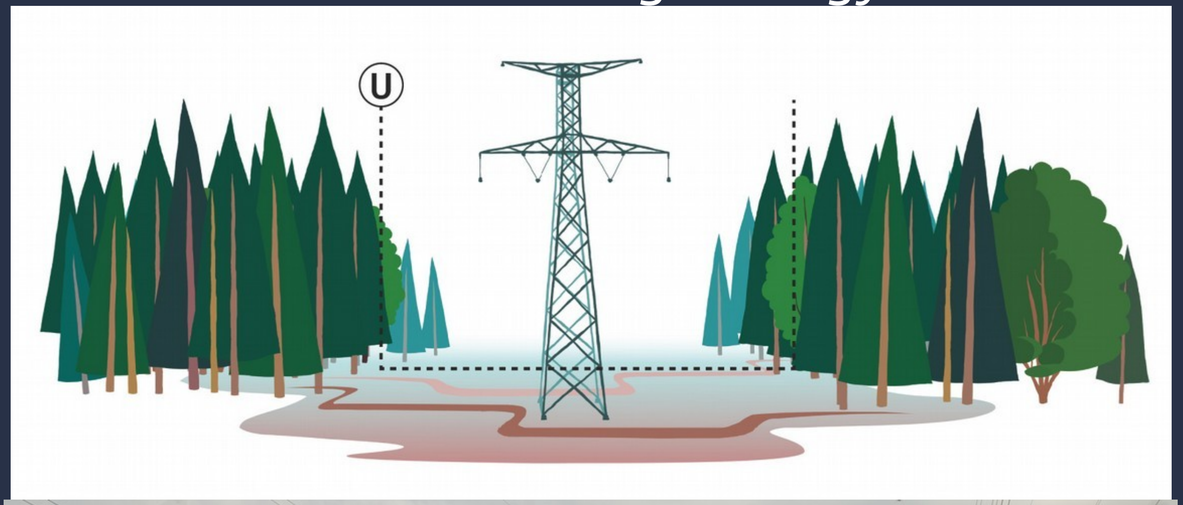
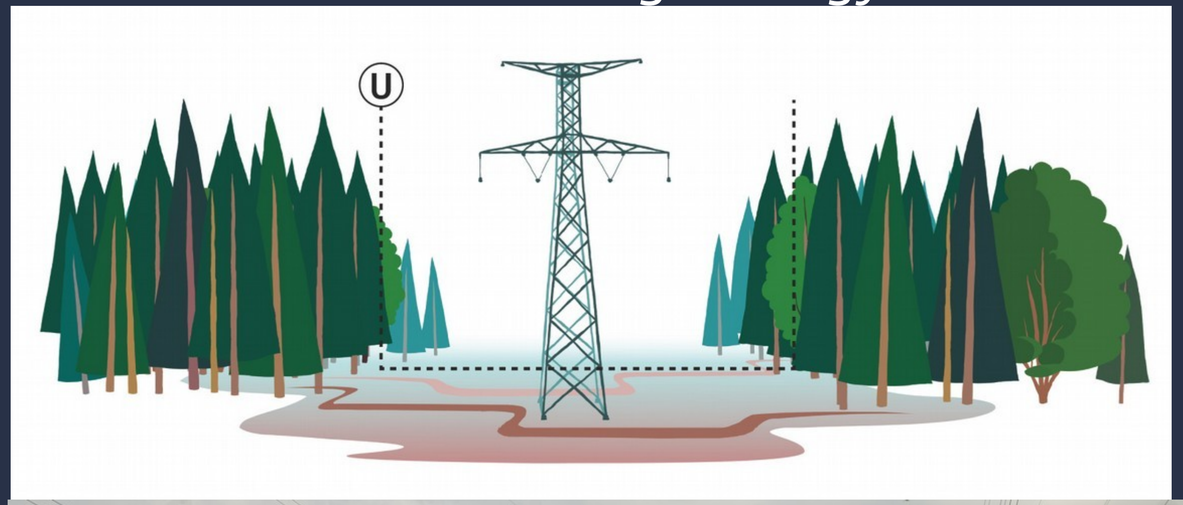
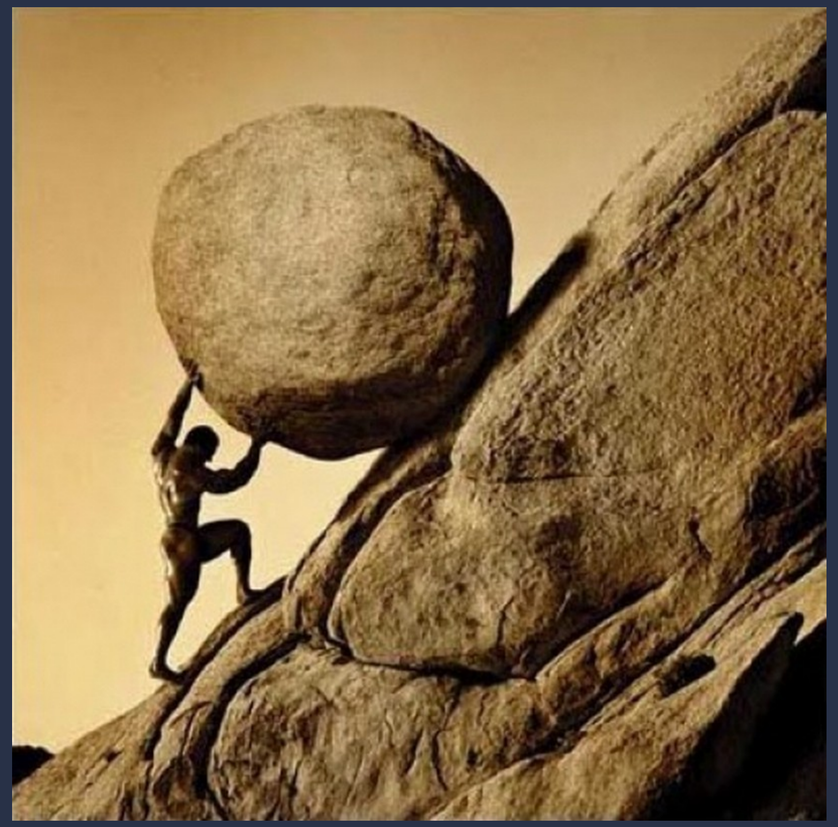
LIFE Elia-RTE (Belgium-France - 2011-2017)

