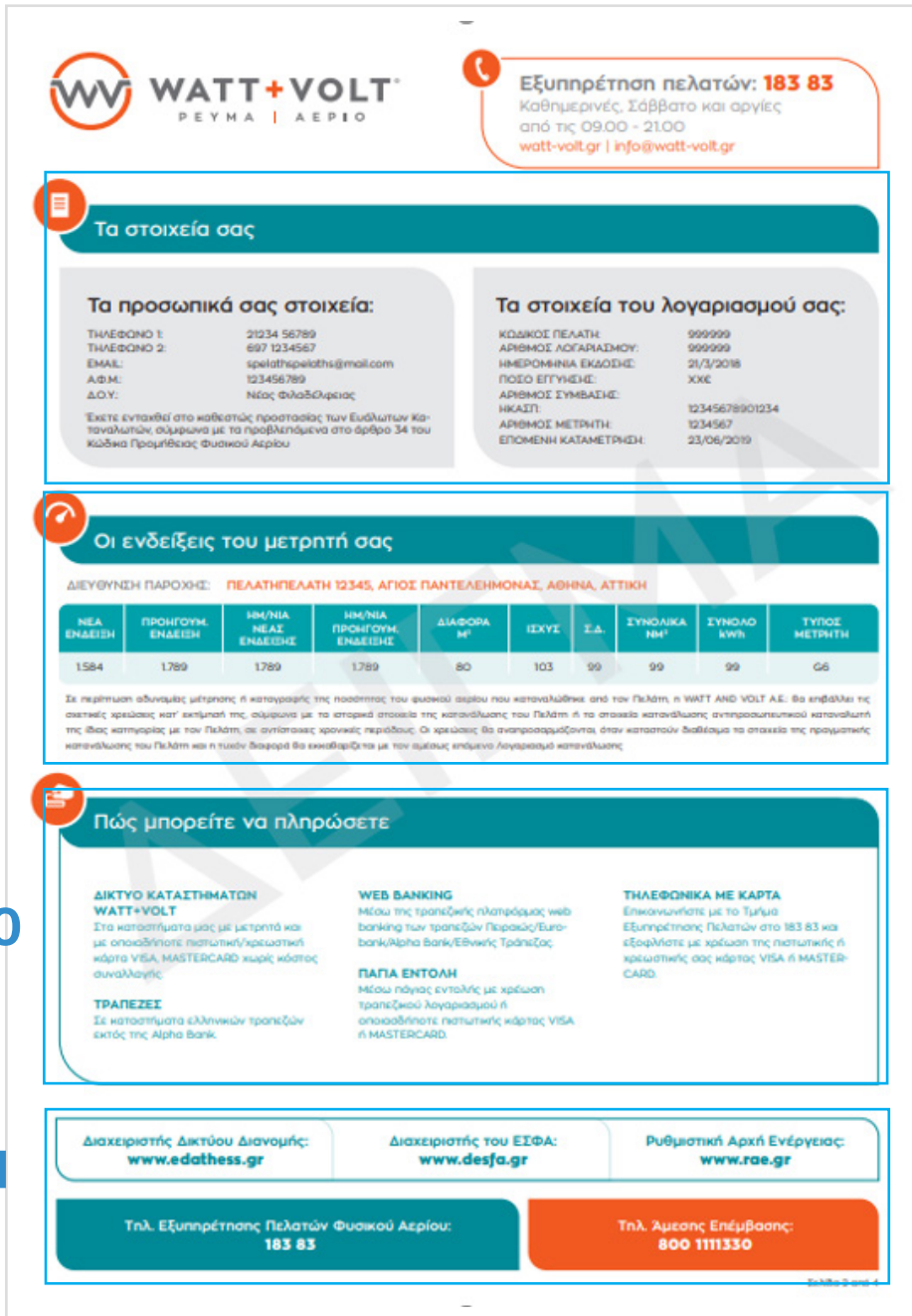
Το Προφίλ Κατανάλωσης
Η κατανομή των λογαριασμών σας αναλυτικά με τη μορφή ραβδίων. Όταν κάποιος από τους λογαριασμούς σας είναι πιστωτικός, δεν εμφανίζεται η ορατή ραβδος.

Ημερομηνία	kWh/ημέρες
19/12/2016	106/21
19/01/2017	936/122
19/02/2017	759/100
19/03/2017	842/125
19/12/2016	106/21
19/01/2017	936/122
19/02/2017	759/100
19/03/2017	842/125
19/12/2016	106/21
19/01/2017	936/122
19/02/2017	759/100
19/03/2017	842/125

● 2015 ● 2016 ● 2017

24ΩΡΗ ΜΕΣΗ ΚΑΤΑΝΑΛΩΣΗ
Προηγούμενα λογαριασμοί | 999,00 kWh ΤΡΕΧΟΝ ΛΟΓ/ΜΟΣ | 999,999 kWh

Gas Greece



8. Customer's and bill's details

9. Metering indicators

10. Types of payment: physical shops, e-bill, banks, post office.

11. Emergency contacts and phone numbers – state organizations responsible for the gas supply and distribution


FIGURE 63 IMAGE OF GAS BILL (PRIVATE COMPANY). 2ND PAGE. GREECE

Greece

Gas

- 12. Gas charges
- 13. Regulated Charges:
- 14. Complementary charges
- 15. Miscellaneous taxes.
- 16. Final cost balances
- 17. Total cost to be paid
- 18. Explanation of the abbreviations used in the bill.

FIGURE 64 IMAGE OF GAS BILL (PRIVATE COMPANY).
3RD PAGE.
GREECE



Εξυπηρέτηση πελατών: 183 83
Καθημερινές, Σάββατο και αργίες
από τις 09.00 - 21.00
watt-volt.gr | info@watt-volt.gr

Η ανάγνωση κεράσεων λογαριασμού με την ανάγνωση κεράσεων περιόδου μπορεί να διαφέρει λόγω ανεξάρτητων υπολοίπων, αναβάθρισης κτλ.
Φωτογραφία-πιστοποίηση εντάξεως κεράσεων από τον ελεγκτή: **Νηπ-φ-ΦΩΤ-ΜΕΤΡ-ΦΩΤ** (από τον αρμόδιο υπάλληλο ελεγκτή από τον ελεγκτή κίνησης-ελεγκτή) (για κεράσεις εντάξεως) **WV x €/kW** (για κεράσεις διανομής) (από τον ελεγκτή με τις τιμές που υποδεικνύονται στις αντίστοιχες σελίδες)

ΚΡΕΣΕΙΣ ΠΡΟΜΗΘΕΙΑΣ ΦΥΣ. ΑΕΡΙΟΥ								XXXXXX,XX€
	Περίοδος	Ημέρες	Nm³	ΣΥΝΤ. ΜΤΡΩ	kWh à kW	€/kwh à €/kW	Καθαρή Αξία	
Πάγιο	01/04/2017 - 30/04/2017	555	XXXX,XX	X,XXXXX	XXXX,XX	X,XXXXXXX	XXXXXX,XX€	
Κρεσείες κατανάλωσης	01/05/2017 - 23/05/2017	666	XXXX,XX	X,XXXXX	XXXX,XX	X,XXXXXXX	XXXXXX,XX€	
Κρεσείες κατανάλωσης	01/06/2017 - 30/06/2017	777	XXXX,XX	X,XXXXX	XXXX,XX	X,XXXXXXX	XXXXXX,XX€	
Κρεσείες κατανάλωσης	01/07/2017 - 23/07/2017	888	XXXX,XX	X,XXXXX	XXXX,XX	X,XXXXXXX	XXXXXX,XX€	
Κρεσείες κατανάλωσης	01/08/2017 - 23/08/2017	999	XXXX,XX	X,XXXXX	XXXX,XX	X,XXXXXXX	XXXXXX,XX€	
Έκπτωση	01/08/2017 - 23/08/2017	777	XXXX,XX	X,XXXXX	XXXX,XX	X,XXXXXXX	XXXXXX,XX€	
Έκπτωση	01/08/2017 - 23/08/2017	999	XXXX,XX	X,XXXXX	XXXX,XX	X,XXXXXXX	XXXXXX,XX€	

ΡΥΘΜΙΖΟΜΕΝΕΣ ΚΡΕΣΕΙΣ								XXXXXX,XX€
	Περίοδος	Ημέρες	Nm³	ΣΥΝΤ. ΜΤΡΩ	kWh à kW	€/kwh à €/kW	Καθαρή Αξία	
Χρήση ΕΣΦΑ	01/04/2017 - 30/04/2017	666	XXXX,XX	X,XXXXX	XXXX,XX	X,XXXXXXX	XXXXXX,XX€	
Χρήση ΕΣΦΑ	01/05/2017 - 23/05/2017	777	XXXX,XX	X,XXXXX	XXXX,XX	X,XXXXXXX	XXXXXX,XX€	
Χρήση ΕΣΦΑ	01/06/2017 - 30/06/2017	555	XXXX,XX	X,XXXXX	XXXX,XX	X,XXXXXXX	XXXXXX,XX€	
Χρήση ΕΣΦΑ	01/07/2017 - 23/07/2017	444	XXXX,XX	X,XXXXX	XXXX,XX	X,XXXXXXX	XXXXXX,XX€	
Χρήση Δυναμότητας Διανομής	01/07/2017 - 23/07/2017	333	XXXX,XX	X,XXXXX	XXXX,XX	X,XXXXXXX	XXXXXX,XX€	

ΣΥΜΠΛΗΡΩΜΑΤΙΚΕΣ ΚΡΕΣΕΙΣ								XXXXXX,XX€
Πόροι Αναβάθρισης							XXXXXX,XX€	
Αποζημίωση υπέρ του πελάτη							XXXXXX,XX€	

ΜΕΛΛΟΝΤΑ ΦΟΡΟΛΟΓΙΑ								XXXXXX,XX€
Τέλος Ασφάλειας Εφοδιασμού (ΕΑΚ 5 2534/14)							XXXXXX,XX€	
Εθνικός Φόρος Κατανάλωσης (ΕΦΚ)							XXXXXX,XX€	
ΣΥΝΟΛΟ Φ.Π.Α. 6%							XXXXXX,XX€	
ΣΥΝΟΛΟ Φ.Π.Α. 24%							XXXXXX,XX€	
Φ.Α. ΤΡΑΦΕΣ 5%							XXXXXX,XX€	

ΕΝΔΕΙΧΜΕΝΕΣ ΚΡΕΣΕΙΣ								XXXXXX,XX€
ΚΡΕΣΗ ΕΓΓΡΗΣΗΣ							XXXXXX,XX€	
ΣΥΝΟΛΟ ΤΡΕΧΟΥΣΑΣ ΠΕΡΙΟΔΟΥ							XXXXXX,XX€	

ΓΕΝΙΚΟ ΣΥΝΟΛΟ ΛΟΓΑΡΙΑΣΜΟΥ
XXXXXX,XX€

ΕΡΩΤΗΜΑΤΙΑ

Π.Μ.Κ.: Πρόσθετα Μέτρα Κατανάλωσης (Nm³) που προέρχονται από προηγούμενο μετρητή.

ΣΥΝΤ. ΜΤΡΩ: Ο συντελεστής που μετατρέπει τα κανονικά κυβικά μέτρα (Nm³) σε κιλοβατώρες (kWh) και ισούται με τη θερμογόνο δύναμη του φυσικού αερίου.

Σ.Α.: Συντελεστής διόρθωσης. Μετατρέπει τα συνολικά καταναλωθέντα κυβικά μέτρα (Nm³) σε κανονικά κυβικά μέτρα (Nm³).

kWh: Είναι μονάδα μέτρησης της ενέργειας και εκφράζει την ισχύ των συσκευών σε kW επί της ώρας λειτουργίας τους.

ΗΚΑΣΠ: Ο Ηλεκτρονικός Κωδικός Αναγνώρισης του Σημείου Παράδοσης.

ΔΔ: Δίκτυο Διανομής.

ΚΡΕΣΕΙΣ ΠΡΟΜΗΘΕΙΑΣ Φ.ΑΕΡΙΟΥ: Το σύνολο των κεράσεων που εμβάλλει ο Προμηθευτής στον Πελάτη για την Προμήθεια Φυσικού Αερίου και οι οποίες σχετίζονται αποκλειστικά με την Προμήθεια Φυσικού Αερίου.

ΡΥΘΜΙΖΟΜΕΝΕΣ ΚΡΕΣΕΙΣ: Οι κεράσεις που βαρύνουν τον Πελάτη και αφορούν σε ρυθμιζόμενες υπηρεσίες σχετικές με την Προμήθεια Φυσικού Αερίου που παρέχονται από τρίτους.

Σελίδα 3 από 4

12
13
14
15
16
17
18

Gas Greece

19

WATT+VOLT
PEYMA | AEPHO

Εξυπηρέτηση πελατών: 183 83
Καθημερινές, Σάββατο και αργίες
από τις 09.00 - 21.00
watt-volt.gr | info@watt-volt.gr

Ειδικό Όροι

Σε περίπτωση διαφωνίας του Πελάτη ως προς το ποσό του Λογαριασμού Κατανάλωσης, ακολουθείται η εξής διαδικασία, ως προϋπόθεση προσαρμής σε ένδικο μέσο ή εξωδικαστική συναινετική διαδικασία:

α) Ο Πελάτης οφείλει να υποβάλει εγγράφως τεκμηριωμένες ανηρτήσεις προς τον Προμηθευτή του, πριν τη λήξη της προθεσμίας εφόφλησης του Λογαριασμού Κατανάλωσης που όπεται του Λογαριασμού Κατανάλωσης που αμφισβητείται. Η άπρακτη παρδλεια της ανωτέρω προθεσμίας αμφισβήτησης εκ μέρους του Πελάτη καθιστά το οφειλόμενο ποσό του Λογαριασμού οριστικό, αναγνωρισμένο και μη επείκόμενο περαιτέρω αμφισβήτησης.

β) Ο Προμηθευτής, εντός δέκα (10) εργάσιμων ημερών από τη λήξη των ανηρτήσεων του Πελάτη, αποφαίνεται τεκμηριωμένα, οριστικοποιεί τα ποσά των πληρωμών και κοινοποιεί στον Πελάτη Τελική Κατάσταση Πληρωμών, συνοδευόμενο με ιστορικό δεδομένων κατανάλωσης θέτοντας πρόθεσμα εφόφλησης τουλάχιστον δέκα (10) εργάσιμων ημερών και σε κάθε περίπτωση όχι συντομότερη από την προθεσμία εφόφλησης του Λογαριασμού Κατανάλωσης που αμφισβητείται.

γ) Ο Πελάτης εφόσον συμφωνεί, καταβάλλει το ποσό της Τελικής Κατάστασης Πληρωμών, εντός της προθεσμίας που αναγράφεται σε αυτήν.

Ενημέρωση Πελατών

Διαβάστε τον κανονισμό καταναλωτή στον ιστοσελίδα του καταναλωτή στο www.watt-volt.gr και η Ρυθμιστική Αρχή Ενέργειας (ΡΑΕ, 210 3727400, info@rae.gr). Για να ενημερωθείτε για τις νέες, πρωτοποριακές υπηρεσίες παρακολούθησης και διαχείρισης ενέργειας παρακαλούμε να επικοινωνήσετε με το Τμήμα Εξυπηρέτησης Πελατών στο 183 83.

