



# LIFE FOR SAFE GRID

## LAYMAN'S REPORT

ENHANCE CONSERVATION OF THE GLOBALLY THREATENED  
IMPERIAL EAGLE IN BULGARIA BY REDUCING MORTALITY  
CAUSED BY POWER LINES (LIFE12 NAT/BG/000572)

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# LIFE FOR SAFE GRID

## PROJECT OF ELEKTRORAZPREDELINIE YUG AND THE BULGARIAN SOCIETY FOR THE PROTECTION OF BIRDS

ENHANCE CONSERVATION OF THE GLOBALLY THREATENED IMPERIAL EAGLE IN BULGARIA BY REDUCING MORTALITY CAUSED BY POWER LINES (LIFE12 NAT/BG/000572)



© Svetoslav Spasov / BSPB

### **Coordinating Beneficiary:**

“Elektrozpredelenie Yug” EAD

“Elektrozpredelenie Yug” EAD (part of EVN Bulgaria group) is an electricity distribution company in Southeastern Bulgaria, which owns a license for distribution of electricity on a territory of about 42,000 square kilometers in the following nine regions of Southeastern Bulgaria: Burgas, Kardzhali, Pazardzhik, Plovdiv, Sliven, Smolyan, Stara Zagora, Haskovo and Yambol.

A large part of the NATURA 2000 network in Bulgaria is located within the licensed territory of Elektrozpredelenie Yug ([www.elyug.bg](http://www.elyug.bg)).

**Project Partner:** Bulgarian Society for the Protection of Birds (BSPB).

BSPB is the Bulgarian partner of BirdLife International – the world's largest network of nature conservation organizations. ([www.birds.bg](http://www.birds.bg)).

**Budget:** EUR 3,984,559

**Financing:** LIFE Programme of the EU – EUR 1,399,113

**Co-financing:** “Elektrozpredelenie Yug” EAD – EUR 2,575,496

**Co-financing:** BSPB EUR – EUR 9,950

### **The regions where the implementation of the project takes place are part of the European ecological network NATURA 2000:**

- Specially protected area “Madzharovo” with code BG0002014
- Specially protected area “Kamenski Bair” with code BG0002059
- Specially protected area “Sakar” with code BG0002021
- Specially protected area “Adata-Tundzha” with code BG0002094
- Specially protected area “Sinite kamani-Grebenets” with code BG0002058
- Specially protected area “Derventski Heights” with code BG0002026
- Specially protected area “Arda Bridge” with code BG0002071
- Specially protected area “Western Strandzha” with code BG0002066

**Duration of the project:** five years (2013 – 2018)

**Project Manager:** Lyubka Vasileva/Stoyka Titova, Elektrozpredelenie Yug

**Contact:** Elektrozpredelenie Yug, 37 Hristo G. Danov Str., 4000 Plovdiv, Bulgaria

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**Design and prepress:** Radostina Nedyalkova

# THE PROJECT

## LIFE FOR SAFE GRID



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### Successful cooperation between a non-governmental organization and an utility company

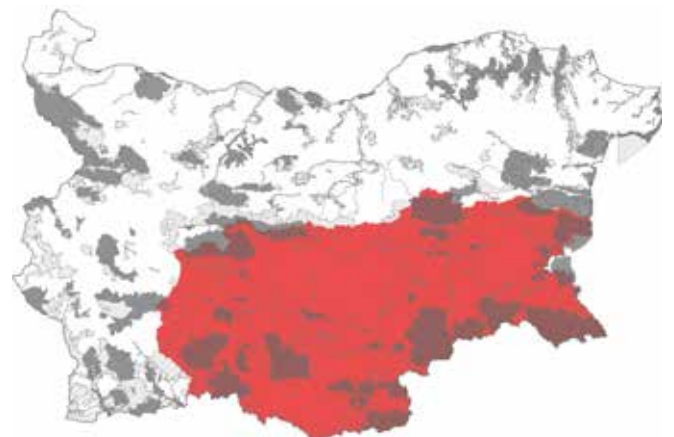
The project was developed in partnership with the Bulgarian Society for the Protection of Birds (BSPB) and was approved by the European Commission in July 2013, by which Elektrorazpredelenie Yug (part of EVN Bulgaria) became the first infrastructure company in Bulgaria to implement a project funded under the LIFE + Program.