Vegetation management of forest corridors: wrong strategy?



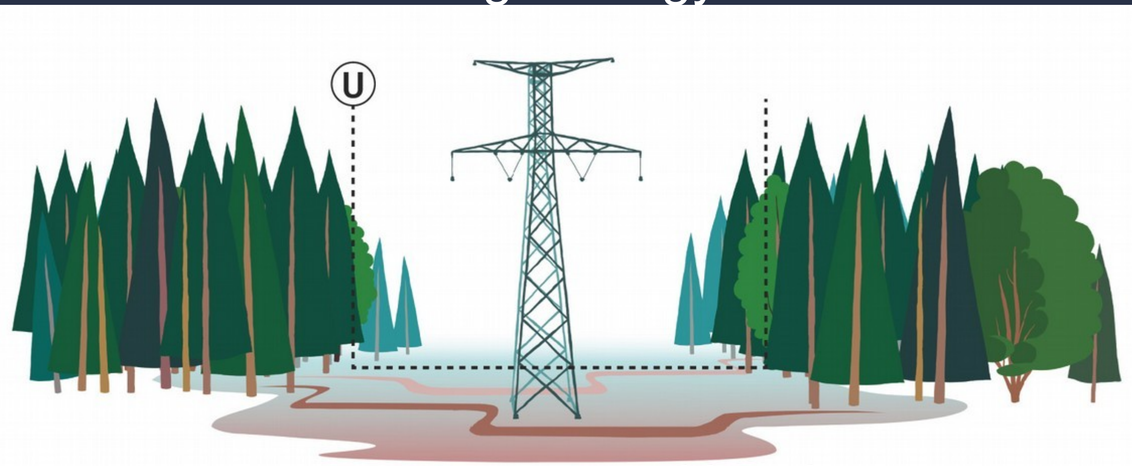
Vegetation management of forest corridors: wrong strategy?