20

WATT+VOLT
PEYMA | AEPHO

WATT AND VOLT A.E.
ΕΜΠΟΡΙΑ ΚΑΙ ΠΡΟΜΗΘΕΙΑ ΗΛΕΚΤΡΙΚΗΣ ΕΝΕΡΓΕΙΑΣ
ΚΗΦΙΣΙΑΣ 217Α, 151 24, ΜΑΡΟΥΣΙ, ΤΗΛ: 210 189100
ΑΦΜ: 998283692, ΔΟΥ: ΦΑΕ ΑΘΗΝΩΝ

ΑΡΙΘΜ. ΜΗΤΡΩΟΥ ΣΥΜΜΕΤ: 29XBBLACKPEARL-T
ΑΡΙΘΜΟΣ ΜΗΤΡΩΟΥ ΧΡΗΣΤΩΝ Α.Μ.Χ. 60
ΑΡΙΘΜΟΣ ΑΔΕΙΑΣ ΠΡΟΜΗΘΕΙΑΣ ΦΥΣΙΚΟΥ ΑΕΡΙΟΥ
Αριθμ. ΠΑΕ 96/2015, Τριπλ. Αριθμ. ΠΑΕ 281/2015

smartwatt

Κάντε το σπίτι σας "έξυπνο" με την υπηρεσία smartwatt

- Άνεση στην καθημερινότητα
- Ασφάλεια, έλεγχος και προστασία
- Οικονομία και εξοικονόμηση ενέργειας

Μάθετε περισσότερα για τις ειδικές προνομιακές τιμές στο smartwatt.gr

Κατεβάστε δωρεάν τη βελτισμένη εφαρμογή

Get it on Google play | Download on the App Store

Σελίδα 4 από 4

19, Special terms and customer's right
20. Contact Information

FIGURE 65 IMAGE OF GAS BILL (PRIVATE COMPANY). 4TH PAGE. GREECE

Greece

Gas

Electricity invoice.

1. Customer service and company's contact details
2. Customer's name and address
3. Total amount, due date, consumption period
4. E-bill payment code
5. Type of bill (actual/interim estimated)
6. Percentage of charging categories: commission charges, regulated and complementary charges, VAT
7. Consumption details: kWh/day and average 24h kWh consumption
8. Customer's and bill's details: contact details, VAT number, customer number, bill number, bill's issue date, contract number, metering device number, next metering
9. Metering indicators: Current consumption, last consumption, kW capacity, total NM₃ consumption, total kWh consumption
10. Types of payment: physical shops, e-bill, banks, post office.
11. Emergency contacts and phone numbers – state organisations responsible for the gas supply and distribution
12. Gas charges: fixed prices, consumption charges, discounts
13. Regulated Charges: Use of the National distribution system, charge of the capacity of distribution, charge of the distribution energy
14. Complementary charges: in case of the termination of the contract from the customer's side or a compensation for the customer
15. VAT: security of supply fee, special consumption fee, state VAT 6%, state VAT 24%, special fee 5%
16. Balance from the interim estimated bill, warranty charge, total of the current bill, balance from previous bills
17. Total: The final amount of money the customer must pay, after calculating the value of the energy, the VAT and other charges, and potential previous balances.
18. Explanation of the abbreviations used in the bill.
19. Special terms and customer's right: How the customer can report a problem or an error in their bill.
20. Information box: company's contact details, address, and credentials

Gas **Greece****Resources and information about rights and opportunities**

Both the state company and private suppliers provide a range of discounts and offers based on social criteria. This is achieved by establishing the social tariff which was enacted through the Ministerial Decision 5-HΛ/B/Φ29/16027/6.8.10 of the Ministry of Energy. A social tariff is defined as a special electricity/gas tariff, which is provided by all electricity/gas suppliers in accordance with the decisions of the Ministry of Environment. More specifically, the social tariff is a reduced price of electricity/gas for household use provided to vulnerable groups/customers and has been implemented since 2011 (RAE, 2022).

According to Law 4001/2011, vulnerable customers are considered customers that deal with energy poverty, health issues in general, and especially those who require mechanical support from medical devices, elderly customers, and customers in remote/marginalized areas. Due to these special conditions, vulnerable consumers receive some additional benefits, such as social tariffs (either they choose the semi-public company or the private suppliers) and favorable arrangements in the payment of bills. Additionally, marketers are not allowed to disconnect the supply of gas for these consumers in critical periods (Fysiko Aerio, 2022).

Customers who can benefit from social tariffs are clarified in two main categories:

1. Category A - Beneficiaries A: Consumers who belong to this category must meet income and property requirements (as they are defined by Law 4389/2016) and dispose of an approved application (Social Solidarity Income), within the last two months.
2. Category B - Beneficiaries B: In this category belong the consumers that are qualified as represented below:

Household	Income limit
Single person Household	9.000 €
Household occupied by two adults or single parent family with an under-aged member	13.500 €
Household occupied by two adults and one under-aged member or single parent family with two under-aged members	15.750 €
Household occupied by three adults or two adults and two under-aged members or single parent family with three under-aged members	18.000 €
Household occupied by three adults and one under-aged member or two adults and three under-aged members or a single parent family with four under-aged members	24.750 €
Household occupied by four adults or two adults and four under-aged members or a single parent family with five under-aged members	27.000 €

Source: Fysiko Aerio, 2022

According to the mentioned above, the gas prices for the vulnerable groups have been configured as represented in the table below:

Discount on gas charge (€/kWh)	Category A	Category B
	0,075€/kWh	0,045€/kWh

Source: Fysiko Aerio, 2022

Greece

Gas

Furthermore, the Ministerial Decision ΥΠΕΝ/ΔΥΔΡ/12462/333/2022 - Government Gazette 603/B/11-2-2022 "Granting of Subsidy for the Consumption of Natural Gas" sets out the eligibility criteria and defines the consumers (household, non-household) who will be benefitted, receiving subsidy from the Energy Transition Fund. This Ministerial Decision concerns the support of vulnerable consumers and groups for the period January - March 2022. According to this decision, household consumers that meet the requirements could be benefitted for the months of January, February, and March of 2022 by receiving the subsidy of 20 €/kWh on the total consumption of natural gas. Especially for the months February and March, the decision declares that the mentioned above can be applied except for the electricity consumption (YPEN, 2022)

In terms of night tariff, if the sum of daily and night consumption is lower than the daily consumption then both the discount that applied in the social tariff has the adequate implementation for the night tariff and the tariff exemptions are applied, respectively. If the sum of daily and night consumption is higher than the daily consumption, then both the discount of the social tariff and the tariff exemptions are applied for the night consumption within the above limits and the excess night consumption is invoiced with the current suppliers' household night tariff with the scales of the total consumption (RAE, 2022).

Useful contact details

- Emergency phone numbers free of charge 24h service
EDA Attiki: 11 322 | 800 1111330 | 210 3463365
EDA Thessaloniki: 10 302 | 800 1187878
DEDA: 11 711 | 800 1122222 | 210 5551666
- Customer service numbers are different based on the supplier chosen by the customer

Gas

Greece

Greece

Water

Water supply.

'EYDAP Assets' is a Greek State company that is responsible for water extraction and transfer throughout the country. EYDAP uses raw water mainly from surface water resources (Marathonas, Yliki, Mornos, and Evinos). Of these reservoirs, only Yliki is natural, while others have been created by the construction of dams in the appropriate places in the respective Evinos riverbed, Mornos riverbed, and Haradros (Marathon Dam). Raw water is transferred to Water Treatment Plants (WTP) through an extensive external aqueduct system with a total length of 485 km, where the water goes through a specific process to become drinkable. Then, the treated water transported is transferred to every property in Greece through a wide network of 9,500 km transport and distribution pipelines. The company is in Athens and its main WTPs are in Galatsi, Acharnes, Polydendri, and Aspropyrgos. However, EYDAP has subsidiary companies such as EYATH, DEYAL and DEYAH which are responsible for the distribution of water across the country through an extensive water supply network (EYDAP, 2022).

References water bills

EYDAP: <https://www.eydap.gr/en/Home/>

E-NOMOTHESIA: <https://www.e-nomothesia.gr/kat-agrotike-anaptukse/apophase-oik-135275-2017-fek-1751b-22-5-2017.html>

[Water Supply Resources](#) -> [Water Transfer Aqueducts](#) -> [Water Treatment Plants](#) -> [Drinking Water Supply Network](#) -> [Regional Units](#) -> [Distribution](#) -> [Consumption](#)

EYDAP

EYDAP is the property of the Greek state and is the only water supplier in the country. The price of m³ depends on the category of tariff and the monthly consumption of the customer. Since 13.02.2016, according to the Government Gazette 3188B/16.12.2013, the domestic tariffs are calculated as the following graph shows.

TARIFF CATEGORIES	MONTHLY CONSUMPTION (m ³)	€/ m ³
DOMESTIC	0 - 5	0.3500
	5 - 20	0.6400
	20 - 27	1.8300
	27 - 35	2.5600
	over 35	3.2000

In general, the cost of the water bill depends on three factors: the finance costs, the resource costs, and the environmental tax. Water suppliers

Water **Greece**

must notify the Decentralized Administration Water Directorate every semester about the charges of their invoices (E-NOMOTHESIA, 2017).

Furthermore, the company offers to all consumers the option to settle their debts in case of inability to cover the costs of their bills. In fact, customers can contact EYDAP if they want to settle and pay their bills in several interest-bearing installments. They should apply through the EYDAP website and upload their personal data along with their property documents. According to the company's regulations, the installments cannot be more than 18 and the minimum amount that the customer can pay per month is 20€. If the customer is not consistent and delays the payment of the instalment, EYDAP cancels the agreement. A similar regulation also applies to the beneficiaries of the Social Residential Tariff (STR), who have the right to pay off their debts in interest-free instalments upon the approval of the Administrative Board of the company. Based on the EYDAP data, the debt settlement requests were 23.110 in 2019 (EYDAP, 2022).


Furthermore, if the consumer pays the bill after the expiration date, EYDAP implements a fine and has the right to interrupt the water supply without further notice. In this case, the consumer is charged with the costs of disconnection and reconnection.

Greece

Water

1. Contact details and address of the organisation.
2. Bill details.
3. Customer details.
4. Metering indication.
5. Water charges analysis
6. Bill analysis.
7. Current bill value
8. Total amount to be paid
9. Overview of the bill:

FIGURE 66 IMAGE OF THE WATER BILL (EYATH). FRONT SIDE. GREECE



Εταιρεία Ύδρευσης & Αποχέτευσης Θεσσαλονίκης Α.Ε.
 Εγγατία 127, 54635, Θεσσαλονίκη ☎ **2310 966600**
 Α.Μ.Α.Ε. 41913/06/Β/98/32 - Α.Φ.Μ. 094549011, Φ.Α.Ε. ΘΕΣΣΑΛΟΝΙΚΗΣ
 www.eyath.gr

ΑΠΟΔΕΙΞΗ ΕΙΔΟΠΟΙΗΣΗΣ ΤΕΤΡΑΜΗΝΟΥ

ΣΤΟΙΧΕΙΑ ΛΟΓΑΡΙΑΣΜΟΥ

Α.Φ.Μ. ή ταυτ. υπόχρεου:
 Αριθμός παραστατικού:
 Κωδ. ηλεκτρονικής πληρωμής:
 Κωδικός πάγιας εντολής:
 Ο λογαριασμός εξοφλείται στην τρέχουσα

Υπόχρεος:
 Διεύθυνση:
 Τ.Κ.:
 Αρ. καταναλωτή:
 Αρ. υδρομέτρου:

ΕΝΔΕΙΞΕΙΣ ΥΔΡΟΜΕΤΡΟΥ

Προηγούμενη: 1.365
 Νέα: 1.378
 Διαφορά κυβικών (m³): 13
 Χρέωση κυβικών (m³): 13

ΠΕΡΙΟΔΟΣ ΚΑΤΑΝΑΛΩΣΗΣ

Από: 22/10/2020 Έως: 21/02/2021
ΕΠΟΜΕΝΗ ΜΕΤΡΗΣΗ
 Από: 17/06/2021 Έως: 22/06/2021
 Εκδόθηκε: 04/03/2021

ΗΜΕΡΟΜΗΝΙΑ ΛΗΞΗΣ ΠΛΗΡΩΜΗΣ

04/05/2021

(για το σύνολο του τρέχοντος λογαριασμού «εάν τις καθυστερούμενες οφειλές»)

ΑΝΑΛΥΣΗ ΧΡΕΩΣΗΣ ΝΕΡΟΥ

ΚΛΙΜΑΚΙΑ ΚΑΤΑΝΑΛΩΣΗΣ	ΤΙΜΗ / m ³	ΑΣΙΑ ΣΕ €
10 ΚΥΒΙΚΑ	0.00000	0.00
3 ΚΥΒΙΚΑ	0.00000	0.00

ΣΥΝΟΛΟ: **13** ΑΣΙΑ ΝΕΡΟΥ: **0,00**

ΑΝΑΛΥΣΗ ΛΟΓΑΡΙΑΣΜΟΥ

ΤΙΜΟΛΟΓΗΣΗ ΥΠΗΡΕΣΙΩΝ	ΕΥΡΩ
ΠΑΓΙΟ ΤΕΛΟΣ	8.00
ΑΣΙΑ ΝΕΡΟΥ	0.00
ΑΣΙΑ ΑΠΟΚΕΤΕΥΣΗΣ (.....0%)	0.00
ΕΙΣΙΟ ΤΕΛΟΣ ΚΥΚΛΟΥ ΝΕΡΟΥ (0,07 ΕΥΡΩ / m ³)	0.00
ΔΙΑΚΟΠΕΣ - ΕΠΑΝΑΛΗΨΕΙΣ ΠΑΡΟΧΩΝ	
ΣΥΜΜΕΤΟΧΗ ΣΤΗΝ ΑΝΑΚΑΤΑΣΤΑΣΗ ΔΙΑΚΑΛΑΔΕΣΩΝ	
ΤΟΚΟΙ ΠΛΕΟΝ ΧΑΡΤ. 3.40%	
ΛΟΙΠΑ	0.00
ΣΤΡΟΓΓΥΛΟΠΟΝΗ ΠΡΟΗΓ. ΛΟΓΑΡΙΑΣΜΟΥ	0.04
ΣΤΡΟΓΓΥΛΟΠΟΝΗ ΝΕΟΥ ΛΟΓΑΡΙΑΣΜΟΥ	0.04
α) Σύνολο υπηρεσιών	8,08
Φ.Π.Α. ΥΠΗΡΕΣΙΕΣ	0.00
Φ.Π.Α. ΠΑΓΙΟΥ ΑΠΟΚΕΤΕΥΣΗΣ & ΛΟΙΠΩΝ ΠΛΗΝ ΤΟΚΩΝ	1.92
β) Σύνολο Φ.Π.Α.	1,92

ΙΣΤΟΡΙΚΟ ΚΑΤΑΝΑΛΩΣΗΣ

ΠΕΡΙΟΔΟΣ	ΤΕΤΡΑΜΗΝΟ	Μ ³
2020 - 01	τετράμηνο	47 m ³
2020 - 02	τετράμηνο	51 m ³
2020 - 03	τετράμηνο	25 m ³
→ Τρέχων λογαριασμός:		13 m ³

Α. ΣΥΝΟΛΟ ΤΡΕΧΟΝΤΟΣ ΛΟΓΑΡΙΑΣΜΟΥ (α+β)	10,00
Β. ΚΑΘΥΣΤΕΡΟΥΜΕΝΕΣ ΟΦΕΙΛΕΣ	0,00
Γ. ΠΕΡΙΒΑΛΛΟΝΤΙΚΟ ΤΕΛΟΣ	0,00
ΤΕΛΙΚΟ ΠΟΣΟ ΟΦΕΙΛΗΣ (Α+Β+Γ)	10,00

ΤΑΧΥΠΛΗΡΩΜΗ ΕΙΣΠΡΑΞΗ / ΜΕΤΑΒΙΒΑΣΗ Ο

Αρ. Καταναλωτή: 15-38-110-00-00
 Αρ. Πράξης/Ταχυπρωτοκόπου: 15381100000

ΥΠΟΧΡΕΩΣ: ΚΑΛΑΒΡΙΑΝΟΣ ΣΥΝΑΝΑΡΧΟΣ ΤΟΥ ΑΘΑ
 ΔΙΕΥΘΥΝΣΗ: Κ ΒΟΓΙΑ 1 ΟΡ 1 Δ/4

Τ.Κ.: 54643
 ΠΟΛΗ:

ΗΜ. ΛΗΞΗΣ ΠΛΗΡΩΜΗΣ: 04/05/2021


Ποσό: **10,00**

ΜΗ ΣΗΜΕΙΩΝΕΤΕ ΚΑΤΟ ΑΓΙΟ ΑΥΤΗΝ ΤΗ ΓΡΑΜΜΗ

Χρονολογικό Σήματρο

Αρ. Λογικής Απόδειξης


ΚΩΔΙΚΟΣ ΗΛΕΚΤΡΟΝΙΚΗΣ ΠΛΗΡΩΜΗΣ



>193811000002< 10009> 1500420< 24>

ΕΥΑΘ

Water Greece



Επικοινωνήστε 24 ώρες το 24ωρο


☎ Τηλ. κέντρο: **2310 966600** Για βλάβες καλέστε: **11124**

10


Για την εξυπηρέτησή σας απευθυνθείτε:

📍 κεντρικά, Αγγελόκη 6 (δίπλα στο ΚΕΠ) 📍 26ης Οκτωβρίου 26 (απέναντι από τα δικαστήρια)


11




Ελέγξτε τακτικά τις υδραυλικές εγκαταστάσεις σας (βρύσες, κολιάνια κ.λπ.), ώστε να αποφευχθεί τυχόν διαρροές που «φρεσκώνουν» τον λογαριασμό.



