

## Peafowl Solar Power

Designable, sustainable and economical solar cells with extreme absorption capacity

Solar power has potential to contribute significantly to fulfilling the global energy demand, but existing technologies have issues with sustainability from a life cycle perspective and are limited both by high cost and aesthetic requirements. Development of affordable, efficient, designable, stable and sustainable solar cells is key to solving this.

Peafowl Solar Power is a spin-off from Uppsala university, Sweden, that has developed a new kind of solar cell that shows promise to meet these demands. The photovoltaic effect of the Peafowl Solar Cell is based on different physics that does not have the same inherent limitations as previous technologies.

### Technology

The uniqueness of our technology is the use of plasmonic nanoparticles (LSP) as light absorbers. **These structures can absorb up to tenfold more sunlight than other materials.** Their sunlight spectrum absorption is easily tuned by changing particle morphology.

In conventional photovoltaics one photon excites one electron. In the plasmonic cell, **a photon can generate several electrons** due to the *localized surface plasmon resonance*, which is a fundamentally different mechanism. The theoretical limitations for power generation that applies to conventional photovoltaics are therefore not applicable here.

The cell itself consists of three layers, of which the plasmonic nanoparticles are in the middle layer. There are several options for manufacturing but printing the cells appears to be a cheap and scalable solution.

### Business opportunities

The primary market that has been identified are low-power, off-grid applications, typically powering sensors, processors, transmitters or displays of IoT devices. There are also opportunities related to smart windows, off-grid building integration, automotive, airspace, and radio-frequency antennas.

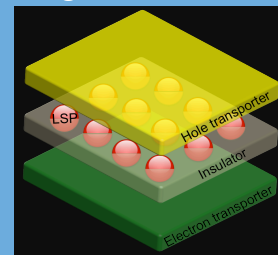
### Business Model

We aim to develop our cells for specific applications together with pilot customers and partners that can contribute with resources and know-how in up-scale manufacturing. For the future we consider licensing our technology and/or selling components for production of our cells.

## THE PEAFOWL SOLAR CELL

### KEY FEATURES

- Extreme absorption capacity
- Economical
- Sustainable
- Outdoor stability
- Lightweight
- Highly transparent and flexible design
- Functional in low light



### SPECIFICATIONS

1-10 Wh/m<sup>2</sup>  
0,8-1 V  
> 90% transparent

### PATENT

PCT/EP2018/057923

## PEAFOWL SOLAR POWER AB

### FOUNDED

2018

### TEAM

Dr Jacinto Sá (CEO)  
Dr Cristina Paun  
Dr Marina Freitag

### WEB

peafowlsolarpower.com