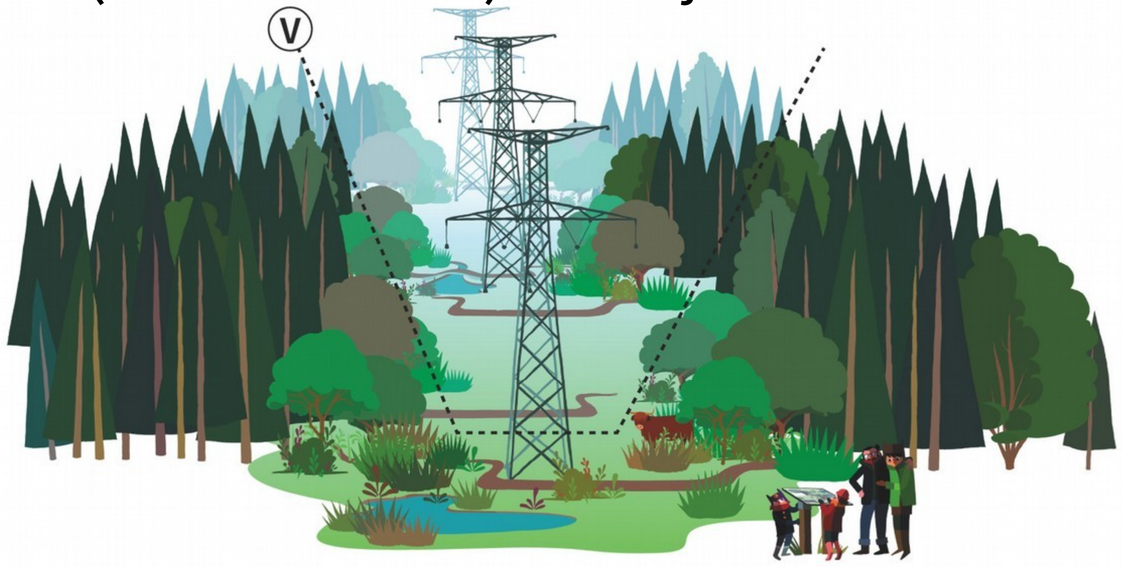


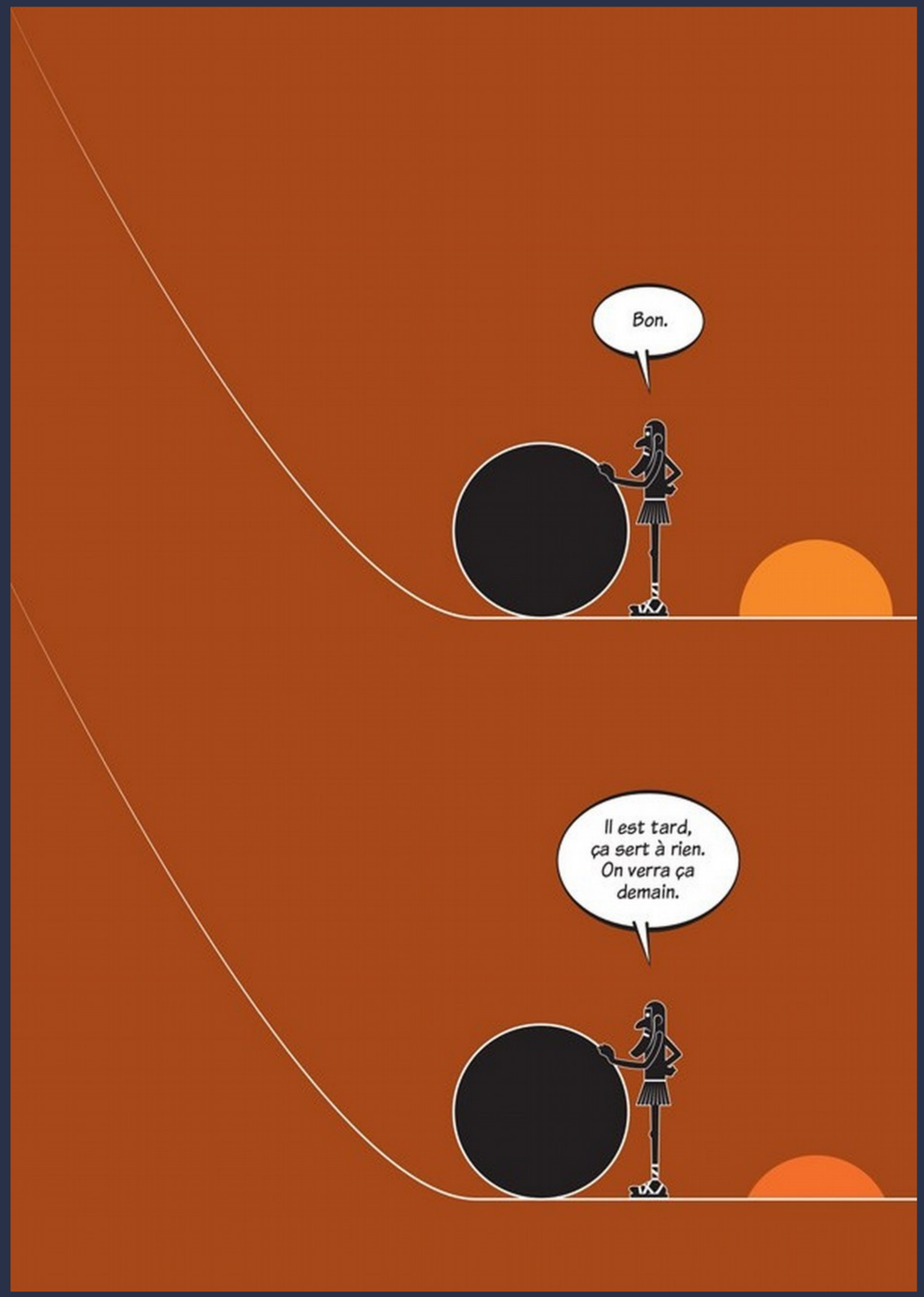
A true sysyphus work!!