Επιγραμμώστε υπέρυθρους πυρσούς και χρησιμοποιήστε κρύσταλλο διαλύτη με συζήτηση υπεύθυνου κεραι ή συστήματα ανόργανης διαρροής, ώστε να αποφευχθεί πιθανός θάνατος.




Προφυλάξτε από την παλαιά τα υδράγωγα και τις σωληνώσεις αυτές του δικτύου σας. Είναι εύκολο να διασπαστούν και να υπάρξει καταστροφή.




Κάντε εύκολη την πρόσβαση στον χώρο των υδραγωγίων του κτιριοδομητήριου από τον ΕΥΑΘ Α.Ε. προσωπικό για τον έλεγχο των εκδόσεων.

12




Εξοφλάτε τον λογαριασμό σας πριν από τη λήξη, για να γλυτώσετε τους τόκους.


Κρατάτε κρέμα πληρωμένων με πάγια εισοδήματα τραπεζικού λογαριασμού, με e-banking ή ηλεκτρονικό μήνυ στα smartphones της ΕΥΑΘ (www.eyath.gr) ή, χωρίς κωδικ ασφαλείας κρέμας, στα σουίτς μάρκας ΜΑΣΟΥΤΗΣ. Εξοφλήσεις γίνονται επίσης στα ΕΛΤΑ, στα καταστήματα ΟΠΑΠ ανά την Ελλάδα και με πιστωτικές κάρτες Mastercard, Visa, American Express και Diners.




Mastercard, Visa, American Express, Diners




www.eyath.gr




Ενημερώστε την καρτέλα σας ώστε υπάρχει να είναι ο πραγματικός χρήστης, διαφορετικά οι αρχές επιβαρύνουν τους δικαστές των αρχών. Η ΕΥΑΘ μπορεί να διακόψει την υδρεύση, όταν δεν είναι σωστά τα στοιχεία του υπόγειου ή/και για ληστευόμενες αρχές.



Ενημερωθείτε για το ειδικό καταγγελλικό και το δημοτικό μας τηλέφωνο.




Απολύτως έναρξη στο κοινοτικό τηλέφωνο ή ανάκλησης του λογαριασμού ΚΩΤ Α' και ΚΩΤ Β' είναι όσον είναι δικαστική των αντίστοιχων τηλεφώνων της ΔΕΥΑ ή άλλων παρόντων πληροφορίες ενέργειας. Η ένωση - συνένωση γίνεται αυθόρμητα, χωρίς καμία διαδικασία στην ΕΥΑΘ. Σε περίπτωση που «φροντιστεί» διαφορετικός χρήστης-υπόγειος από ρεύμα και το νερό ή δε διαθέτουμε τον ΑΔΜ σας, ενημερωθείτε στην ιστοσελίδα μας για το τι πρέπει να κάνετε.



Το Παράρτημα 13ος είναι ένα αναπόσπαστο μέρος που αποδίδει στο Πράσινο Ταμείο.

Όλα είναι στιγμές που δε θέλουμε να χάνεις



Εξόφλησε τώρα τον λογαριασμό σου στο www.eyath.gr, με e-banking και σε καταστήματα ΜΑΣΟΥΤΗΣ, ΟΠΑΠ, ΕΛΤΑ, σε ΤΡΑΠΕΖΕΣ, σε περισσότερα από 300 σημεία σε όλη τη Θεσσαλονίκη #kerdivestigmes

- 10. EYATH Contact details and customer service phone numbers
- 11. Useful information: Instructions to avoid damage and higher bills from water leaks
- 12. Information about the customer's rights and opportunities, and the regulations protecting them.

FIGURE 67 IMAGE OF WATER BILL (EYATH). BACK SIDE GREECE

Greece

Water

Water invoice.

1. Contact details and address of the organisation.
2. Bill details: VAT number, bill number, e-bill payment code, bank name of there is a direct payment order activated)
3. Customer details: name and address, customer code, metering device number)
4. Metering indication: Current consumption, previous consumption, current metering period, next metering date, issue date, payment due date for the current bill
5. Water charges analysis: consumption in cubic meters, price per cubic metre, value in euros, the total value of the water consumption, history of consumption in cubic meters last year in the same period
6. Bill analysis: Service tariffs for fixed charges, water value, drainage, VAT for potential damages and repairs, water network VAT, and other fixed charges
7. Current bill value, potential remaining amount from the previous bill, environmental tax
8. Total amount to be paid
9. Overview of the bill: total amount, customer details, due date, and payment number
10. EYATH contact details and customer service phone numbers
11. Instructions to avoid damage and higher bills from water leaks
12. Information about the customer's rights and opportunities, and the regulations protecting them.

Water **Greece****Resources and information about rights and opportunities**

EYDAP has established regulations and has taken several measures to protect and support vulnerable groups. According to Law 4001/2011, vulnerable customers are considered the customers that deal with energy poverty, health issues in general, and especially those who require mechanical support from medical devices, elderly customers, and customers in remote/marginalized areas. In particular, the company has a special invoice for large families. According to the Ministerial Decision 48405/346/8-12-2004, a large family is considered any family with 3 or more children/dependents. They should submit an online application via the company website and present specific documents such as civil status and a declaration. In total, 11.813 large families benefited from this social policy in 2019. Furthermore, EYDAP reduces the cost of water bills with consumption of more than 60 m³ per trimester, in the case of elderly customers who receive the minimum age pension (according to the Greek Social Security Agency). 520 elderly households had in 2019 reduced water charges. Furthermore, EYDAP implements discounts on bills with high consumption or unreported water supply, considering specific social and income criteria. In 2019, the total price of the discounts was 5.874.058,28 euros.

The company also established a special tariff / social invoice in 2017 for the beneficiaries of the Social Solidarity Payment according to state law 4389/16. EYDAP offers free 2 m³ water supply per month and per household member, as well as free 3 m³ water supply per month to households with individuals who are more than 67% disabled. Beneficiaries should visit the company's website to submit an online application and upload their personal data, a tax declaration, and a water supply bill. According to EYDAP information, 11.602 households benefitted from this regulation during the years 2018 and 2019 (EYDAP, 2019).

Useful contact details

- EYDAP (Athens)

Customer support: The customer can choose the region they belong to and find the closest EYDAP service point here:

<https://www.eydap.gr/CustomerSupport/ServicePoints/>

Phone number: 1022 or 210 2144444 / 1022@eydap.gr free of charge 24h service

The online form of communication, based on the specific matter of the customer: <https://www.eydap.gr/CustomerService/>

- EYATH (Thessaloniki)

Customer support: Aggelaki 6, 54636 and 26th of October 25, 54627 – Monday to Friday 7:30 – 14:00

Phone number: 2310 966600 / for emergency damages: 11124

Online communication form to report a problem or a question: <https://www.eyath.gr/epikoinonia/>

References water bills - Greece

EYDAP: <https://www.eydap.gr/en/Home/>

E-NOMOTHESIA: <https://www.e-nomothesia.gr/kat-agrotike-anaptukse/apophase-oik-135275-2017-fek-1751b-22-5-2017.html>

Energy bills. Spain

COOLTORISE

*Raising summer energy poverty awareness
to reduce cooling needs*



Spain

Electricity

Electricity market.

In Spain, the energy cycle begins at the generation points, where the process of transforming energy resources (mainly coal, gas, uranium, sun, wind, or water) into electrical energy takes place. Once generated, it is transported to the distribution site and from there distributed to the points of consumption.

Generation -> Transport -> Arrives at the Municipality -> Distribution -> Consumption

Natural gas follows the same circuit, but, unlike electricity, it is a primary energy and therefore does not require any transformation. primary energy and, therefore, does not need any transformation (it is transformed into heat directly in homes, normally, except for district heating networks, which are still not very widespread).

Marketers oversee buying this energy on the wholesale market and selling it to customers. There are more than six hundred in the free market and eight in the regulated market. Those in the regulated market are the so-called reference marketers or last resort marketers and entitle people who meet certain requirements to access the social tariffs.

The price of energy is determined on an hourly market based on the hourly generation of electricity. The average price is given daily. However, in the free market tariffs, as consumers we may receive a variable price, or we may be billed for the energy at a fixed price, depending on the conditions of the contract we have with the supplier.

Regular market:

- They operate what are called reference marketers, of which there are only 8. These marketers buy the energy, but the state regulates a part of the price at which they sell the energy to the end consumer. A single tariff is considered, known as the Voluntary Price for Small Consumers (PVPC). The price in the regulated market is usually cheaper in the long run than the price in the free market.
- Another advantage offered by the regulated market is the possibility of accessing the social tariff discount.
- Finally, in the regulated market it is not possible to add extra services to the bill, such as maintenance services, which are often contracted without knowledge in the free market.

The regulated market allows greater control over the electricity bill, as the bill is more limited, and discounts such as the social tariff, which are normally higher than the discounts that can be obtained on the free market. In addition, this market does not have a fixed term. However, if you want to opt for green energy purchasing criteria, or ethical or social criteria, it is necessary to look for free market suppliers.

Liberalized market:

- The price is set 100% by the company, and since it is a liberalized market, each operating company can offer you a wide variety of tariffs, and additional maintenance services.
- There are more than 600 suppliers in the liberalized market, which allows us to select the one that best suits what we are looking for, not only thinking about the price, but also that it fits with the energy we want to have. For example, we may be interested in a supplier with renewable energy certificates, with ethical criteria, that is local or socially based.
- They sometimes offer rates that allow a few hours per day or week for free but end up compensating for the discount with higher prices for the remaining hours.
- The tariffs they offer may have a minimum permanence.

LIBERALIZED MARKETERS VS REGULAR MARKETERS

Security against non-payment:

- ***Liberalized marketers:*** When there are non-payments in the supply and after receiving notification of the cut-off, the customer has 2 months to pay and avoid suspension. Once this period has elapsed, the suppliers can carry out a cut-off + cancellation at the same time, obliging the customer to register for a new supply with the corresponding costs.

- ***Regular marketers:*** If you have unpaid bills and receive notification of suspension, you have 2 months to pay the bills and avoid suspension. Failure to pay outstanding bills will result in disconnection and, in the event of failure to reconnect, termination.

The timing is different for beneficiaries of the social tariff, with the entry of RDL 17/2021, which incorporates article 45 bis of Law 24/2013 on the Electricity Sector. This modification offers 4 months from the receipt of the cut-off notice + 6 months of «minimum vital supply», where an automatic power reduction to 3.5 kW will be carried out to avoid over-indebtedness. During these 10 months, supply may NOT be suspended.

Spain

Electricity

1

LOGOTIPO
COMERCIALIZADORA

Denominación empresa comercializadora de referencia
NIF:
Domicilio social:

2

DATOS DE LA FACTURA DE ELECTRICIDAD

IMPORTE FACTURA: XX,XX €
 Nº factura: XXXXXXXX emitida el xx de (mes) de xxxx
 Periodo de consumo: xx de (mes) de xxxx a xx de (mes) de xxxx
 Fecha de cargo/fecha límite de pago: xx de (mes) de XXXX

3

RESUMEN DE LA FACTURA

Por potencia contratada	xx,xx €
Por energía consumida	xx,xx €
Compensación de excedentes	-xx,xx €
Impuesto electricidad	xx,xx €
Alquiler del contador	xx,xx €
Impuesto aplicado (XX %)	xx,xx €
TOTAL IMPORTE FACTURA	XX,XX €

4

Dña./D.....
Calle.....nº.....
xxx

5

DATOS DEL CONTRATO

Titular: Dña./D.NIF/NIE.....
 Dirección del suministro:.....
 Código unificado de punto de suministro CUPS:
 Tipo de contrato: **PVPC – MERCADO REGULADO**
 Peaje de transporte y distribución: **2.0 TD** Segmento de cargos: **1**
Potencia contratada en punta: kW **Potencia contratada en valle:.....kW**
 Referencia del contrato de suministro (nombre empresa COR): xxxxx
 Referencia del contrato de acceso (nombre empresa distribuidora): xxxxxx
 Fecha final contrato: xx de (mes) de xxxx (renovación anual automática)
 Nº de contador: xxxxxx

6

INFORMACIÓN DE CONSUMO ELÉCTRICO

Su consumo en el periodo facturado ha sido xx,xx kWh.
 Puede consultar su consumo horario en el portal web de su distribuidora (introducir dirección www. correspondiente).

Su consumo medio diario en el periodo facturado ha sido de xx,xx €. Su consumo medio diario en los últimos 14 meses ha sido de xx,xx €. Su consumo acumulado del último año ha sido de xx,xx kWh. Las potencias máximas demandadas en el último año han sido x,x kW en P1 (punta) y x,x kW en P2 (valle). Energía excedentaria compensada: xx,xx kWh

Lectura actual (real/estimada) (xx-mes-xxxx)
 Lectura en P1 (punta): Xxx kWh Consumo en P1: xx,xx kWh
 Lectura en P2 (llano): Xxx kWh Consumo en P2: xx,xx kWh
 Lectura en P3 (valle): Xxx kWh Consumo en P3: ;

7

DESTINO DEL IMPORTE DE LA FACTURA

El importe total de su factura tiene este destino:

La energía incluye, entre otros, el coste de la energía en el mercado, los pagos por capacidad y la retribución al Operador del Sistema (REE) y al Operador de Mercado (OMIE). Los peajes retribuyen las redes de transporte y distribución. Los cargos incluyen fundamentalmente la retribución a las renovables, cogeneración y residuos (RECORE), las anualidades del déficit y el sobrecoste de generación en TNP (territorios no peninsulares).

8

INFORMACIÓN SOBRE RECLAMACIONES

Atención al cliente (nombre empresa COR): 900.xxx.xxx (gratuito) **Reclamaciones** (nombre COR): 900.xxx.xxx clientes@xxxxxxxx.es
Averías y Urgencias (nombre empresa distribuidora): 900.xxx.xxx (gratuito) **Dirección postal reclamaciones** (nombre COR): xxxxxx
Dirección de la página web con información sobre reclamaciones:
 (nombre empresa COR) está adherida a una entidad de resolución alternativa de litigios de consumo a la que puede acudir si no está de acuerdo con la resolución de su reclamación. Para mayor información sobre el arbitraje y su procedimiento: 900.xxx.xxx (gratuito) www.....