In October 2013, Elektrorazpredelenie Yug and the Bulgarian Society for the Protection of Birds (BSPB) signed a partnership agreement, which officially launched the Life for safe grid project.

The project is implemented in 8 specially protected areas of NATURA 2000 – In regions in the municipalities of Elhovo, Topolovgrad, Bolyarovo, Harmanli, Sliven and Yambol.

“Life for safe grid” continued the long-term cooperation between the company and the BSPB on bird conservation, including projects such as “Life for the Burgas Lakes” and “Conservation of Imperial Eagle and Saker Falcon in key NATURA 2000 sites in Bulgaria”.

Namely within the last project completed in 2013, it was established by means of satellite transmitters that up to 80% of the juvenile Imperial Eagles are dying from electrocution and this was the reason for the preparation and the implementation of the Life for safe grid project.



■ Specially protected areas (SPAs) from the NATURA 2000 network declared under the Directive 2009/147/EC on the conservation of wild birds (short name: Birds Directive)

▨ Specially protected areas (SPAs) from the NATURA 2000 network declared under Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora (short name: The Habitats Directive)

■ EVN Bulgaria



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Installation of diverters under the “Life for the Burgas Lakes” project

# ON THE IMPERIAL EAGLE

## AQUILA HELIACA

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The Imperial Eagle is one of the rarest birds on the planet. It is a globally threatened species and its population is decreasing worldwide. In the past, the Imperial Eagle was one of the most widespread raptors in Bulgaria, but nowadays is a protected species included in the Red List and the List of Threatened Species of the International Union for Conservation of Nature. A total of 29 pairs of birds are registered in Bulgaria, mainly inhabiting the region of Sakar Mountain and Western Strandzha.

For centuries, the Imperial Eagle has been honored as a sacred bird, because our ancestors thought it was pushing the storm clouds away and saving the crop. Even today, in some parts of Bulgaria, they believe that if the Imperial Eagle is killed or harmed in any way, a great deal of trouble will come to the people. Its native name is "cross eagle" because of the white spots resembling epaulettes on its wings that are visible and its bright head, which, observed from a distance, in flight, look like a cross on the back of the bird.



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## THE THREATS

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**The reasons for the drastic reduction of the species are many, but among the main ones are**

- The mass killing of predatory birds in the 1950s and 1970s.
- The destruction of the habitat and the development of intensive agriculture, which has led to the reduction and extinction of wildlife, which serves as food to the Imperial Eagle.
- The improper use of pesticides in agriculture, the illegal setting of poisoned baits and the poaching.
- Electrocutation when landing on electricity poles.
- Medium-voltage (20kV) power lines are the ones that pose a major threat to Imperial Eagles and many other wild birds that use them as a landing site or a starting point for hunting. Birds with a large wingspan (over 2 m), such as eagles and storks, are especially vulnerable because they can easily come into contact with a live conductor and an earthed part of the pole and thus cause an electric shock resulting in their death and the interruption of the power supply. Young and inexperienced eagles are especially vulnerable in the period after leaving the nest.



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## MAIN ACHIEVEMENTS OF THE PROJECT

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### Activities performed under the “Life for safe grid” project 2013 – 2018