Vegetation management of forest corridors: wrong strategy?



Better procrastinate and let the nature (and a LIFE team) do the job!





“Well”

4

“It’s late.
It’s useless.
We’ll see that tomorrow”

1. After last intervention of Elia
2. Deep action on the soil (destroy tree roots)
3. Sown local mix of seeds
4. Commitment between local farmer and Elia
5. Long-term management (AgroEnvironmental Packages ↔ good practices)

LIFE Elia-RTE in a nutshell: Layman report
(http://www.life-elia.eu/en/Layman-report)

LIFE Elia-RTE

Layman's report

Creation of green corridors for biodiversity under high-voltage lines

LIFE10/NAT/BE/709

life elia

The LIFE programme

LIFE means L'Instrument Financier pour l'Environnement [Financial Instrument for the Environment] of the European Union. This programme finances projects related to the environment, nature conservation and climate within Member States. Since 1992, the LIFE programme has co-financed over 4500 projects. During the 2014-2020 financing period, this programme will have financed projects for the environment and climate worth €3.4 billion.

The problem

To ensure the safety of the electrical network and thus avoid any incidents or supply interruptions which could happen, the Transmission System Operator (TSO) must monitor the vegetation that grows in the immediate vicinity of the high-voltage lines.

When high-voltage lines cross forest environments, the TSO manages the vegetation either by rotary cutting1 or by manual cutting. These operations create a sort of vicious circle since in reality they favour germination and growth of the trees' seeds (by the supply of light to the ground and the supply of organic matter in the soil) which will later pose a problem for the electrical wires.

Solutions and the LIFE Elia-RTE project

The LIFE Elia-RTE projects is one of many projects supported by the LIFE programme.

The main goal of the projects is setting up alternative management (V-shaped corridor2) for vegetation under the high-voltage lines in Belgium and France. These innovative methods, replacing conventional management by rotary or manual cutting (U-shaped corridor3) have been presented to the electricity Transmission System Operators in Europe.

Conventional vegetation management

Alternative vegetation management

The LIFE Elia-RTE project

6.5 years (2011-2017)

€3.2 M

Financing: 36% European Commission; 25% Wallonia; 24% Elia; 15% RTE

Persons: 7

Sites: 28 Belgium, 7 France

ha restored: 486 Belgium, 42 France

Field actions: 7

European countries: 18

The 7 actions of the LIFE Elia-RTE project have in common to favour biodiversity and to limit or even prevent the growth of trees which, depending on their height at maturity, constitute a threat to the safety of electricity power lines.