Espacio reservado para datos de cuenta bancaria u otras formas de pago

1. Logo, name, Tax Identification number and registered office of the Supplier
2. Details of the electricity bill
3. Bill summary.
4. Name and address for communication purposes of the contract holder.
5. Contract details:
6. Electricity consumption information
7. Information section detailing where the amount paid by the customer is spent
8. Information on complaints.

FIGURE 68 ELECTRICITY BILL. FRONT PAGE. SPAIN

127

9

DESGLOSE DE LA FACTURA

Facturación por potencia contratada ("TÉRMINO FIJO")	xx,xx€
Importe por peajes de transporte y distribución y cargos:	
P1 (punta): xx kW * xxxx €/kW y año * (xx/365) días	xx,xx €
P2 (valle): xx kW * xxxx €/kW y año * (xx/365) días	xx,xx €
Margen de comercialización fijo: xx kW * xx €/kW y año * (xx/365) días	xx,xx €
Facturación por excesos de potencia ("TÉRMINO FIJO") (si procede)	xx,xx€
P1 (punta):	xx,xx €
P2 (valle):	xx,xx €
Facturación por energía consumida ("TÉRMINO VARIABLE")	xx,xx€
Importe por peajes de transporte y distribución y cargos:	
P1 (punta): xx kWh * xxxx €/kWh	xx,xx €
P2 (llano): xx kWh * xxxx €/kWh	xx,xx €
P3 (valle): xx kWh * xxxx €/kWh	xx,xx €
Coste de la energía	xx,xx €
Facturación por energía excedentaria del autoconsumo	xx,xx€
Ajuste límite de compensación por autoconsumo.....	xx,xx€
Impuesto de electricidad: xx% s/ xx,xx.....	xx,xx €
Alquiler del contador: xx días * xx,x €/día.....	xx,xx €
Impuesto de aplicación: xx% s/ xx,xx.....	xx,xx €
TOTAL IMPORTE FACTURA	xx,xx €

Precios de los términos del peaje de transporte y distribución, de los cargos, del contador y margen de comercialización fijo según normativa en vıaor PVPC calculado según Real Decreto xxxx (disposición normativa).

10

INFORMACIÓN PARA EL CONSUMIDOR

Usted tiene contratado el **Precio Voluntario para el Pequeño Consumidor (PVPC)**. No obstante, puede contratar también con cualquier comercializadora en mercado libre. El listado de comercializadoras de referencia y de comercializadoras de mercado libre está disponible en la página web de la CNMC: www.cnmc.es

En el código QR o en el enlace comparador.cnmc.gob.es puede consultar y comparar las distintas ofertas vigentes de las comercializadoras de energía eléctrica en mercado libre



Si está recibiendo su factura en papel, puede solicitar en su lugar la factura electrónica en www.ree.es

BONO SOCIAL PARA CONSUMIDORES VULNERABLES: Tienen derecho a acogerse al bono social aquellos consumidores vulnerables que cumplan con las características sociales, de consumo y poder adquisitivo que se determinan. En todo caso, se circunscribirá a personas físicas en su vivienda habitual. Dispone de información sobre el bono social en el teléfono xxx o en la página web xxx.xxxx.es.

Otra información de interés: Consumidores de energía e información sobre la factura: www.cnmc.es. Información sobre consumo eficiente y ahorro energético: www.idae.es. Información sobre PVPC: www.ree.es

11

ORIGEN E IMPACTO AMBIENTAL DE LA ELECTRICIDAD CONSUMIDA

ESPACIO RESERVADO PARA LA INFORMACIÓN RELATIVA AL ORIGEN E IMPACTO AMBIENTAL DE LA ELECTRICIDAD CONSUMIDA, CONFORME A LA CIRCULAR 2/2021, DE 10 DE FEBRERO, DE LA COMISIÓN NACIONAL DE LOS MERCADOS Y LA COMPETENCIA, POR LA QUE SE ESTABLECE LA METODOLOGÍA Y CONDICIONES DEL ETIQUETADO DE LA ELECTRICIDAD PARA INFORMAR SOBRE EL ORIGEN DE LA ELECTRICIDAD CONSUMIDA Y SU IMPACTO SOBRE EL MEDIO AMBIENTE.

- 9. Bill details.
- 10. Consumer information.
- 11. Information about the origin and environmental impact of the energy used

FIGURE 69. ELECTRICITY BILL. BACK PAGE. SPAIN

Spain

Electricity

Electricity invoice.

1. Logo, name, Tax Identification number and registered office of the Supplier.

2. Details of the electricity bill. Total amount of the bill expressed in euros, bill number and date of issue, period of consumption and date of debit, if the bill is direct debited, or payment deadline, if it is not.

3. Bill summary. -In any case, the amount relating to the contracted power, energy consumed, surplus compensation, electricity tax, meter rental, tax applied and the total bill. Where applicable, the discount for social bonus and other regulated concepts shall also be included.

4. Name and address for communication purposes of the contract holder.

5. Contract details:

Name and NIF or NIE of the person holding the supply contract.

Supply ad.

Unified Supply Point Code (CUPS).

Type or modality of contract.

Transmission and distribution access toll and tariff segment charges.

Contracted power in each hourly period. This data must appear in red or in another color of the Supplier's choice that allows this data to be clearly highlighted.

Reference of the supply contract, with the name of the supply company in brackets.

Access contract reference, with the name of the distribution company to which the supply point is connected in brackets.

End date of the contract. It must be included that the contract will be automatically renewed annually unless the consumer expressly declares otherwise.

End validity date of the social tariff, where applicable.

Meter number.

6. Electricity consumption information:

The consumption that appears in this section is the consumption calculated by difference of the consumption corresponding to the last available readings carried out by the distributor.

Electricity **Spain**

Additionally, an informative text is included on the average daily consumption in the period billed in euros, the average daily consumption of the last 14 months in euros, the accumulated consumption of the last year in kWh, the maximum power demanded in the last year in each one of the hourly periods, etc.

Likewise, where applicable, information shall be provided on the consumption to which the discount of the social bonus is applied and the consumption that is excluded from this bonus.

It shall indicate whether the reading is real or estimated, the date of the reading, the last reading of each period and the consumption corresponding to each period.

A bar graph representing the evolution of consumption is included, in which a different color is used for each tariff period.

7. Information section detailing where the amount paid by the customer is spent.

8. Information on complaints.

9. Bill details:

- Billing by contracted power, broken down by hourly periods and including billing by fixed marketing range.

The power term (price to be paid per unit of contracted power and per month) is paid, even if we do not consume electricity, and refers to the capacity to have several appliances connected simultaneously.

The power is paid for the simple right to have the installation up to the house and to be able to enjoy electricity, even if it is not used afterwards. That is why we can find months when we are away on holiday and the bill has a cost. Power represents a relevant cost on the bill, so it is very important to have it well adjusted. Being able to have different appliances running at the same time depends on whether we have contracted power. But it is not always necessary to run everything at the same time, and most of the time it can be done sequentially. Each additional kW of power that we want means paying approximately €35 per year. It is important to know which appliances are needed to determine the power to be contracted. Normally 2 kW or maximum 3 kW is recommended if there is gas and electricity, and if everything is electric, 3.3 kW or maximum 4 kW is recommended.

Spain

Electricity

- Billing by energy consumed, disaggregated by hourly periods. The cost of energy will be included, without a disaggregation.

The 2.0TD tariff is a type of tariff that is characterized by billing electricity at three different prices depending on the time of day. The advantage is that energy in the so-called off-peak hours is more than 45% cheaper. On the other hand, during peak hours, the price of energy is 12% higher. The flat period has an intermediate energy cost, where the energy price is 20% cheaper.

Peak hours: Monday to Friday between 10am and 2pm and between 6pm and 10pm.

Flat hours: Monday to Friday between 8am and 10am, between 2pm and 6pm and between 10pm and midnight.

Off-peak hours: Monday to Friday between 00h and 8h, and 24h on weekends and national holidays.

From 1 June 2021, this tariff will be applied to all PVPC tariff contracts.

- Billing for surplus energy from self-consumption and limit adjustment of compensation for self-consumption in cases where there is an associated photovoltaic installation.
- Where applicable, the corresponding discount for the social bonus.
- Electricity tax. Applies to both the power term and the energy term.
- Meter rental. Price established in current regulations that is paid for the rental of metering and control equipment.
- IVA, at the applicable rate.
- Total amount of the bill. Sum of all the above amounts.

If prices have changed during the billing period (e.g., when changing the calendar year), the quantities are broken down for the periods in which each of the prices were in effect.

10. Consumer information, on the CNMC's energy offer comparator, etc.

11. Information on the origin and environmental impact of the energy used

- Associated services (relevant)
- Benefits that the consumer could access in relation to this service and its details (e.g. social bonus, thermal social bonus, etc).

Resources and information about rights and opportunities

SOCIAL TARIFF

The social tariff is a discount of 60% or 70% on the electricity bill (excluding taxes), with a duration of 2 years. The reduction is applied to the regulated PVPC tariff (set by the State for regulated market customers), provided that the contracted power does not exceed 10 kW. Households benefiting from the electricity social tariff will also have access to the thermal social tariff.

The eligibility criteria are financial, except in the case of large families. Income is a determining factor for a possible situation of vulnerability to be declared. The reference is the public indicator of multiple effects income (IPREM) of the State, currently (2022) set at 8,106.28 euros per year, 14 payments.

Families with an annual income of less than or equal to:

60% discount (RDL 29/2021 until 30/06/2022) on the bill

- Household unit without dependent minors: 1.5 times the IPREM (*).
- Household with one dependent child: 3 times the IPREM (*).
- Household with two dependent minors: 3.5 times the IPREM (*).

Pensioners: when all members of the family unit receive the minimum pension (retired, permanently disabled, etc.) and when, if they have other income, this does not exceed 500 euros per year. Large families: all without exception.

70% discount (RDL 29/2021 until 30/04/2022) on the bill:

- Household unit without dependent children: 0.75 times the IPREM (*).
- Household unit with one dependent child: 1.5 times the IPREM (*).
- Household unit with two dependent children: 1.75 times the IPREM (*).

THERMAL SOCIAL BONUS

- The Thermal Social bonus is a state subsidy of a single annual payment to the bank account associated with the supply holder.
- The amount granted will depend on the composition of the household unit, household income, etc. The calculation is made by the reference marketer.
- To qualify for this discount, it will be necessary to have applied, before 31 December, the electricity social tariff.
- This amount conceptually serves to cover the costs of heating, hot water, and cooking. It does not matter which system is used (gas, electric, oil...).
- This grant shall be paid during the first quarter of the following year.

The documentation required to apply for the social tariff is shown in the following table:

Spain

Electricity

DOCUMENTS NEEDED	IN WHICH CASES
Last electricity bill	Always
Social tariff form signed by all household unit members over 14 years of age	Always
Photocopies of the passport/ ID document of all members of the household unit over 14 years of age.	Always
Certificate of census registration for all members of the household unit	Always
Family record book or individual certificate from the Civil Registry of each member of the household unit.	Always
Photocopy of the valid large family card	For large families
Certificate from social services or the competent body certifying the special circumstances of the holder or a member of the household unit.	In special circumstances

MAIN CONTACTS:

Get free energy advice and support:

-APE Madrid: Wednesdays twice a month, at 17.00. Ateneo La Maliciosa c/Peñuelas, 12

-APE Catalunya: Wednesdays twice a month, at 17.00. Local FAVB, c/ Obradors 6-8 Barcelona. <M> L3 Drassanes

-ABD Madrid: Paseo de la Dirección, 69. 28039 Madrid. Phone: 91 297 64 82

-ABD Barcelona: C/ de Quevedo 2, bajos. 08012 Barcelona. Phone: 93 289 05 30

For single parents households:

-Fundación Isadora Duncan: Av. Reino de León, 12 E1 1º - 24006, León.

Phone: 987 261 449

Electricity **Spain**

Spain

Gas

Gas market.

The gas is derived from the decomposition of animals and plants that existed millions of years ago and accumulates in the subsoil. Its formation process is very slow, which is why it is considered a non-renewable energy resource. Gas is mainly used in the domestic environment as thermal energy, which is used for cooking or heating water, either for direct use or within the heating circuit. It should be remembered that this incineration process produces CO₂.

The energy circuit is like the electrical circuit. It starts at the extraction points. Transport is carried out using two methods: either with gas pipelines, which are pipes through which the gas is injected and travels many kilometers, or by ships, compressing the gas to the liquid phase and carrying it in cargo ships, to then gasify it once it reaches the peninsula. It should be mentioned that, in the case of Spain, it is imported from other countries, and this has an environmental impact and entailing energy dependence on them. The price is set by a wholesale market on a quarterly basis, and, as with oil, as the natural resource is depleted, it is necessary to extract it from deeper areas or use more costly mechanisms, which implies an increase in price at a global level. Dependence on the resources of other countries such as Russia and Algeria mean that they have a great deal of influence over the final price.

Marketers oversee buying this energy on the wholesale market and selling it to customers. There are more than 600 in the free market and only five in the regulated gas market. Those in the regulated market are called reference marketers or last resort marketers and have a regulated energy price (TUR, Tarifa de Último Recurso).

Security against non-payment:

- Free Market: When there are non-payments in the supply and after receiving notification of the cut-off, the customer has 2 months to pay and avoid suspension. Once the period has expired, marketers can carry out the cut-off + cancellation at the same time, obliging the customer to register for a new supply with the corresponding costs.

- Regulated Market: If there are unpaid bills and notification of suspension is received, the customer has 2 months to pay the bills and avoid suspension. If the outstanding bills are not paid, they will be cut off, and, if they are not reconnected, they will be disconnected. The timing is different for beneficiaries of the social tariff, with the entry into force of RDL 17/2021, which incorporates article 45 bis of Law 24/2013 on the Electricity Sector. This modification offers 4 months from the receipt of the cutoff notice + 6 months of «minimum vital supply». During these 10 months, the supply may not be suspended.

1

Comercializadora Regulada, Gas & Power, S.A.
 Fecha de emisión: 05.09.2021
 N° factura: [REDACTED] **DUPLICADO**

comercializadora regulada
 Grupo Naturgy

3

Nombre: [REDACTED]
 Dirección suministro: [REDACTED]
 08001 BARCELONA
 N° referencia: [REDACTED]
 N° cliente: [REDACTED]
 NIF/CIF: [REDACTED]
 Dirección: [REDACTED]
 Entidad: [REDACTED]
 Datos bancarios: [REDACTED]
 Fecha de cargo: 12.09.2021

Esta factura será cargada en cuenta siguiendo el mandato [REDACTED]

4

¿Son correctos sus datos personales?
 Puede actualizarlos desde los canales que encontrará en www.comercializadoraregulada.es/contacto

Total a pagar	20,85 €
Gas natural TUR.1 Contrato: [REDACTED]	
Del 08.07.2021 al 31.08.2021 (55 días = 1,808219 meses)	
Consumo gas	162 kWh 0,049975 €/kWh 8,10 €
Impuesto Especial sobre hidrocarburos	162 kWh 0,002340 €/kWh 0,38 €
Término fijo	55 días 0,140055 €/día 7,70 €
Otros conceptos gas	
Alquiler de contador	55 días 0,019068 €/día 1,05 €
Total gas natural	17,23 €
Base imponible	17,23 €
IVA 21%	3,62 €
Total factura	20,85 €

5


¿Canales para contactar con Comercializadora Regulada.....

<p>24 horas / 365 días del año</p> <p>Web www.comercializadoraregulada.es</p> <p>Lectura del contador www.comercializadoraregulada.es/lectura</p> <p>Urgencias gas 900 750 750</p>	<p>Lunes a sábado, de 8 a 22 horas</p> <p>Reclamaciones e incidencias 900 100 502</p> <p>cliente@comercializadoraregulada.es</p> <p>Dirección postal: Plaça del Gas, 1 08003 Barcelona</p>
--	---

Para cualquier tipo de reclamación puede contactar con los canales de Atención al cliente. En el caso de no estar de acuerdo con la resolución aportada, o de no haber recibido respuesta pasados 30 días, los consumidores y usuarios pueden acudir a la Junta Arbitral Nacional de Consumo o a la de su Comunidad Autónoma como mecanismo para la resolución alternativa de litigios.