- 2340 electric poles shielded with protective insulations. The protective insulations are made of insulating material and are designed to protect the birds from electrocution by simultaneous contact with a live conductor and an earthed part of the pole.
- 42 km of overhead power lines, made up of 126 km of conductors, are replaced with fully insulated ones – the so-called PAS system. This completely eliminates the risk of the birds coming into contact with live conductors and earthed parts of supporting poles. With the implementation of the PAS system, there is also a significant reduction of the risk of collisions of flying birds with power lines as insulated conductors are more visible and easier to avoid.
- 10 pcs. of “bird rests” mounted. The „bird rest” provides a bird resting place allowing the bird to land at a safe distance from the current-carrying elements.
- 43 km of underground electrical cables placed, replacing almost 70 km of overhead power lines dangerous to the birds. Cabling (underground laying) is a solution that completely eliminates the danger to the birds, but this is the most complex and costly measure to implement.
- Specialized facilities built – for example, “catwalk bridges” (a bridge facility for the passage of underground cable lines over a river).
- Installation of protective plastic grating for birds, insulated terminals, etc.
- 16 new concrete transformer substations, 1 new substation.
- A geographic information system with a database containing the results from the field study about the birds’ mortality from electrocution and collision with the wires, the impact monitoring and the monitoring of the population of the Imperial Eagle was created.
- Communication activities and events, including placement of information boards, workshops for exchange of experience and sharing of good practices with Bulgarian and international participation, etc.
- The construction of the facilities uses state-of-the-art technical solutions, guaranteeing the security of the power supply to the local population and safety for the birds. The materials used pass laboratory tests and meet European standards.

## WE SECURE THE OVERHEAD POWER LINES BY MEANS OF:

**Protective grating** – made of UV-resistant insulating material. They protect the birds by preventing them from landing in places with a danger of electrocution. The grating limits the wingspan. They are mounted on the tension insulators of the steel-grid poles.

**Bird rests** – made of aluminum with options for attachment to horizontal disconnectors with open current-carrying parts mounted on steel-grid poles. They stand at a certain height from the danger zones and set conditions for the bird to land on them.

**Insulations (insulating plates)** – made of synthetic UV-resistant insulating material. They protect against **contact** with voltage by providing protection of the conductor over the standing insulator (from both sides). They are mounted on medium-voltage concrete poles.

**PAS system** – fully insulated medium-voltage overhead line. It uses an insulated conductor and all auxiliary elements for its installation (terminals, insulators, protectors)



© Elektrorazpredelenie Yug

Installation of birds rests by Elektrorazpredelenie Yug

### The first PAS System in Bulgaria is constructed in the Harmanli region

The technical activities started in April 2015 on the territory of one of the specially protected areas (SPAs) of the NATURA 2000 network – Sakar SPA, in the region of Harmanli municipality

- PAS system of 45 km (insulated conductors) was built on an overhead power line in the Sakar SPA.
- Installation of complex safety devices – 10 “bird rests” were installed on the insulated power line.
- Installation of protective plastic grating, insulated terminals, etc., thus achieving maximum security for both the Imperial eagle and other birds.
- After the installation of the PAS system, a decrease of the power supply failure has been reported.



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Shielded pole with a PAS system (a system of insulated conductors)



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Specialized safety feature – the so called “Catwalk Bridge” for the carriage of underground cables over a river

### Large-scale technical activities in the region of Elhovo and Topolovgrad

- 43 km of underground electrical cables placed, replacing almost 70 km of overhead power lines dangerous to the birds.
- New energy facilities built: substation and 16 concrete transformer stations in the specially protected area Sakar.
- Specialized facilities such as the so-called “catwalk bridges” for the passage of underground cable lines over a river, drilling works, etc.
- 27 km of overhead power lines, made up of 81 km of conductors, are replaced with fully insulated ones – the so-called PAS system.
- 1293 sets of protective insulations on poles of the electricity grid mounted.

A major challenge for the implementation of the activities in the region of Elhovo and Topolovgrad was the difficult and rocky terrain, which required additional activities such as fortifications on the excavations for the cable lines and along the river banks.



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A trench for laying of underground power lines



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New transformer station



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New substation built



**Implemented activities in the region of Sliven and Yambol**

Elektrorazpredelenie Yug installed insulations on 499 poles in the municipality of Sliven. Priority was given to the most dangerous poles to the birds identified by the BSPB. Another 329 poles were shielded in the region of Yambol.



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*Installation of protective insulations on poles*



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*Installation of protective plastic gratings for birds on poles from overhead power lines*

# MONITORING OF THE POPULATION

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The monitoring of the Imperial Eagle population is carried out regularly. The results from the beginning of the project until the end of the 2018 breeding season are, as follows:

Year	Number of territories occupied by Imperial Eagles	Number of pairs started incubating	Fledglings	Number of replaced birds in the pairs in %
2014	26	24	23	10,64
2015	28	24	29	12,5
2016	28	21	26	3,77
2017	28	23	28	16,67
2018	29	21	24	5,77

The population of the Imperial Eagle during a bigger part of the project is stable and the nesting success is good.