The idea is therefore to implement these actions, where relevant, and then manage the vegetation in the long term with appropriate methods.

7 actions

Actions

	Results obtained
Forest edges	273 ha
Orchards	24 ha
Natural habitats	100 ha
Combating invasive species	28 ha
Grazing and mowing	68 ha
Flowering meadows	34 ha
Total	**528 ha**
Ponds	175 ponds

1 Planting and restoration of forest edges
2 Planting fruit trees of wild and local species
3 Restoration of natural habitats protected by the "Habitats" European Directive (bogs, moors, chalky grasslands and lean meadows)
4 Digging of ponds
5 Establishment of a pasture or mowing
6 Combating invasive plant species
7 Harvesting seeds, sowing and mowing of flower meadows

Results obtained

60 Municipalities concerned

220 Private owners involved

27 Active farming operators under the lines

20 Contracted hunting organisations

138 km High-voltage lines restored

3 complementary networks

The electrical network

The high-voltage electrical network (from 1,000 to 400,000 Volts in general) carries electricity from the place of production to large users (industries) and to the electricity distribution network. This network supports the energy transition since it has to adapt to the new renewable energies produced in various locations of the country. The Transmission System Operator is responsible for its maintenance and therefore for the vegetation which grows under the electrical power lines.

The ecological network

The ecological network consists of core zones (zones where biodiversity is the richest), buffer zones (zones bordering the core zones) and liaison zones (zones necessary for movement of animal and plant species from one core zone to another). These liaison zones can be continuous or discontinuous.

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LIFE Elia-RTE in a nutshell: 13’ movie (http://www.life-elia.eu/en/Gallery)

Following Likes About More Edit

LIFE Elia-RTE : le film (FR)

LIFE Elia-RTE | 239 plays

LIFE Elia-RTE in France (VF STEN)

LIFE Elia-RTE | 193 plays

"Sustainable Partnerships" Award 2016 for the LIFE Elia-RTE pr...

Partnership between LIFE Elia-RTE and REN

LIFE Elia-RTE in a nutshell: posters @IENE2018 (Nr. **38**, **39** and **40**)

Previous

LIFE *ELIA-RTE* project
Creating green corridors under overheads lines

http://www.life-elia.eu/en/

Online user-friendly management plans at a wide scale

Jean-François Godeau
jfgodeau@gmail.com (Ecofirst s.c.r.l)

The management plans of LIFE Elia-RTE sites is an open-source web platform containing useful documents for the future management of natural habitats, providing interactive web maps, the timing, and the description of management plans for 460 hectares of the right-of-way of the high voltage network.

1 – Mapping and planning
Build database and Geographic Information System (GIS) with all relevant information

2 – Implementing actions
Choose the most suitable actions for habitats.
Consult land owner, managers, network operator for agreement.
Select sub-contractor and conduct work.

3 – Management plan
Avoid unreadable enormous documents !
Should update data sources and document itself.
Accessible to various stakeholders (including non-specialists) at different places.
Disseminate best practices advises.

Practical publications for best practices (download from www.life-elia.eu

Our solutions : see the demo

Belgium
Hosted on GitHub (Jeckyll)
Webmaps (R + leaflet)
One document for each parcel

France
Webapp (Shiny)
Webmap (leaflet) with pictures
One document for each parcel
Direct link to all needed documents

The LIFE ELIA-RTE project is co-financed by the European Commission

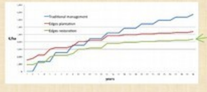
LIFE ELIA-RTE project
Creating green corridors under overheads lines

http://www.life-elia.eu/en/

Convincing significant industries: A case study on the set up of a cost-benefit analysis and communication tools under the high-voltage network

Simon de Voghel and Jean-François Godeau*
*: jfgodeau@gmail.com (Ecofirst s.c.r.l)

Key message
Innovative vegetation management (VM) of high-tension network lines requires fewer costly maintenance activities as relatively stable plant communities are established and plays a role in decreasing re-invasion by trees. Two significant tools were set up to convince large companies such as Transport System Operators (TSO):
a **cost-benefit analysis** and a **communication strategy**



The cost-benefit analysis showed that **innovative VM is cheaper (1.4 to 3.9 times on thirty years)** than the traditional VM.
The **communication** was achieved through publication of best-practices documents, booklets, staff training, on-site didactic panels, observation facilities, conferences, papers and a networking campaign towards seventeen TSOs throughout Europe.