2

6



1. Name of the supplier, date of issue of the bill, and invoice number (or code).
2. Name, NIF number, and registered Company office.
3. Name and address for communication purposes.
4. Total amount of the bill expressed in euros
5. Gas bill details
6. Contact information:

FIGURE 70. NATURAL GAS BILL. FRONT PAGE. SPAIN

Spain

Gas

Las cuentas claras.....

A continuación le presentamos información detallada sobre su/s contrato/s y factura.

7 Gas natural

Nº de CNAE: 9820

Datos de la instalación de gas natural

Código CUPS: [REDACTED]

Tarifa de acceso: 3,1

Cuantía Peaje:¹ 9,22 €

Para este periodo de facturación, su tarifa supone una diferencia respecto a la Tarifa de Último Recurso de 0,00 Euros, que corresponde a un 0,00% de descuento.

La Tarifa incluye un importe destinado a la CNMC (0,150%) y otro destinado al Gestor Técnico del Sistema (0,800%) (BOE N. 313 de 30.12.2019).

Disposición oficial y fecha publicación tarifas en BOE N. 259 de 30.09.2020

8 Información lecturas / consumos

Contador n°: [REDACTED]

Lect. factura act.:	real	31.08.21	6.660 m³
Lect. factura ant.:	real	08.07.21	6.646 m³
Consumo m³:			14 m³
Consumo kWh:	14 m³ x 11,571 kWh		162 kWh

Conversion: 1 m³ a 11,571 kWh Presión de suministro: 0,022 bar

9 Gas natural

La CNMC ha aprobado la Circular 6/2020 de 22 de julio 2020 por la que se establece la metodología para el cálculo de los peajes de transporte, redes locales, y otros costes de regasificación. Puede encontrar más información sobre el cambio en <https://www.comercializadoraregulada.es/nuevastarifas>

¹ Importe que la compañía comercializadora debe pagar a la compañía distribuidora correspondiente a la facturación de acceso a su red, de acuerdo con el tipo de peaje aplicable de conformidad con el Real Decreto 1164/2001 de 26 de octubre para energía eléctrica y Real Decreto 949/2001 de 3 de agosto para gas natural.

En www.enagas.es podrá verificar el PCS de facturación correspondiente a su término municipal.

Si desea información sobre medidas de eficiencia energética, perfiles comparativos de su consumo de energía y las especificaciones técnicas de los electrodomésticos que puedan servir para reducir el consumo de los mismos, puede consultar:

10 IDAE Instituto para la Diversificación y Ahorro de la Energía
www.idae.es
 C/Madera, 8 - 28004 Madrid
 CNMC
www.cnmc.es
 Sede Alcalá: Alcalá 47 (28014 Madrid)
 Institut Català d'Energia (ICAEN)
<http://icaen.gencat.cat/ca/index.html>
 C/ Pamplona, 113
 08018 Barcelona

En www.comercializadoraregulada.es/regulada/areaclientes podrá consultar sus datos de facturación de los 3 últimos años.

7. Tariff and supply information.

8. Information on readings/ consumption:

9. Bar chart illustrating consumption

10. Useful information⁶.

FIGURE 71. NATURAL GAS BILL. BACK PAGE. SPAIN

Gas **Spain**

Gas invoice.

1. Name of the supplier, date of issue of the bill, and invoice number (or code).
2. Name, NIF number, and registered Company office.
3. Name and address for communication purposes.

Contract details:

Name and NIF or NIE of the person holding the supply contract.

Address of supply.

Type or modality of contract.

Reference of the supply contract, with the name of the trading company in brackets.

Holder's bank details (without showing the full IBAN for privacy reasons).

4. Total amount of the bill expressed in euros
5. Gas bill details: contracted tariff, period of consumption, amount corresponding to the fixed term, energy consumed, hydrocarbon tax, meter rental, tax applied (VAT) and total bill. Where applicable, other items (e.g., extra services) shall also be included.

Gas consumption information: The consumption that appears in this section is calculated by the difference of the consumption corresponding to the last available readings made by the distributor (see section «H»).

6. Contact information: Information part detailing the channels and means of contact with the supplier and information concerning complaints.

7. Tariff and supply information:

- Unified Supply Point Code.
- Access tariff: depending on historical consumption and the existing gas installation, one access tariff or another is applied. The marketer chooses the appropriate one for each customer; it is not necessary for the user to know which one corresponds to them. The current domestic tariffs vary the price of the fixed term and kWh depending on annual consumption. They are as follows:

Spain

Gas

<i>Access tolls</i>	<i>Associated annual consumption</i>	<i>Fixed Term</i>	<i>Variable Term</i>
T.RL 1 or TUR 1	< 5.000 kWh	5,44 €/month	0,04862 €/kWh
T.RL 2 or TUR 2	Between 5.000 kWh and 15.000 kWh	10,24 €/month	0,04520 €/kWh
T.RL 3 or TUR 3	> 15.000 kWh	22,02 €/month	0,04409 €/kWh

8. Information on readings/consumption:

Consumption readings are taken in m³ of gas. Consumption recorded in the billing period is the difference between the readings of the first and last billing days. The reading must be indicated whether the reading is real or estimated and the date of the reading.

In addition, indicate the conversion used to convert from m³ to kWh. (1 m³ = 11,571 kWh).

9. Bar chart illustrating consumption (if available) for at least the last 14 months, showing actual and estimated readings.

10. Useful information: Information for the consumer, the organizations that provide further information about the items on the bill and the calculations of the amounts involved

Gas **Spain*****Resources and information about rights and opportunities***

Energy rights (cut-off legislation):

When can the supply be cut off?

- 4 months after nonpayment for people entitled to the electric social tariff.
- 2 months after nonpayment for all other households.

Cases in which supply may NOT be cut off (essential supplies):

- Consumer at risk of social exclusion (50% of the bill paid by social services)
- Persons and/or family units covered by the social benefit voucher and with any of the following conditions:

Under 16 years of age

Some people with grade II or III dependency

A person with a disability of more than 33%.

Other considerations

If there is an unpaid debt, the supplier is obliged to offer the user the possibility of negotiating the payment in instalments.

Regarding the region of Catalunya, there is a specific law 24/2015 for these cases.

Spain

Water

Water supply .

Domestic water is not an energy source, but it is a basic supply such as gas and electricity.

The management of the water cycle begins in the rivers and aquifers from where it is collected for subsequent treatment and purification. The sector is privatized, and companies can participate in the exploitation of the resource at all stages of the cycle.

However, it is the regional or municipal public institutions that are responsible for the water we consume, so we cannot choose the company as in the case of electricity or gas. In this case it is determined by the territory.

Non-payment safety:

When there is nonpayment in the supply, there must be at least 3 notices prior to the supply cut-off, so that at least 3 months are available to face and avoid the suspension. Once this period has expired, the suppliers can cut off the supply + disconnection at the same time, forcing the customer to register for a new supply with the corresponding costs.

Water

Aigües de Barcelona
La gestió responsable

10641 / 5122 - RNNV - P55A_21_07

1 **DADES DEL CONTRACTE**
Núm. contracte
Titular
NIF client
Domicili

2 **DADES DE FACTURACIÓ**
Núm. factura
Període de facturació
Data d'emissió

3

Data Lectura anterior	Lectura anterior	Data Lectura actual	Lectura actual	Consum període (m³)	Base de Facturació
07/05/21	103	09/07/21	111	8	Lectura Real

4

Ús domèstic
Comptador individual sobre bateria
Habitatge Tipus B

Comptador: [redacted]
Posició: [redacted]
Tarifa TMTR
Tarifa TRR: [redacted]

5 **RESUM CONCEPTES A PAGAR**
CONSUM BIMESTRAL 07-mai-2021 / 09-jul-2021
CICLE DE L'AIGUA

SUBMINISTRAMENT D'AIGUA	17,48 €
CANON DE L'AIGUA	5,92 €
TAXA DE CLAVEGUERAM	2,25 €
IVA	2,34 €

6 **RESIDUS**

TAXA DE RECOLLIDA RESIDUS MUNICIPALS GENERATS ALS DOMICILIS	4,60 €
TAXA METROPOLITANA TRACTAMENT RESIDUS MUNICIPALS (T.M.T.R.)	5,59 €

TOTAL A PAGAR 38,18 €(*)
(*) Veure detall al dors.

7 **LA SEVA DESPESA DIÀRIA**
La seva despesa mitjana en aquest període ha estat de 0,61 €/dia, dels quals 0,28 €/dia corresponen al subministrament d'aigua.

7 **CONSUM TOTAL 8 m³** **TOTAL A PAGAR 38,18 €**

Tarifa Aigua: BOP del 12/11/2019. Canon de l'Aigua: BOP núm. 7347 de 30/03/2017. Taxa Clavegueram: BOP del 30/12/2019. TMTR: BOP del 24/12/2019. Taxa Residus BOP 09/03/2020. Més informació a www.aiguesdebarcelona.cat.

DADES PER AL PAGAMENT
L'import de la factura li serà carregat a partir del dia 27 de de juliol al seu compte bancari. El pagament d'aquesta factura s'associarà mitjançant el corresponent càrrec al seu compte [redacted]

1. Contract details
2. Invoicing data
3. Current and previous readings.
4. Type of tariff
5. Concepts of the Water Cycle section
6. Waste concepts.
7. Additional information about consumption

FIGURE 72. WATER BILL. FRONT PAGE. BARCELONA

DETALL FACTURA BIMESTRAL						
	Volum (m³)	Preu unitari (€/m³)	Import	IVA	Estalvi >3 persones inclòs (1)	Bonificacions Incloses
Quota del servei			11,79			3,93 (2)
Consum						
Tram fins a 16 m³	16	0,4756	7,61			2,54 (2)
Tram de 16 a 18 m³	2	1,2682	2,54			
SUBMINISTRAMENT D'AIGUA (Aigües de Barcelona A66098435)	18		21,94	10%	2,53	6,47
Tram fins a 18 m³	18	0,3999	7,20			
REPERCUSSIÓ CÀNON AIGUA (Aigües de Barcelona A66098435) (*)	18		7,20	10%		1,55 (3)
Tram fins a 18 m³	18	0,1529	2,75			
TAXA DE CLAVEGUERAM (Ajuntament de Barcelona P0801900B)	18		2,75	No subj.		
TMTR (Taxa Metropolitana de Tractament de Residus Municipals) (Àrea Metropolitana de Barcelona P0800258F)			7,05	No subj.	0,79	7,84 (4)
IVA del Subministrament i Cànon de l'Aigua: 10% de 29,14			2,91			
TOTAL A PAGAR (amb estalvi >3 persones i bonificacions incloses)			41,85			
TOTAL ESTALVI > 3 PERSONES INCLÒS					3,32	
TOTAL BONIFICACIONS INCLOSES						15,88

(*) Tribut de l'Agència Catalana de l'Aigua (Generalitat de Catalunya). Recaptat per Aigües de Barcelona en compliment de la normativa aplicable.

(1) Ampliació de trams per família de més de 3 persones: estalvi total de 3,32 €

(2) Aplicació Tarifa Social des de 01/01/2014: 25% bonificació sobre quota servei i consum del tram 1 per un total de 6,47 €

(3) Aplicació Cànon Social: preu bonificat de 0,3999€/m³, per un total de 1,55 €

(4) Aplicació TMTR Social: bonificació del 50% del total de la TMTR per un import de 7,84 €

BONIFICACIONS INCLOSES	3,32 €
ESTALVI > 3 PERSONES INCLÒS	15,86 €
CONSUM TOTAL	18 m³
TOTAL A PAGAR	41,85 €










En cas de voler efectuar una reclamació relacionada amb la prestació del servei de subministrament domiciliari d'aigua, podrà realitzar-la a través de qualsevol dels canals d'atenció que Aigües de Barcelona posa a la seva disposició: www.aiguesdebarcelona.cat/oficinapaz; telèfon gratuït d'atenció al client 900 710 710, fax d'atenció al client 933 035 848 o a les nostres oficines de forma presencial que pot localitzar a través del web abans indicat.

FIGURE 73 WATER BILL DETAIL. BACK PAGE. BARCELONA

Water Spain

Water invoice.

1. Contract details: Number, holder, ID card number, and address
2. Invoicing data: invoice number, invoice period (can be monthly, bi-monthly, or quarterly) and date of issue.
3. Current and previous readings, indicating the date of both readings, and consumption for the period billed (in m³)
4. Type of tariff according to the type of dwelling and the number of occupants:

Tipus d'habitatge	Cabal nominal (m ³ /h)	Quota fixa mensual (€)
A 	0.25	2.50
B 	0.33	6.50
C 	0.40	7.36
D 	0.50	11.39
E 	0.63	12.29
F 	1.00	17.55
G 	1.60	28.45
H 	2.50	41.14
I 	4.00	62.27

The type of dwelling determines the fixed fee for the water supply that is paid. As the number of water points increases, and therefore the nominal flow rate that the installation can provide, a higher fixed fee is charged. In the case of having a bonus for more than 3 persons in the household (see extension of brackets), it will also be indicated in this section.

5. Concepts of the Water Cycle section:

Water supply. Related to the consumption (in m³) of water. Conceptually, it serves to cover water collection and purification costs.

Unlike electricity or gas supplies, where all kWh of energy has the same price on the bill, in the case of water, water is charged in increasing price brackets to encourage responsible water use. In the following table, you

Spain

Water

can see the ranges and prices per m³ consumed for a family of up to 3 people:+

Tram	Consum mensual	Preu €/m ³
1	0-6 m ³	0,5941 €/m ³
2	7-9 m ³	1,1883 €/m ³
3	10-15 m ³	1,7824 €/m ³
4	16-18 m ³	2,3764 €/m ³
5	>18 m ³	2,92705 €/m ³

Thus, meeting the basic needs of a household (showering, cooking, washing, etc.) can be done at a relatively cheap price, but if consumption exceeds these needs, then these m³ will be charged more expensively as the meter size increases.

- Water tax. This is a tax charged by the Catalan Water Agency (ACA) to finance water works, among other things. It is also charged in installments, as is consumption.
- Sewerage tax, charged to ensure the maintenance of municipal sewerage networks.
- IVA. In the case of water, 10% is applied.

6. Waste concepts:

Tax on municipal waste generated in private households. This is a new item on the water bill that will be applied from 1 July 2020 and is collected on behalf of the Barcelona City Council. It is intended to finance the management of waste collection generated in private households in the municipality of Barcelona.

Metropolitan Waste Treatment Tax (TMTR). This is collected on the water bill on behalf of the Barcelona Metropolitan Area. It is intended for the treatment, recycling, and recovery of municipal waste, as well as the disposal of waste at green points or landfills, recycling plants, composting plants and ecoparks.

7. Additional information about consumption: Additional information on the bill and the bar graph that illustrates consumption (if available) for at least the last 12 months. Informative part detailing the channels and means of contact with the supplier and information on complaints.

Water **Spain**

The concepts explained in the back page of the water bill can be seen in detail. In this example, the consumption of 18 m³ is divided into 16 m³ for the first tranche and 2 for the second tranche.

At the bottom of the page, the bill provides contact information in case a complaint or claim should be made.

Spain

Water

Resources and information about rights and opportunities

Extension of tranches: In cases where more than 3 people live together in the household, an extension of the consumption brackets must be applied. This allows a larger volume of water consumption to be available at a lower price. The different brackets, expressed in m³/month, can be seen in the

	Tram 1	Tram 2	Tram 3	Tram 4	Tram 5
 0-3 personas	6 m ³ /mes	9 m ³ /mes	15 m ³ /mes	18 m ³ /mes	Més de 18 m ³ /mes
 4 personas	8 m ³ /mes	12 m ³ /mes	20 m ³ /mes	24 m ³ /mes	Més de 24 m ³ /mes
 5 personas	10 m ³ /mes	15 m ³ /mes	25 m ³ /mes	30 m ³ /mes	Més de 30 m ³ /mes
 n personas	2n m ³ /mes	3n m ³ /mes	5n m ³ /mes	6n m ³ /mes	Més de 6n m ³ /mes

following table:

In cases where there is a person with a disability of more than 75% in the household, this person is counted as 2 persons.