- In 2016 a record low mortality rate under the nesting pairs was reported - only 3.77% - the lowest during the last 10 years
- In contrast, in 2017 the bigger replacement of breeding partners among the nesting pairs was observed, most probably due to the dead of one of the birds;
- In 2018, after a 3 years standstill, the number of the pairs has increased by one and they are already counting 29, what is the highest number since the species have been monitored.

Length of the body



72 – 84 cm

Wingspread



180 – 215 cm

Distinctive features



two white spots on the shoulders

Abundance in Bulgaria



29 pairs

Habitat



Sakar, Sliven, Dervent heights, West Strandza

# INFORMATION MATERIALS AND COMMUNICATION WITH THE PUBLIC

- Regular publications in the media (national and local) – TV, radio, newspapers, internet.
- 3 information leaflets printed with important information about the project and the Imperial Eagle.
- Website of the project created **www.lifeforsafegrid.bg** with an increasing popularity.
- Information in social networks.
- Short documentary on the project.
- Elektrorazpredelenie Yug installed 12 information boards on the "Life for safe grid" project. The board are situated in proximity to the new energy infrastructure built within the project.
- Two expert workshops were held – In 2014 in Stara Zagora and in 2018 in Yambol. Representatives of the Ministry of Environment and Water (MOEW), Regional Inspectorates of Environment and Water (RIEW), nature conservation organizations, local authorities, natural and national parks, experts, etc. took part in them. The seminars included a presentation and a practical part: a visit to the training area in Stara Zagora and a visit to the project sites in the region of Elhovo.
- Calendars and stickers printed.
- Information days held for the 25th anniversary of the LIFE Programme, the Habitats Directive and NATURA 2000 in 2017 in Plovdiv, Burgas and Sofia. Real models of 6 species of eagles found in Bulgaria, information materials, etc. were presented.
- Participation in Bulgarian and international seminars. Visit of foreign experts for review of project activities.
- Support for the "For eagles" campaign of BSPB and preparation of a promo video for the conservation of eagles.



Information materials on the project



Demonstration – installation of protective insulations on poles. Training area in Stara Zagora, 2014



Expert workshop in Yambol, 2018

# SOCIAL AND ECONOMIC IMPACT OF THE PROJECT

- Investments amounting to approximately EUR 4 million in the Bulgarian economy. Most of the funds were invested in less developed regions and local communities with the aim to support their development.
- Provided temporary or long-term employment to local people and companies from the area of the project.
- Significantly improved energy infrastructure in the area of the project and secure power supply for residential and business customers.
- Three socio-economic researches were conducted – in 2015, 2016 and 2018.
- The results of the latest research show that the Imperial Eagle is increasingly perceived as a valuable resource and an endangered species. The local population is more familiar with the project activities and holds a positive opinion in regard to its implementation. The most important positive aspects of the project are the conservation of the Imperial Eagle, the prevention of power supply failures, the possibility of developing ecotourism, improved infrastructure.



Information board on the "Life for safe grid" project (in Bulgarian and English)

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## AWARDS

The activities of Elektrorazpredelenie Yug and BSPB on the environmental protection were awarded with a variety of best practice awards and best projects at European level:

- **2016:** Award by the Renewables-Grid-Initiative (RGI), Berlin, in the "Jury's Favourite" category of "Environmental Protection" for the activities related to the installation of a system with new insulated conductors – PAS system.
- **2016:** First place in the category "Energy and Water Sector" of the Sixth National Competition "Greenest Companies in Bulgaria".
- **2016:** Charter for contribution to the preservation of the White Stork, XI White Stork Festival, Belozem village (Plovdiv region).
- **2015:** Award by the Bulgarian Biodiversity Foundation for "Businesses Supporting Biodiversity in Bulgaria".
- **2015:** Award by the Renewables-Grid-Initiative (RGI), Berlin, in the "Jury's favourite" category for securing stork nests.
- **2015:** The Bulgarian Society for the Protection of Birds (BSPB), Elektrorazpredelenie Yug and the partnering organization BirdLife International won the Good practice of the year award in the category "Environmental protection" for their joint work on the prevention of mortality among rare birds when landing and by collision with electricity grid in Bulgaria and Sudan.
- **2014:** The BSPB project "Conservation of Imperial Eagle and Saker Falcon in key NATURA 2000 Sites in Bulgaria", implemented with the cooperation of Elektrorazpredelenie Yug received the prestigious NATURA 2000 Award in the "Conservation" category, whereas it was awarded as one of the five "Best of the best" LIFE projects in the "Nature" category for 2014 and in 2017 it was one of the nominated best projects under the LIFE Programme since 1992 among other 4000.

# CURIOSITIES ABOUT THE IMPERIAL EAGLE:

- The figures on Orlov Bridge in Sofia are namely Imperial Eagles.
- The eagle attacks its victim always on the side of the sun.
- If one had the vision of an eagle, he would see how the ants crawl on the ground from the 10th floor. Eagles and other predatory birds can see 4-5 times farther than the average person.
- The human field of view covers 180 degrees, and the eagle enjoys a panoramic view of 340 degrees.



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## FOR THE IMPERIAL EAGLE IN THE BULGARIAN MEDIA

**Екология**

### В защита на царския орел от EVN изградиха 23 км изолирани проводници

През 2017 г. "Електропродарежение Юг" изградиха нови 23 км изолирани проводници в рамките на проекта "Живот за царския орел", спонсирана за медията на в средата от дружеството на EVN България.

стема от изолирани проводници). През изминалата година са изградени 23 км от тази система. В началото на 2018 г. ще бъдат завършени последните 4 км, което предпазва сериозно пред-

### EVN маха кабели заради царския орел

EVN България извърши проект "Живот за царския орел", който се реализира в осем селски общини в областите Елхово и Тополовград. Проектът е спонсиран от дружеството на EVN България.

"Електропродарежение Юг" изградиха 43 км изолирани кабели, които се реализират на протеж от разпределителните мрежи до местните общини. Проектът е спонсиран от дружеството на EVN България.

за изградени претинаци. На територията на местни общини, като част от защитените дивни-та мрежа от гори-архипелаги от землища с т. нар. ПМС, системно се извършва работата. През есента 2017 г. по поръчение на р. Туника са били изградени 23 километра изолирани проводници система, а в началото на 2018 г. ще бъдат завършени последните 4 км от нея.

Друга ползвателна дейност, изпълнявана от EVN в рамките на проекта, е обективизирането на електропродарежните стълбове. През миналата година са изградени общо 11 електропродарежни стълбове. Това са били изградени общо 11 електропродарежни стълбове. През миналата година са изградени общо 11 електропродарежни стълбове.

2 страница **СЪВРЕМНЕ** бр. 9, 31 март, петък

### Мащабен проект „Живот за царския орел“ в Родопите

43 км електропродарежни кабели са вкопани в земята в общините Елхово и Тополовград като част от проекта на EVN и Българското дружество за защита на птиците

EVN България Електропродарежение Проектът "Живот за царския орел" е един от най-съществените системи доставяне на електроенергия за населението

**8 ГРИЖА**

### EVN вкарва кабели под земята заради царските орли

Компанията прави специализирани съоръжения в Тополовградско и Хаджиделийско, за да опази защитените птици

EVN България Електропродарежение извърши проект "Живот за царския орел", който се реализира в осем селски общини в областите Елхово и Тополовград. Проектът е спонсиран от дружеството на EVN България.

В района на общините Тополовградско и Хаджиделийско, общини са изградени общо 43 км изолирани проводници система, а в началото на 2018 г. ще бъдат завършени последните 4 км, което предпазва сериозно пред-

10 ноември 2018 г. **ЕКОЛОГИЯ** 6 **СЪВРЕМНЕ**

### Засилват мерките по опазване на царския орел в България

Само преди 200 години у нас видът е наброявал 2000 екземпляра. Днес са останали едва 24 двойки

### Младежки еко патрули тръгват из Казанлък

В края на миналата година в Община Казанлък бяха започнали работите по изграждането на защитна система за царския орел. Проектът е спонсиран от дружеството на EVN България.