Actions	Comparison traditional management/LIFE method returns on investment	with WACC = 5% after 30 years
Flushed edges	5 years	1.1 times cheaper
Removal edges	5 years	1.1 times cheaper
Pastourage	6 years	1.0 times cheaper
Pastourage w/ burn conditions	5 years	4.7 times cheaper
Mowing	6 years	4.9 times cheaper
Natural turnover (wetlands)	9 years	3.9 times cheaper
Natural turnover (pastures)	9 years	3 times cheaper

Download the fully detailed cost-benefit analysis on our website:
http://www.life-elia.eu/en/brochure-n-2-Cost-benefit-analysis-118

The project in a nutshell through a 13' movie (with English subtitles)
Browse to http://www.life-elia.eu/en/Gallery

Context and methods
The challenge for the maintenance team of TSOs is to guarantee safe and reliable electricity to users for the least cost while minimizing environmental impacts.
A traditional VM of forest right-of-ways (ROW) is achieved by regular mulching or manual tilling potentially dangerous trees, which has two main consequences: it creates an open space free from vegetation and enriches the soil by providing nutrients. As a consequence, it **promotes the regrowth of trees!**
An innovative VM was developed in Belgium and France during the "LIFE Elia-RTE" project (2011-2017).
The goal was to **combine electrical safety with the promotion of biodiversity**.

LIFE+ Biodiversity program is co-financed by the European Commission

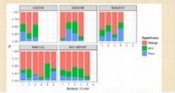
LIFE *ELIA-RTE* project
Creating green corridors under overheads lines

http://www.life-elia.eu/en/

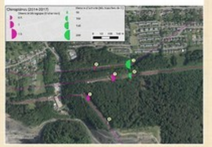
Measuring bat activity in forest power lines right-of-ways

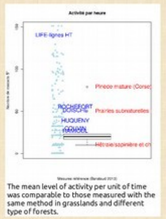
Jean-François Godeau
jfgodeau@gmail.com (Ecofirst s.c.r.l)

We used a standardized process that **evaluated the type of individual activity** (hunting, moving, social interaction) in addition to **species identification**, which allows us to compare results with published data. We detected at least **9 bat species, including 3 species belonging the Natura 2000 directive** of patrimonial value in the European Community.
We stress the importance of right-of-way for **feeding and traveling** for most of the bat species.
The **level of activity** we found is comparable to the activity measured in high-value grasslands published by Barataud (2013).

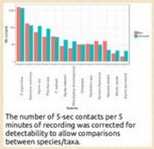


The type of signals of the common pipistrelle indicated idiosynchrasic nuances between sampling sites:
- QFC signals are used when a bat is traveling
- FMAppl signals are used when hunting
- trans = transition between the two previous types of signal
The map below illustrates the site 'Ramioul'

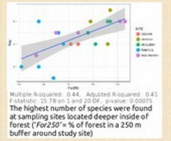




The mean level of activity per unit of time was comparable to those measured with the same method in grasslands and different type of forests.



The number of 5-sec contacts per 5 minutes of recording was corrected for detectability to allow comparisons between species/taxa.



The highest number of species were found at sampling sites located deeper inside of forest (*'For250'* = % of forest in a 250 m buffer around study site)

Method
We recorded ultra-sounds of bats with a **Petterson d240x** detector coupled to a Roland recorder during 4 years on5 sites (44 sampling points) with a standardized method to **measure bat activity.**
Analyzes performed using Wavesurfer (open-source freeware), allowing a personalized screen configuration and convenient scrolling through the 5 min file. Results were analyzed with R.

Hunting activity was mainly occurring during 2 first hours after sunset

Social calls activity started mainly 2 hours after sunset (2ème part of the night)

The LIFE ELIA project is co-financed by the European Commission

New LIFE project at the European scale Grid4LIFE

6 countries so far, but the full proposal has to be written out!
Any idea? jfgodeau@gmail.com

Next

Thank you for your attention

Jean-François Godeau
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Ecofirst s.c.r.l. (LinkedIn – website soon)