The extension of tranches also provides a 5% bonus on the TMTR.

Social Fee

Applicable to individuals and families who have accredited being in a situation of economic vulnerability or at risk of residential exclusion by means of a report from the Social Services, or for those families with all members unemployed or receiving minimum pensions.

In case of access, 100% of the concept is subsidized, if the consumption does not exceed the second water bracket. If it is exceeded, a reduction of 50% of its value will be applied.

It consists of a 100% discount on the service fee and the prices of tranches 1 and 2 of the 'water supply' concept. The volume of water included in tranches 1 and 2 is considered sustainable and responsible consumption that a household should make, according to the OMS.

Families with all members unemployed and recipients of minimum pensions are eligible. Also, persons and family units that can prove that they are in a situation of economic vulnerability, in accordance with current legislation, or those that have been recognized, by means of a report from the social services of the competent local administration, as being at risk of residential exclusion or any other situation that requires special protection, with the validity determined by these services.

Water **Spain**

TMTR Social

This is a discount that the Metropolitan Area of Barcelona applies to the concept of the bill called TMTR, a tax that is used for the management of solid waste.

This rebate can be as follows:

- 50% on this item if the person is a beneficiary of the ACA's social tariff because the person is unemployed or receives a minimum pension.
- 100% if the person is a beneficiary of the ACA's social tariff because a report from the social services certifies that the person in question is in a situation of vulnerability.

Exemption from the sewerage tax

This is a total exemption from this tax approved by Barcelona City Council, aimed at people at risk of residential exclusion or in a situation of economic vulnerability.

Useful contacts

Barcelona

Aigües de Barcelona

Carrer Consell de Cent 396, 08009, Barcelona

935 219 777

Madrid

Canal de Isabel II, S.A.

Calle Santa Engracia, 125, 28003, Madrid,

contacto@canal.madrid

900 365 365.

Energy bills. Italy

COOLTORISE

*Raising summer energy poverty awareness
to reduce cooling needs*



Italy

Electricity

Electricity and Gas market.

The liberalization of the energy market in Italy took place in 1999 (officially in force in 2003 for electricity and in 2007 for gas) following the Bersani decree, which gave various operators the opportunity to enter the energy sector and to propose offers freely. This led to greater competition between suppliers, which allowed the end customer to choose from many different rates. However, in parallel to the free market, the Maggior Tutela market, managed by the Authority, continues to be active, in which many suppliers continue to operate (at least until January 2024, the date on which it should be closed)

Today, domestic customers have the possibility to choose between a protected market, with tariffs entirely defined by the Regulatory Authority for Energy, Networks and the Environment (ARERA), and a free market, in which the price of electricity and gas is defined by the Regulator only for that which concerns the costs of transport, distribution, and system charges, while it is chosen by the supplier as regards the energy component.

Regulated market in Italy

Fixed price for all suppliers, established every quarter with respect to the trend of the energy market, the CONTROL BODY is by ARERA-the Regulatory Authority for Energy, Networks and the Environment- and the benefits are The price increases or decreases without particular sudden peaks, but it is not possible to request particular tariff plans or different consumption bands.

Liberalized (free) market in Italy

In the free segment, individual suppliers decide the price to be offered within the market, the control bodies are AGCM, or Antitrust, the Competition and Market Authority, the customer can choose the rate that best suits his needs, in a highly competitive market. The free market has several advantages over the enhanced protection service:

- Different suppliers and many offers available: consumers can choose the most convenient electricity and gas tariff that suits their profile. In the protected area, the offer is only one and is established by the Energy and Gas Authority;

Electricity Italy

- Dual offers, for both electricity and gas users: the customer has the possibility of having a single manager for electricity and gas, which is not possible in the protected;
- Competition among operators: suppliers are encouraged to offer a better service and a lower price to entice customers to subscribe to their offers;
- Fixed-price tariffs: in the free market, many offers have a fixed price for one, two, or three years in order to remain protected from any increases in the cost of the wholesale market.

Italy

Electricity



<p>1. Logo of Energy provider/player.</p>	<p>1</p> 	<p>2</p> <p>NUMERO CONTRATTO 0123.0000 NUMERO CLIENTE 1010000000</p>  <p>Scarica gratis l'app IrenYou e gestisci i tuoi contratti in modo semplice e veloce.</p>																		
<p>2. Number Contract, Number of Client and Logo App.</p>	<p>3</p> <p>La mia bolletta dell'energia elettrica Mercato Libero</p>	<p>4</p> <p>Fattura n. 502002600000 del 16 NOVEMBRE 2020 periodo di riferimento SETTEMBRE - OTTOBRE 2020</p>																		
<p>3. Indication of servizio fornito</p>	<p>5</p> <p>Egr./Spett.le ROSSI MARIO VIA ROMA 1 INT 4 10010 TORINO TO</p>	<p>6</p> <p>MODALITA' DI PAGAMENTO Il pagamento potrà avvenire utilizzando l'APP IrenYou mediante il servizio di pagamento IrenPay o tramite il bollettino allegato Le precedenti bollette risultano pagate. Grazie</p>																		
<p>4. Bill identifier / Details of the electricity bill</p>	<p>7</p> <p>Totale da pagare 97,98 € Scadenza 07/11/2020</p>	<p>7</p> <p>Ripartizione voci di spesa</p> <table border="1"> <tr><td>55%</td><td>Energia</td></tr> <tr><td>23%</td><td>Trasporto</td></tr> <tr><td>20%</td><td>Oneri</td></tr> <tr><td>2%</td><td>Imposte</td></tr> </table>	55%	Energia	23%	Trasporto	20%	Oneri	2%	Imposte										
55%	Energia																			
23%	Trasporto																			
20%	Oneri																			
2%	Imposte																			
<p>5. Delivery address</p>	<p>8</p> <p>I miei dati Cliente ROSSI MARIO Cod. Fiscale/P.IVA R.SSMRO000000000</p>	<p>8</p> <p>Riepilogo voci di spesa (Consulta il Glossario ARERA)</p> <table border="1"> <tr><td>Spesa per la materia energia</td><td>40,26</td></tr> <tr><td>Spesa per il trasporto e la gestione del contatore</td><td>16,75</td></tr> <tr><td>Spesa per oneri di sistema</td><td>14,59</td></tr> <tr><td>Imposte</td><td>1,11</td></tr> <tr><td>Totale imponibile</td><td>72,71</td></tr> <tr><td>Iva agevolata 10%</td><td>7,27</td></tr> <tr><td>Totale bolletta</td><td>79,98</td></tr> <tr><td>Canone di abbonamento alla televisione per uso privato (escluso IVA art. 15 cm 3 DPR 663/1972)</td><td>18,00</td></tr> <tr><td>Totale</td><td>97,98</td></tr> </table>	Spesa per la materia energia	40,26	Spesa per il trasporto e la gestione del contatore	16,75	Spesa per oneri di sistema	14,59	Imposte	1,11	Totale imponibile	72,71	Iva agevolata 10%	7,27	Totale bolletta	79,98	Canone di abbonamento alla televisione per uso privato (escluso IVA art. 15 cm 3 DPR 663/1972)	18,00	Totale	97,98
Spesa per la materia energia	40,26																			
Spesa per il trasporto e la gestione del contatore	16,75																			
Spesa per oneri di sistema	14,59																			
Imposte	1,11																			
Totale imponibile	72,71																			
Iva agevolata 10%	7,27																			
Totale bolletta	79,98																			
Canone di abbonamento alla televisione per uso privato (escluso IVA art. 15 cm 3 DPR 663/1972)	18,00																			
Totale	97,98																			
<p>6. Payment method</p>	<p>9</p> <p>Il mio contratto Tipologia DOMESTICO RESIDENTE Offerta IREN UNICA LUCE Data decorrenza offerta 01/08/2018 Data attivazione fornitura 04/12/2012</p>	<p>9</p> <p>11 Scarica gratis l'App IrenYou e gestisci i tuoi contratti in modo semplice e veloce.</p> <p>12 Visita www.irenlucegas.it e i nostri profili social Facebook, Twitter, Instagram, Youtube e LinkedIn.</p> <p>Numero Verde Iren 800969696 Trova lo Spazio Iren più vicino su www.irenlucegas.it</p> <p>Segnalazione Guasti e Pronto intervento IRETI S.p.A. Tel. 800910101 attivo 24 ore su 24</p>																		
<p>7. Total to be paid and due date</p>	<p>10</p>	<p>10</p>																		
<p>8. Data relating to the holder of the administration contract</p>	<p>11</p>	<p>11</p>																		
<p>9. Contractual data</p>	<p>12</p>	<p>12</p>																		
<p>10. Expenditure items</p>	<p>13</p>	<p>13</p>																		
<p>11. IrenYou App</p>	<p>14</p>	<p>14</p>																		
<p>12. Website www.irenlucegas.it and social profiles.</p>	<p>15</p> <p>Codice POD IT000E00000000</p> <p>Fornitura Indirizzo VIA ROMA 1 INT 4 - 10100 TORINO TO Distributore di riferimento IRETI S.p.A. Potenza impegnata 3,0 kW Tensione di alimentazione Bassa Tensione 380 Volt</p>	<p>15</p> <p>ENERGIA ELETTRICA PERIODO SETTEMBRE - OTTOBRE 2020 Fattura n. 502002679298 del 16 NOVEMBRE 2020</p> <p>16</p> <p>Consumo Annuo kWh</p> <table border="1"> <tr><td>Consumo dal 01/11/2019 al 31/10/2020 in fascia F1</td><td>597 (39%)</td></tr> <tr><td>Consumo dal 01/11/2019 al 31/10/2020 in fascia F2</td><td>325 (21%)</td></tr> <tr><td>Consumo dal 01/11/2019 al 31/10/2020 in fascia F3</td><td>603 (40%)</td></tr> <tr><td>Consumo dal 01/11/2019 al 31/10/2020 non distinto per fasce</td><td>1.525</td></tr> </table> <p>Costo medio della fornitura Euro/kWh</p> <table border="1"> <tr><td>Costo medio unitario bolletta</td><td>0,23</td></tr> <tr><td>Costo medio unitario energia</td><td>0,12</td></tr> </table>	Consumo dal 01/11/2019 al 31/10/2020 in fascia F1	597 (39%)	Consumo dal 01/11/2019 al 31/10/2020 in fascia F2	325 (21%)	Consumo dal 01/11/2019 al 31/10/2020 in fascia F3	603 (40%)	Consumo dal 01/11/2019 al 31/10/2020 non distinto per fasce	1.525	Costo medio unitario bolletta	0,23	Costo medio unitario energia	0,12						
Consumo dal 01/11/2019 al 31/10/2020 in fascia F1	597 (39%)																			
Consumo dal 01/11/2019 al 31/10/2020 in fascia F2	325 (21%)																			
Consumo dal 01/11/2019 al 31/10/2020 in fascia F3	603 (40%)																			
Consumo dal 01/11/2019 al 31/10/2020 non distinto per fasce	1.525																			
Costo medio unitario bolletta	0,23																			
Costo medio unitario energia	0,12																			
<p>13. Toll-free number to contact us</p>	<p>16</p>	<p>16</p>																		
<p>14. Breakdown and Emergency Service</p>	<p>17</p>	<p>17</p>																		
<p>15. Identification data of the supply point</p>	<p>18</p>	<p>18</p>																		
<p>16. Annual consumption and average cost of supply</p>	<p>19</p>	<p>19</p>																		

FIGURE 74 ELECTRICITY BILL. ITALY

Electricity Italy

17

LETTURE DEL CONTATORE E CONSUMI FATTURATI				
Matricola del gruppo di misura: 1714E5A				
ENERGIA ATTIVA				
Consumi stimati nel periodo 01/09/2020 - 31/10/2020				
Fasce Orarie	Letture precedenti stimata	Letture attuali stimata	Consumi stimati (kWh)	Percentuale
F1	11	128	117	34%
F2	11	127	116	33%
F3	11	127	116	33%
Totale consumi stimati			349	100%

LEGENDA:
F1: dal lunedì al venerdì dalle ore 8.00 alle ore 19.00
F2: dal lunedì al venerdì dalle ore 7.00 alle ore 8.00 e dalle ore 19.00 alle ore 23.00; il sabato dalle ore 7.00 alle ore 23.00
F3: dal lunedì al sabato dalle ore 0.00 alle ore 7.00 e dalle ore 23.00 alle ore 24.00; la domenica e i festivi tutte le ore della giornata

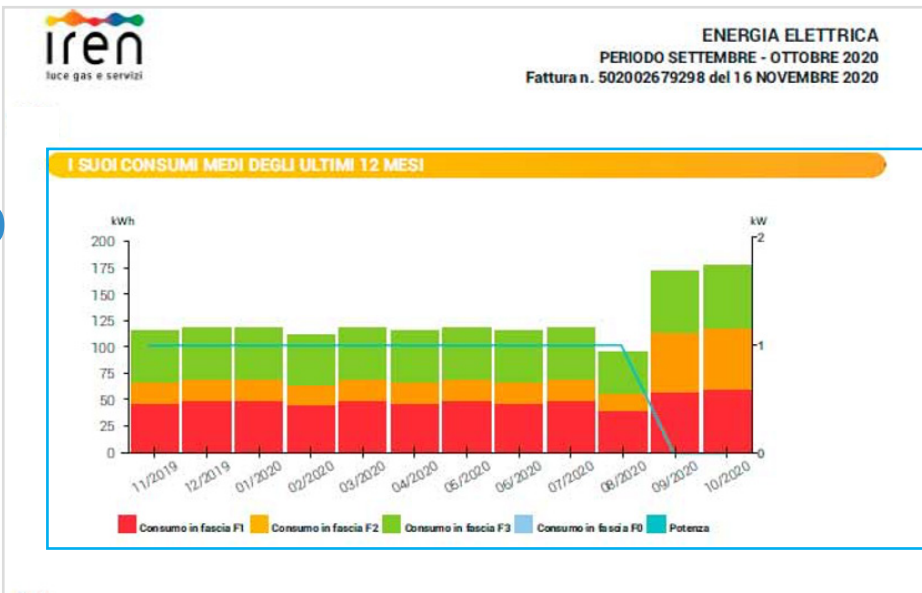
18

DETTAGLIO SUL CALCOLO DELLE IMPOSTE					
	Unità di misura	Prezzi unitari	Quantità	Totale euro	IVA
Imposta erariale di consumo (accisa)					
Imposte Domestiche					
dal 01/09/2020 al 30/09/2020	Euro/kWh	0,00000000	150	0,00	10%
dal 01/09/2020 al 30/09/2020	Euro/kWh	0,02270000	22	0,50	10%
dal 01/10/2020 al 31/10/2020	Euro/kWh	0,00000000	150	0,00	10%
dal 01/10/2020 al 31/10/2020	Euro/kWh	0,02270000	27	0,61	10%
Totale				1,11	

19

ALTRE PARTITE			Totale euro	IVA
Altre partite soggette iva				
Bonus offerta contrattuale			-18,00	10%
Totale			-18,00	

20



21

COMUNICAZIONE AI CLIENTI - AUTORITA' / NORMATIVI

- Bonus sociale**
 Il bonus sociale elettrico del Ministero dello Sviluppo Economico per le famiglie in condizione di disagio economico e numerose può essere chiesto al proprio Comune. Il bonus elettrico è previsto anche per i casi di disagio fisico, cioè per i casi in cui una grave malattia costringa all'utilizzo di apparecchiature elettromedicali indispensabili per il mantenimento in vita. Per informazioni visita i siti: www.sviluppoeconomico.gov.it o www.arera.it o chiama il n° verde 800.166.654.
- Aggiornamento Tariffario**
 La struttura tariffaria ed i prezzi, applicati sulla presente bolletta, sono stabiliti dall'Autorità di Regolazione per Energia Reti e Ambiente ai sensi delle delibere di "testo integrato" TIV e TIT e ss.mi. In particolare Le segnaliamo che a partire dal 01/10/2020 vengono applicati gli aggiornamenti tariffari previsti dalle delibere n. 351/2020/R/EEL e n. 349/2020/R/COM. La fatturazione avviene con riserva di conguaglio.

