

GLOWEE, A BREAKTHROUGH INNOVATION

Glowee, enlightened by the sea. Getting inspiration from living beings to reinvent the way we produce, consume and illuminate is Glowee's ambition. With a living, unique, natural, magic, infinite and ecological source of light, we offer you a radical change in the way of using light.

Taking its origin from the Artscience Prize, a student competition in a design school in 2013 and created by Sandra Rey, **who was designated one of the 10 best french innovators by the MIT**, Glowee gathers today a team of 15 passionate and multi-disciplinary members, with various skills in biotechnology, synthetic biology, biochemistry, design, finance and business development.

TECHNOLOGY

- Glowee uses **bioluminescence**, a chemical reaction ruled by a gene that allows more than 80% of marine living organisms (squids, seaweed, jellyfish, etc.) to produce light.
- We use genes coding for bioluminescence in **bacteria living in symbiosis with squids**. These genes are inserted in common bacteria which are non toxic and non pathogenic.
- Once we have **engineered and grown these bacteria**, they are encapsulated into a transparent shell with a nutritive solution and all the elements they need to grow and produce light.

VISION

Glowee is a **living source of biological light** which challenges the traditional modes of electric lighting. We aim to :

- **Reduce the ecological impact of lighting**, which represent 19% of global electric consumption et 5% of CO₂ emissions.
- Bring light to people and places **which do not have electricity today**.
- Reduce electric consumption, visual pollution and luminous pollution.

USES

Glowee's vision is not to entirely replace electric light with bioluminescence but to use it as an alternative solution able to reinvent many uses of light.

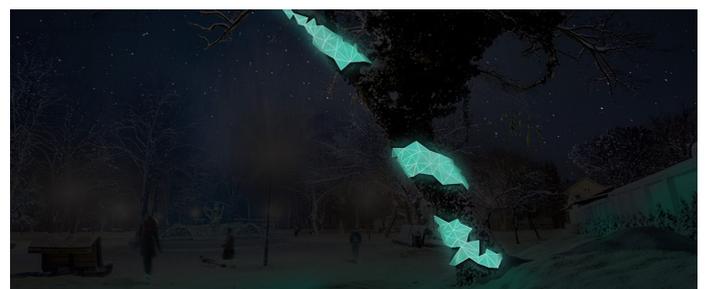
We identified three types of uses for light.



Where there's a commercial added value
Shop windows, event industry, etc.



Where electric light can be replaced
Monuments, building facades, street furniture, signage, etc.



Where you can't bring electricity
Festivals, natural reserves, construction sites, emergent countries, etc.

PRODUCTS

Glowee initiated an intensive research and development program to enhance light performance and widen its uses. **Our bioluminescent raw material can take different aspects and be encapsulated into many containers.** Therefore Glowee develops several types of products and technologies to address the challenges implied by many uses of light.

GELLED AND ENCAPSULATED LIGHT

First products developed by Glowee consist in **gelifying the material composed of bacteria and nutrients and encapsulate it into transparent shells.** A wide range of forms are possible with this technology.



Product encapsulated into standard-sized rigid supports (lightboxes)

LIQUID LIGHT DISTRIBUTED BY BIOREACTOR

Our bioluminescent raw material can take a liquid form, so we develop **bioreactors which can control the level of bacteria and nutrients in the system, refill and clear it out** when it is necessary and thus last much longer.

This type of bioreactors is already developed with microalgae on building facades for thermal regulation or CO₂ capture.

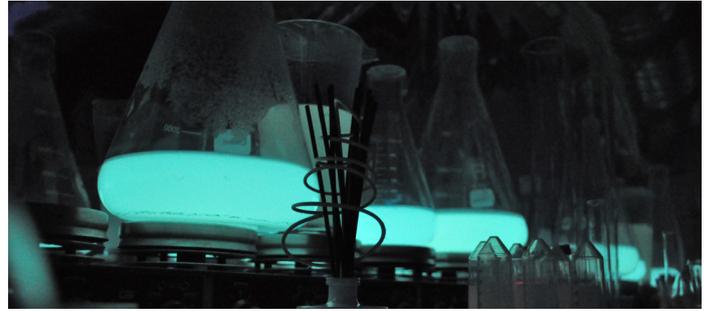
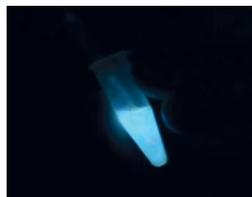
They have many benefits when there's used with bioluminescent bacteria culture : adaptability to the architecture, local energy recovery, long distance monitoring.



BACTERIA-FREE BIOLOGICAL LIGHT

For BtoC uses or in particular environments, Glowee also develops a **liquid system without micro-organisms, using only the proteins they produce.**

Proteins, once they are purified, are melt with a substrate to generate biological light. This product can be re-loaded more easily and thus offers new possibilities of uses.



ENLIGHTEN THE STATION

- With an annual electric consumption of more than 5TWh and an emission of 85 000 tons of CO₂, **cities are the ideal place to rethink the use of light.** We believe there is a third way between intensive electric light and a total black out.

- **glowinthecity is a new way of enlightening the city,** with a soft light which consume not or few electricity, which respect the environment and ecosystems, which provides visual confort to the human eye and which can perfectly be integrated in the urban landscape, with very light infrastructures.

- **Glowee's bioluminescent raw material can be cultivated infinitely, take many forms and respond to a wide range of uses :** urban furniture, signage, building facades, night lights for shop windows, etc. It is a functional light but it is also an object-light, which offers a unique experience to those who look at it and which can be enhanced with scenography and in artwork.

- With 2 billions users crossing their buildings every year and with many activities within their walls, **french train stations are like small cities that encounter the same type of issues with lighting.** They constitute great fields of experiment for an innovative and ecological solution like Glowee.

- Glowee can develop products and systems to **enlighten shopwindows,** to create **relaxing areas** with its soothing blue light, to illuminate dark spaces like **tunnels or technical locals,** to build **bioluminescent furniture** and many others uses we could imagine together.