В началото на 2018 г. ще бъдат завършени последните 4 км, което предпазва сериозно пред-



## RESPONSIBILITY TOWARDS PROTECTION OF THE ENVIRONMENT

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The responsibility towards the environment is a guiding principle of the policy of Elektrorazpredelenie Yug. In order to ensure the practical application of this principle on all company levels, in 2013 the company introduced and maintains an Environmental Management System in accordance with International standard ISO 14001. The main rules on which the system is built are, as follows:

- Sustainable development through implementation of policies and best practices for process management in an environmentally friendly manner;
- Strict compliance with the applicable regulatory requirements in the field of environmental protection;
- Continuous control of processes and management of environmental aspects to avoid the risk of environmental pollution;

- Improvement of environmental performance.

The company successfully undergoes annual surveillance audits carried out by a certification company for validation of the issued certificate.



Mounted stork nest platform. The nest is lifted to a safety distance from the conductors



© Elektrorazpredelenie Yug



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## ENVIRONMENTAL TRADITIONS

Elektrorazpredelenie Yug supports nature conservation organizations in the implementation of various projects under the LIFE Programme in Bulgaria related to the conservation of threatened species and their habitats:

- Project "Conservation of Imperial Eagle and Saker Falcon in key NATURA 2000 sites in Bulgaria" of BSPB – the first implemented project under the program in Bulgaria.
- Project "Ensuring conservation of priority bird species and coastal habitats at the Burgas NATURA 2000 wetland sites" of BSPB.
- Project "Urgent actions for conservation of the Egyptian Vulture in Bulgaria and Greece" of BSPB.
- Project "Conservation of key forest habitats of the Lesser Spotted Eagle Bulgaria" of BSPB.
- Project "Lesser Kestrel Recovery" of the NGO "Green Balkans".
- Project "Bright Future for Black Vulture" of the NGO "Green Balkans".
- Project "Vultures return in Bulgaria" of the NGO "Green Balkans".

### Elektrorazpredelenie Yug implements a number of targeted activities for conservation of biodiversity, including:

- cabling (underground laying) of overhead power lines: universal solution for reducing mortality and power supply failures but due to economic reasons is unrealistic to cover tens of thousands of kilometers.
- installation of protective insulations on poles: the measure protects the birds from electrocution when contacting the conductors and an earthed part of the pole.
- installation of fully insulated and bird-safe overhead power lines – PAS system, which achieves two goals – to prevent electrocution and collisions because the insulated conductor is easily visible due to its dark color.
- installation of different elements on power lines such as bird rests, diverters, protective grating, platforms for pole nesting, "rejection devices" (protective element that prevents the bird from landing on dangerous places) etc.

The effects of these activities demonstrate that the secured power lines are completely safe for the Imperial Eagle and for other birds as well.



## **NATURA 2000**

The ecological network of protected areas stretches over 18% of the land area and almost 6% of the marine territory of the European Union. Its creation aims at ensuring the protection of the most valuable and threatened species and habitats, listed under both Directive 2009/147/EC (the Birds Directive) and Directive 92/43/EEC (Directive on the conservation of natural habitats and of wild fauna and flora).

## **LIFE PROGRAMME**

LIFE Programme is the EU's financial instrument supporting environmental, nature conservation and climate action projects. The general objective of LIFE is to contribute to the implementation and updating of EU environmental and climate policy legislation by co-financing projects with European added value. The Programme is being implemented in compliance with Regulation 614/2007 of the European Parliament.

Since its establishment in 1992 the LIFE Programme has co-financed more than 4500 projects and thus it has contributed approximately € 3.4 billion to the protection of the environment and climate.

## **LIFE FOR SAFE GRID**

The "Life for safe grid" project was implemented in eight specially protected areas from the ecological network NATURA 2000 with the financial support of the LIFE Programme.

Information about the "Life for safe grid" project is available on [www.lifeforsafegrid.bg](http://www.lifeforsafegrid.bg).