17. Readings and consumptions billed in the bill
 18. Details on the calculation of taxes
 19. Other amounts relating to energy
 20. Average consumption
 21. Communication to customers

FIGURE 75. ELECTRICITY BILL. ITALY

Italy

Electricity

Electricity invoice.

1. Logo of Energy provider/player.
2. Number Contract, Number of Client and Logo App.
3. Indication of servizio fornito: electric energy and tipology of market when you have subscribe the contract.
4. Bill identifier / Details of the electricity bill: the section contains the progressive number, the date of issue, and the reference period of the billed consumption.
5. Delivery address: data relating to the delivery address of the bill.
6. Payment method: indicates the payment method chosen by the customer and the status of previous invoices. In the event of unpaid bills, the relative details are indicated in the communications to customers.
7. Total to be paid and due date: it is the total to be paid for the use of the electricity service and any other amounts (eg. Rai fee) and the date by which payment is to be made.
8. Data relating to the holder of the administration contract: name of the customer and tax code or VAT number.
9. Contractual data: data relating to the signed offer.
The "Supply activation date" indicates the activation date of the electricity supply. The «Offer starting date» indicates the date on which the commercial offer in force on the supply was activated.
10. Expenditure items: grouping of the amounts in the bill and graphical representation with the indication as a percentage of the same, as defined by the Arera legislation.
 - Expenditure on energy raw material: energy price, network losses, dispatching component and other items;
 - Costs for the transport and management of the meter;
 - Expenses for system charges: costs billed to cover activities of general interest for the electricity system;
 - Total bill
11. IrenYou App: ability to manage your electricity bill contracts through the app.
12. Website www.irenlucegas.it and social profiles.
13. Toll-free number to contact us.
14. Breakdown and Emergency Service: telephone number to request emergency response in case of breakdowns on the distribution network.
15. Identification data of the supply point: POD code (electricity withdrawal point) and technical characteristics. The first uniquely identifies the physical point where electricity is delivered to the end customer; then there is the address where the electricity is supplied and the contractual power signed by the customer.

Electricity **Italy**

16. Annual consumption and average cost of supply: data relating to the consumption of the last 12 months of supply, the average unit cost of the bill (given by the ratio between the total bill, net of other items, and the kWh invoiced) and the average unit cost of energy (given by the ratio between the expenditure for energy and the kWh invoiced)

17. Readings and consumptions billed in the bill: the billed consumptions are indicated divided between real consumptions, if transmitted by the distributor or communicated by the customer, and estimated consumptions, in case of lack of communication by the distributor / customer. That is, the difference between the previous reading and the current reading is the number of kWh of electricity that you used during the billing period. In the event of an adjustment, the refunds of previously invoiced estimated consumptions are indicated, including any recalculations and / or adjustments.

18. Details on the calculation of taxes: data relating to the calculation of taxes on the kWh invoiced.

19. Other amounts relating to energy: present only if charges other than those that must be included in the other expense items indicated in the summary (eg contractual bonus, fixed fees, default interest, indemnities) are charged or credited.

20. Average consumption: the consumption of the last 12 months is summarized, divided by bands with an indication of the power.

21. Communication to customers: The communications useful to the customer and those provided by ARERA are indicated.

Italy

Gas

1 Iren Mercato S.p.A. Sede di Via Nubi di Magellano 30 42123 Reggio Emilia

2 NUMERO CONTRATTO 02900000 NUMERO CLIENTE 1010000000

3 La mia bolletta del gas metano Mercato Libero

4 Fattura n. 502003440000 del 09 DICEMBRE 2020 periodo di riferimento OTTOBRE - NOVEMBRE 2020

5 Egr./Spett.le ROSSI MARIO VIA ROMA 1 INT 4 10100 TORINO TO

6 MODALITA' DI PAGAMENTO Il pagamento potrà avvenire utilizzando l'APP IrenYou mediante il servizio di pagamento IrenPay o tramite il bollettino allegato. La invitiamo a visionare la sua posizione contabile nella sezione 'Comunicazione ai clienti'

7 Totale da pagare 199,69 € Scadenza 29/12/2020

8 I miei dati Cliente ROSSI MARIO Cod. Fiscale/P.IVA RSSMRO000000000

9 Ripartizione voci di spesa: 48% Materia Gas Naturale, 24% Trasporto, 3% Oneri, 25% Imposte

10 Il mio contratto Tipologia DOMESTICO Offerta IREN PIU' CASA GAS Data decorrenza offerta 01/09/2020 Data attivazione fornitura 01/09/2020

11 Riepilogo voci di spesa (Consulta il Glossario ARERA): Spesa per la materia Gas naturale 87,73; Spesa per il trasporto e la gestione del contatore 44,48; Spesa per oneri di sistema 4,62; Imposte 47,48; Altre partite soggette iva -20,63; Totale imponibile IVA 163,68; Iva ordinaria 22% 36,01; Totale bolletta 199,69; Totale 199,69

12 Scarica gratis l'App IrenYou e gestisci i tuoi contratti in modo semplice e veloce.

13 Calcoliamo il tuo consumo reale! Comunica l'autolettura dal 26/01 al 31/01, chiamando 800608060 o tramite App IrenYou. I servizi sono attivi 24 ore su 24.

14 Numero Verde Iren 800969696 Trova lo Spazio Iren più vicino su www.irenlucegas.it

15 Visita www.irenlucegas.it e i nostri profili social Facebook, Twitter, Instagram, Youtube e LinkedIn. Segnalazione Guasti e Pronto intervento 21 RETE GAS S.P.A. Tel. 800.901.313 attivo 24 ore su 24

1. Energy provider Logo.
2. Contract Number, Customer Number and App Logo
3. Indication of the service provided: methane gas
4. Details of the bill
5. Delivery address
6. Payment method
7. Total to pay and Deadline
8. Data relating to the holder of the administration contract
9. Contractual data
10. Communication period Self-reading
11. Expenditure items
12. App
13. TWebsite
14. Contact number

FIGURE 76 GAS BILL. PAGE 1. ITALY

Gas
Italy

17

PDR N.	00000000000000
Fornitura	
Indirizzo	VIA ROMA 1 INT 4 - 10100 TORINO TO
Distributore di riferimento	21 RETE GAS S.P.A.
Portata	Classe G4
PCS	0,03903000GJ/smc
Coefficiente Correttivo	1,01807900
Codice Cabina Remi	90000000
Tipologia d'uso	Cottura cibi e/o prod. acqua calda sanitaria e riscaldamento

Consumo da inizio fornitura	Smc
Consumo dal 01/09/2020 al 30/11/2020	236,194328
Costo medio della fornitura	Euro/Smc
Costo medio unitario bolletta	0,95
Costo medio unitario materia Gas naturale	0,37

18

LETTURE DEL CONTATORE E CONSUMI FATTURATI

Matricola del gruppo di misura: SMGR0340 Tipologia contatore: Misuratore

Consumi rilevati nel periodo 01/09/2020 - 30/09/2020

Letture precedenti rilevate	Letture attuali rilevate	Consumi rilevati (mc)	Coeff. C.	Consumi (smc)
1.636	1.677	41	1,0180790	41,741239
Totale consumi rilevati		41		41,741239

Consumi rilevati nel periodo 01/10/2020 - 31/10/2020

19

DETTAGLIO SUL CALCOLO DELLE IMPOSTE

	Unità di misura	Prezzi unitari	Quantità	Totale euro	IVA
Imposta erariale di Gas Naturale (accisa)					
Imposte - Usi civili					
dal 01/09/2020 al 30/09/2020	Euro/smc	0,17000000	41,741239	7,10	22%
dal 01/10/2020 al 31/10/2020	Euro/smc	0,17000000	65,157056	11,08	22%
dal 01/11/2020 al 30/11/2020	Euro/smc	0,17000000	129,296033	21,98	22%
Addizionali Enti locali					
Addizionali regionali - Usi civili					
dal 01/09/2020 al 30/09/2020	Euro/smc	0,03098700	41,741239	1,29	22%
dal 01/10/2020 al 31/10/2020	Euro/smc	0,03098700	65,157056	2,02	22%
dal 01/11/2020 al 30/11/2020	Euro/smc	0,03098700	129,296033	4,01	22%
Totale				47,48	

20

ALTRE PARTITE

	Totale euro	IVA
Altre partite soggette iva		
Bonus offerta contrattuale	-18,00	22%
Totale	-18,00	

21

I SUOI CONSUMI MEDI GIORNALIERI

dal	al	giorni	consumo	consumo medio giornaliero
01/11/2020	30/11/2020	30	129,296033	4,309868
01/10/2020	31/10/2020	31	65,157056	2,101841

22

COMUNICAZIONE AI CLIENTI - AUTORITA' / NORMATIVI

• Bonus Sociale

Il bonus sociale gas del Ministero dello Sviluppo Economico per le famiglie in condizione di disagio economico e numerose può essere chiesto al proprio Comune. Per informazioni visita i siti: www.sviluppoeconomico.gov.it o www.arera.it o chiama il n° verde 800.166.654.

• Aggiornamento Tariffario

La struttura tariffaria ed i prezzi, applicati sulla presente bolletta, sono stabiliti dall'Autorità di Regolazione per Energia Reti e Ambiente ai sensi delle delibere di "testo integrato" TIVG e TUDG-RTDG e ss.m.i.. In particolare Le segnaliamo che a partire dal 01/10/2020

18. Readings and consumptions billed in the bill

19. Detail on the calculation of taxes

20. Other items.

21. Average consumption

22. Communication to customers

FIGURE 77 GAS BILL

PAGE 2. ITALY

Italy

Gas

Gas invoice.

1. Energy provider Logo.
2. Contract Number, Customer Number and App Logo.
3. Indication of the service provided: methane gas.
4. Details of the bill. The section contains the progressive number, the date of issue and the reference period of the billed consumption.
5. Delivery address: data relating to the delivery address of the bill
6. Payment method: indicates the payment method chosen by the customer and the status of previous invoices. In the event of unpaid bills, the relative details are indicated in the communications to customers.
7. Total to be paid and due date: indicates the total to be paid for the use of the methane gas service and any other amounts requested and the date by which to make the payment.
8. Data relating to the holder of the administration contract: name of the customer and tax code or VAT number.
9. Contractual data: data relating to the signed offer The "Supply activation date" indicates the activation date of the methane gas supply;
10. Communication period Self-reading: the period in which it is recommended to communicate the gas meter reading is indicated.
- 11 . Expenditure items: percentage breakdown of total expenses as defined by the Arera legislation. Cost of raw materials, gas transport, charges, taxes.
12. App: ability to manage your contracts via the downloadable app
13. Website www.irenlucegas.it and social profiles.
14. Contact number: Toll-free number to contact us.
15. Breakdown and Emergency Service: telephone number to request emergency response in case of breakdowns on the distribution network.

Gas **Italy**

16. Identification data of the supply point: PDR (Redelivery Point) code consisting of 14 numbers. The first four digits indicate the gas supplier code, and the last 10 the end user.

17. Annual consumption and average cost of supply: data relating to the consumption of the last 12 months of supply, the average unit cost of the bill (given by the ratio between the total bill, net of other items and the Smc billed) and the average unit cost of natural gas (given by the ratio between the expenditure for natural gas and the smc billed).

18. Readings and consumptions billed in the bill: the billed consumptions are indicated divided between real consumptions, if transmitted by the distributor or communicated by the customer, and estimated consumptions, in case of lack of communication by the distributor / customer.

In the event of an adjustment, the refunds of previously invoiced estimated consumptions are indicated, including any recalculations and / or adjustments.

19. Detail on the calculation of taxes: data relating to the calculation of taxes on the smc invoiced.

20. Other items: present only if charges other than those that must be included in the other expense items indicated in the summary are charged or credited (e.g. contractual bonus, fixed rights, default interest, indemnities).

21. Average consumption: the consumption of the last months available and the calculation of the average daily consumption are summarized.

22. Communication to customers: the communications useful to the customer and those provided by ARERA are indicated.

Italy

Water

Water supply.

The water service tariff is regulated nationally by the Authority for Energy, Gas, and the Water System (AEEGSI), now the Regulatory Authority for Energy, Networks, and the Environment (ARERA), and, locally, by the Area Government (EGA).

p

The rate covers operating costs (costs incurred for the operational management of the plants, such as energy costs to operate the lifting pumps, personnel costs, etc.) and investment costs (costs relating to the maintenance of networks and plants, necessary to maintain their functionality over time, as well as those for the construction of new systems where necessary).

To consult the rates applied in your municipality, must be search a specific map.

The Energy, Networks and Environment Regulatory Authority (ARERA) (with Resolution no. 665/2017 / R / IDR, so-called TICS) has introduced legislation at national level on the tariff structure of the integrated water service and 'Scope (EGA) must apply this legislation by defining it locally as on January 1, 2018.

The most significant changes are:

- the distinction between resident domestic users and non-resident domestic users.
- the forecast of reaching a per capita tariff structure by 31 December 2021 for all resident domestic users and therefore commensurate with the number of family members.
- the abolition of the so-called "Minimum committed" (if foreseen) also for non-domestic users.

As regards the per capita tariff structure, it is possible to request its application using the form.

In the absence of self-certification or in any case the number of the resident family unit is not known, the articulation will consider several standard members equal to three.

Water **Italy**

For condominium users, the above request can only be made, using the form, by the condominium administrator with reference to all the real estate units served by the centralized supply.

The forms can be sent, accompanied by a copy of an identity document, to the e-mail address procapiteidrico@gruppoiren.it or manually delivered to our branches.

As regards non-domestic users, a reclassification based on standard categories has been envisaged. The information available in our database was used for this reclassification; in case of discrepancy, it is possible to report to the toll-free number indicated on the bill.

Water Referencens

Tariff Method MTI (2014-2017) - deliberazione dell'Autorità 27 dicembre 2013, 643/2013/R/IDR, recante "Approvazione del Metodo Tariffario Idrico e delle disposizioni di completamento" e relativo Allegato A recante "Metodo Tariffario Idrico - MTI - Schemi regolatori";

Contractual Quality Regulation - deliberazione dell'Autorità del 23 dicembre 2015, 655/2015/R/IDR e relativo Allegato A recante "Testo integrato per la regolazione della qualità contrattuale del servizio idrico integrato ovvero di ciascuno dei singoli servizi che lo compongono" (RQSII);

Entrustment Contreresolution Standard Schemes - deliberazione dell'Autorità 23 dicembre 2015, 656/2015/R/IDR, recante "Convenzione tipo per la regolazione dei rapporti tra enti affidanti e gestori del servizio idrico integrato" (di seguito: deliberazione 656/2015/R/IDR);

Tariff Method MTI-2 (2016-2019)- deliberazione dell'Autorità del 28 dicembre 2015, 664/2015/R/IDR, recante "Approvazione del metodo tariffario idrico per il secondo periodo regolatorio MTI-2" e relativo Allegato A recante "Metodo tariffario idrico 2016-2019 – MTI-2. Schemi regolatori" (MTI-2);

Technical Quality Regulation - deliberazione dell'Autorità 27 dicembre 2017, 917/2017/R/IDR e relativo Allegato A recante "Regolazione della qualità tecnica del servizio idrico integrato ovvero di ciascuno dei singoli servizi che lo compongono (RQTI)"

Tariff Update (2018-2019) - deliberazione dell'Autorità 27 dicembre 2017, 918/2017/R/IDR recante "Aggiornamento biennale delle predisposizioni tariffarie del servizio idrico integrato"

IMP and FEP standard schemes – determina 1/2018 – DSID recante "Definizione delle procedure per la raccolta dei dati tecnici e tariffari, nonché degli schemi tipo per la relazione di accompagnamento al programma degli interventi e all'aggiornamento delle predisposizioni tariffarie per gli anni 2018 e 2019, ai sensi delle deliberazioni 917/2017/R/idr e 918/2017/R/idr, ai sensi delle deliberazioni 917/2017/R/idr e 918/2017/R/idr

Italy

Water

- 1. Personal tax information.
- 2. Customer code
- 3. Address
- 4. Communication of self-reading
- 5. Sums summary
- 6. Total
- 7. Holder code
- 8. How to contact us
- 9. List of branches



IRETI S.p.A. - Gruppo Iren
Sede operativa di:
Via Nubi di Magellano, 30 - 42123 Reggio E



Inquadra il QR CODE per aggiornare la tua anagrafica

Verifica il tuo dato fiscale
Ritornellero che dal 1/1/2019, con la fatturazione elettronica, è obbligatorio verificare la correttezza dei dati fiscali (codice fiscale o partita IVA) in bolletta. Nel caso fosse errato, comunica il dato aggiornato attraverso il QR CODE o chiamando il numero verde.

SERVIZIO IDRICO
Cliente N. 52000052

GENTILE GIORGIO GIOVANNI
VIA SAN CARLO 41
42033 CARPINETI RE

Fattura N. 001960969000
del 05 Agosto 2019
Documento non valido ai fini IVA - copia analogica di fattura elettronica inviata al SDI e resa disponibile nei canali previsti dall'Agenzia delle Entrate

Comunicazione autolettura.
Le letture possono essere comunicate al numero verde 800 012 305 (servizio automatico attivo 24 ore su 24) o tramite l'App Click Iren.
Per comunicare l'autolettura è necessario avere a disposizione il Codice Contratto (riportato all'interno della fattura, a sinistra nel riquadro in grigio).

RIEPILOGO DELLE VOCI DI SPESA	Euro	I.V.A.
Corrispettivo per il servizio idrico	41,48	
Corrispettivo per il servizio fog.dep.	0,00	
Imponibile I.V.A. 10%	41,48	V1
I.V.A. 10%	4,15	
Indennità ritardato pagamento	0,02	Z5
Arrotondamento precedente	9,67	V0
TOTALE FATTURA	55,32	

Totale da pagare Euro 55,32
Scadenza 28 Agosto 2019

Le precedenti bollette, al momento, risultano pagate. Grazie.

I SUOI DATI

Cliente: GENTILE GIORGIO GIOVANNI
Cod. Fiscale: GRGGNN80A01B825L
Partita Iva:
Indirizzo: VIA SAN CARLO 41 CARPINETI (RE)
Cod. Intestatario: 10061989

COME CONTATTARCI, INFORMAZIONI E RECLAMI

Contact Center: Numero verde 800 96 96 96
App: Click Iren
Sportello: Piazza della Vittoria n. 3 - Reggio Emilia
Web: www.ireti.it

MODALITA' DI PAGAMENTO
Utilizzare l'allegato bollettino postale presso gli Uffici Postali o gli Istituti Bancari con sportelli nei comuni in cui sono presenti i servizi Ireti S.p.A.

SERVIZIO CLIENTI - SPORTELLI SUL TERRITORIO DI REGGIO EMILIA

Reggio Emilia	Bibbiano	Castelnuovo ne' Monti	Guallier	Scardiano
Piazza della Vittoria, 3	Via Venituri, 67	Via Casolella, 17b (F.ellina)	Strada Statale 03, 145	Via Roma, 6/c
da lunedì a venerdì dalle 08.30 alle 13.30 e dalle 14.30 alle 17.30 e sabato mattina dalle 08.30 alle 12.30	da lunedì e venerdì dalle 08.00 alle 13.30			da lunedì a venerdì dalle 08.00 alle 13.00

IRETI S.p.A. - Società con socio unico IREN S.p.A. - Società sottoposta a direzione e coordinamento di IREN S.p.A. - Via Placenza 54 - Genova
Cod.Fisc. e P. IVA n. 01791490343 Capitale sociale: Euro 196.832.103,00 i.v.

FIGURE 78 WATER BILL. PAGE 1. ITALY

Water Italy

Servizio Idrico Integrato

Contratto n.4200504 Impianto n. 420000
 Indirizzo di fornitura: VIA SAN CARLO 41 CARPINETI RE
 Data di attivazione della fornitura: 25/05/2017
 Tipologia di utenza: USO DOMESTICO RESIDENTE

ACCONTO: periodo di riferimento dal 01/04/2019 al 31/07/2019 n. giorni 122

Contatore matricola 000058360
 L'ultima lettura utilizzata per il conguaglio è stata 4.975 mc al 20/02/2019

Consumo stimato del periodo	39,09 mc
Totale consumi fatturati	39,09 mc
Consumo medio annuo (Ca) anno 2019:	116,00 mc - anno di riferimento 2017 / 2018
Consumo medio annuo (Ca) anno 2020:	151,00 mc - anno di riferimento 2018 / 2019
Media aritmetica consumo ultimi tre anni	116,00 mc
Utilità domestiche	1 nr
Utenza NON allacciata alla pubblica fognatura	
Deposito cauzionale versato:	50,00 EUR

Quota fissa	6,25 EUR
Acquedotto	34,53 EUR
Fognatura	0,70 EUR
Depurazione	41,48 EUR
Oneri perequazione	4,15 EUR
Accenti bollette precenciet	-133,18 EUR
Totale imponibile IVA	45,63 EUR
IVA 10% su imponibile di euro 41,48	
TOTALE CON IVA	

10 11 12 13

STORICO LETTURE E CONSUMI MEDI mc/giorno

Data Lettura	Letture (mc)	Tipologia di Lettura
25/05/2017	4.748	Autolettura
05/10/2017	4.773	Autolettura
31/12/2017	4.805	Letture induttiva
20/03/2018	4.835	Autolettura
18/06/2018	4.872	Autolettura
31/12/2018	4.953	Letture induttiva
20/02/2019	4.975	Autolettura

Andamento dei suoi consumi medi giornalieri (in base a letture rilevate e/o autolettura)

PRONTO INTERVENTO - EMERGENZA
 per segnalazione guasti, fughe o dispersioni
 in funzione ogni giorno 24 ore su 24 **800 038038**

- 10. Fixed fee
- 11. Aqueduct, Sewer and Purification Services
- 12. Advances

Quadro di Dettaglio

Servizio Idrico Integrato

Contratto n. 4200504 del 25/05/2017 Impianto n. 429527
 Indirizzo di fornitura: VIA SAN CARLO 41 CARPINETI RE
 USO DOMESTICO RESIDENTE

	unità di misura	Prezzi Unitari	Quantità	Totale Euro	Cod. IVA
RATA PERIODICA: periodo di riferimento dal 01/04/2019 al 31/07/2019 (122 giorni)					
Metri cubi acqua fatturati	39 m ³				
TOTALE QUOTA FISSA				6,17	
Quota fissa acqua	01/04/2019 - 31/07/2019	€/unità/anno 18,50108700		6,17	
TOTALE ACQUEDOTTO				36,02	
Importo acqua	01/04/2019 - 31/07/2019	€/mc 0,83585500	28	23,43	
Importo acqua	01/04/2019 - 31/07/2019	€/mc 1,14480400	11	12,59	
TOTALE ONERI PEREQUAZIONE				0,71	
Oneri aggiuntivi UI1 acqua	01/04/2019 - 31/07/2019	€/mc 0,00400000	39	0,16	
Oneri aggiuntivi UI2 acqua	01/04/2019 - 31/07/2019	€/mc 0,00900000	39	0,35	
Oneri aggiuntivi UI3 acqua	01/04/2019 - 31/07/2019	€/mc 0,00500000	39	0,20	
TOTALE IMPONIBILE IVA				42,90	
Riconguaglio di anno solare: consumo dal 01/01/2018 al 31/12/2018					
Quota fissa				0,08	
Acquedotto				-1,49	
Oneri perequazione				-0,01	
TOTALE IMPONIBILE 10%				41,48	
IVA 10% su imponibile di 41,48 EUR				4,15	
TOTALE (IVA inclusa)				45,63	

14 15 16 17 18

- 13. Reading and consumption
 - 14. Unit cost:
 - 15, 16, 17. Totals
 - 18. VAT rate
- Figure 79 WATER BILLI
PAGE 2. ITALY

Italy

Water

Water invoice.

- 1.** Verify personal tax information: Remember to verify the correctness of the tax information.
- 2.** Customer code: Here you will find your customer code, always use it to communicate with us;
- 3.** Address: This is the address that is indicated for receiving bills. Always check that it is correct;
- 4.** Communication of self-reading: Here you will find the methods to communicate the self-reading of the meter;
- 5.** Sums summary: This is the list of charges based on the billing items.
- 6.** Total: Here are indicated: the total amount to be paid, the due date and information regarding your payments to check if they are regular.
- 7.** Holder code: Here you will find your holder code, always use it to communicate with us;
- 8.** How to contact us: These are all the references you can use to talk to us;
- 9.** List of branches: In this section you will find the list of branches in the area and the opening hours.
- 10.** Fixed fee: The fixed fees are proportionate to the number of days relating to the billed period and are paid regardless of consumption;
- 11.** Aqueduct, Sewer and Purification Services: In this section you will find the cost you pay respectively for the services: Aqueduct, Sewerage, Purification. We remind you that the costs of the aqueduct, sewerage and purification services are defined on the basis of the rules established by the regulatory and control bodies;
- 12.** Advances: The return of any advance payments previously invoiced is indicated here;
- 13.** Reading and consumption: Here you will find the data relating to your meter, the latest readings and the cubic meters requested in advance.

Water **Italy**

14. Unit cost: Indicates the cost of each cubic meter;

15, 16, 17. Totals: This is the list of debit items calculated by multiplying the unit cost by the number of cubic meters in the billed period;

18. VAT rate: Indicates the VAT rate applied

Communications to Customers

The last pages of the bill are intended for communications to customers. Here you will find all the information you may need, including rate updates and communications required by the Energy, Networks and Environment Regulatory Authority (ARERA).

Self-reading meter service

A quick and easy way to receive your bills without surprises.

You can communicate self-reading by contacting the toll-free numbers, which you can find on the first page of the bill.

You can also do it through APP, also available as an APP, in a simple and intuitive way: <https://clienti.irenlucegas.it/login>.

You can record the reading independently whenever you deem it useful: it will be inserted and billed if it falls within the period, highlighted on the invoice, useful for communication; the other readings will be considered to calculate the consumption estimate closest to real consumption. We remind you that to provide self-reading by telephone, the system will ask you to identify the supply by asking you to enter the user code (shown in your bill) that you will need to have available when you call the toll-free number.

How to pay the bill

To pay your bill, choose the way that suits you best:

- at a post office or bank, using the bulletin attached to your bill;
- by presenting the bank domiciliation form that you find on your bill to your bank, thus avoiding queues at post offices. Remember that, even if you have activated the automatic debit service on your bank account, the bill will still be delivered to your home and that, in the event of a dispute, you can suspend the payment by the deadline or request a refund within 8 weeks from the debit. ;
- By bank transfer reporting the data you find on your bill
- The LIS points of LOTTOMATICA Servizi (lottery offices, tobacconists and bars distributed throughout the national territory)
- All SISAL betting shops present on the national territory
 - At the cash desks of the Coop Alleanza 3.0 and Eridana authorized stores in the provinces of Piacenza, Parma, Reggio Emilia, and Modena

7. Conclusions

The study developed in this document demonstrates the relevance of the existence of guidelines to provide the population with simple but effective tools to improve thermal comfort conditions during the summer period. In the case of the intervening localities, summer is the period in which the highest temperatures are concentrated, and therefore a greater risk of exposure to them, especially for the vulnerable population. On the other hand, the impact of the application of the detailed measures would help mitigate the impacts of summer energy poverty by raising awareness among the population regarding the knowledge of good practices at different scales.

According to the climate analysis developed for each of the locations, the cities with the lowest percentage of time in comfort without the application of passive strategies are Parma and Barcelona with 15.3% and 20.50%, respectively. On the contrary, Madrid has 30.9% of the time in comfort, followed by Ivaylo with 27.90%. To conclude, it can be seen from the analysis that, in the case of Madrid, the most important strategies to apply during summer consist of solar protection, natural ventilation, and evaporative cooling. As for Barcelona, being in a different geographical context, the most important strategies are natural ventilation and dehumidification. Both Thessaloniki and Parma have high needs for natural ventilation and solar protection. Finally, the locations studied in Bulgaria have a higher percentage of the need for thermal inertia in buildings and solar protection.

By knowing in detail, the needs of each of the localities, it is interesting to have a wide list of solutions applicable to the different strategies and above all at different scales. The catalogue contains 57 solutions designed to address the various passive strategies and provides qualitative information about them with the intention of starting the reader on the in-depth study path. It is important to understand that, just as each locality has its particularities, so too does each neighbourhood, each building, and each dwelling; therefore, it is encouraged to involve the reader in understanding the performance of their environment and therefore understanding the implementation of improvements efficiently and accurately.

Regarding the contribution in relation to the energy bills, it is important to apply parallel strategies both for the reduction of consumption within

the household in relation to the use of appliances and facilities and the raising of awareness in relation to the services contracted, the benefits that could be obtained, and above all the energy rights that users possess, so that the more information the households have, the greater the control over consumption.

8. References

Brandenburg, Christiane et al. 2018. Urban Heat Island Strategy: City of Vienna. Municipality of Vienna, Vienna Environmental Protection Department – Municipal Department 22.

De Luxán García de Diego, Margarita et al. 2017. Re-Habilitación Exprés Para Hogares Vulnerables. Fundación Gas Natural Fenosa.

Huertas Alcalá, S et al. (s.f) Aclimatarnos. El cambio climático un problema de salud pública. Guía didáctica sobre adaptación al calor. Instituto de salud Carlos III.

IPCC. (2021). Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change (V. Masson-Delmotte, P. Zhai, A. Pirani, S. L. Connors, C. Péan, S. Berger, N. Caud, Y. Chen, L. Goldfarb, M. I. Gomis, M. Huang, K. Leitzell, E. Lonnoy, J. B. R. Matthews, T. K. Maycock, T. Waterfield, O. Yelekçi, R. Yu, & B. Zhou (eds.)). Cambridge University Press. https://www.ipcc.ch/report/ar6/wg1/downloads/report/IPCC_AR6_WGI_Full_Report.pdf

IPCC. (2022). Climate Change 2022: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change (H.-O. Pörtner, D. C. Roberts, M. Tignor, E. S. Poloczanska, K. Mintenbeck, A. Alegría, M. Craig, S. Langsdorf, S. Löschke, V. Möller, A. Okem, & B. Rama (eds.)). Cambridge University Press. <https://www.ipcc.ch/report/ar6/wg2/>

Neila González, F. J (2004). Arquitectura Bioclimática en un entorno sostenible. Munilla-Lería.

The climate files were downloaded from the Climate One Building website (<https://climate.onebuilding.org/>).

Precipitation data were downloaded from the Climate-Data website (<https://es.climate-data.org/>).

The visualization of the climate files was done through Andrew Marsh's web software (<http://andrewmarsh.com/software/data-view2d-web/>)

The visualization of the Givoni diagrams was done using Andrew Marsh's web tool (<http://andrewmarsh.com/software/psychro-chart-web/>).

