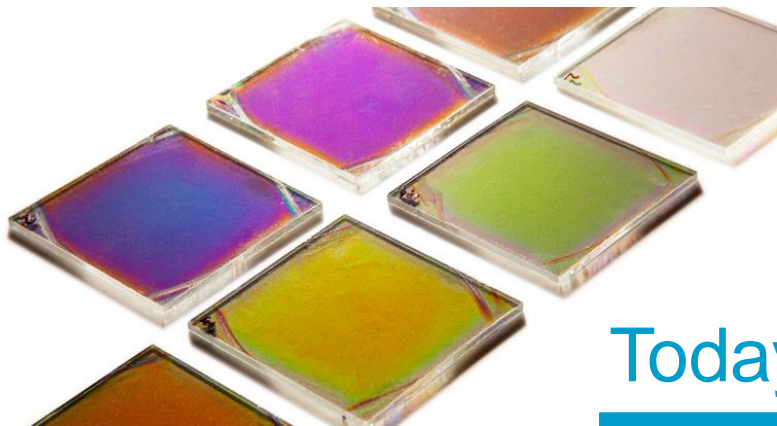




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NLAB SOLAR  
in brief

# Overview



## Today

**Objective**  
"to produce solar cells using established technology as cost efficiently as possible"

### Breakthrough of cutting edge technology

- Crystal clear breakthrough (1DPC) for transparent DSC
- Disruptive technology (HEFFA) for non-transparent DSC

**2008** *Founded*

### Founding partners



**2014**

**Corporate vision**  
"One of the world's leading third generation PV companies"

### Future outlook

**Technological vision**  
"One square meter of façade will provide electricity for one square meter of office space"

**Commercial vision**  
"Large scale manufacturing established in the Middle East in 2014"

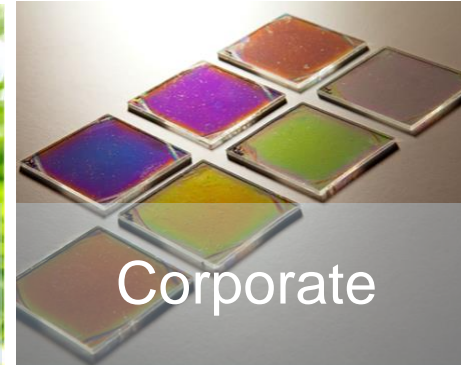
**Operational vision**  
"Projected investment for 200MW plant below 30M€"

# Investment attractions


## Breakthrough of cutting edge technology

<p>1. Technological leadership</p>	<ul style="list-style-type: none"> <li>NLAB Solar holds cutting edge technology through its patented transparent and non-transparent DSC</li> <li>Patented technology enables world record light harvesting capacity, enhancing solar-to-electric energy conversion efficiency of transparent and non-transparent DSC significantly</li> <li>Patented technology enables low cost structure of input materials and durability tailored to suit demand</li> <li>Framework for efficiency in place</li> </ul>
<p>2. Flexibility in design</p>	<ul style="list-style-type: none"> <li>Flexible design with no limitations in patterns, graphical design and different colors</li> <li>Possibility to use rigid substrates such as glass or flexible substrates such as plastic or metal foil</li> </ul>
<p>3. Proven production technology</p>	<ul style="list-style-type: none"> <li>Screen printing is a standardized and proven method for mass production used in printed electronics</li> <li>Enables commercialization and scaling of a previously small scale lab generated DSC</li> </ul>
<p>4. Cost effective manufacturing</p>	<ul style="list-style-type: none"> <li>Manufacturing does not require elaborate equipment</li> <li>Scalable to terawatts due to availability of raw materials</li> <li>Homogeneous machinery enables flexibility and interchangeability in production line</li> <li>Projected investment for 200 MW plant below 30M€</li> </ul>
<p>5. En route opportunities</p>	<ul style="list-style-type: none"> <li>NLAB Solar will be able to commercialize on output products from each R&amp;D phase</li> <li>Potential en route applications include consumer electronics and portable devices</li> </ul>
<p>6. Vast market potential</p>	<ul style="list-style-type: none"> <li>End-use areas include construction (BIPV, BAPV), automotive (AIPV), consumer electronics and power plants</li> <li>Contacts and relationships with customers and end-use industries well under way</li> <li>Commercial collaborations with the largest façade and construction companies in the Northern Europe such as Fasadglas Bäcklin, Skanska etc.</li> </ul>
<p>7. Strong intellectual property rights</p>	<ul style="list-style-type: none"> <li>NLAB Solar has patents and patent applications on materials, core methods and product applications</li> </ul>

# Collaborations



- EPFL Lausanne, Professor Michael Grätzel
- National Research Council of Spain, Professor Hernán Míguez
- Aalto School of Science
- Danish Technological Institute
- Ångström Laboratory
- IVA (The Royal Swedish Academy of Engineering Sciences)

- Swedish Energy Agency
- European Commission Under the LIFE+ Project 
- Nordic Innovation Center
- Vinnova (Swedish Governmental Agency for Innovation Systems)

- Fasadglas Bäcklin, largest façade company in Northern Europe
- Major car manufacturer
- Undisclosed Consumer Electronics supplier
- Snöhetta Architects

- Global construction companies
- Major chemical companies
- Power and energy companies

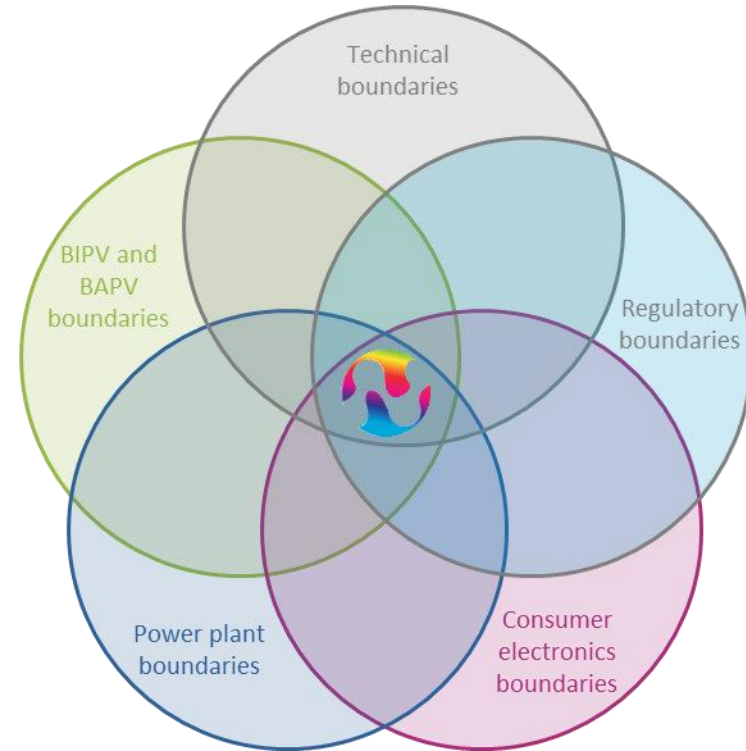
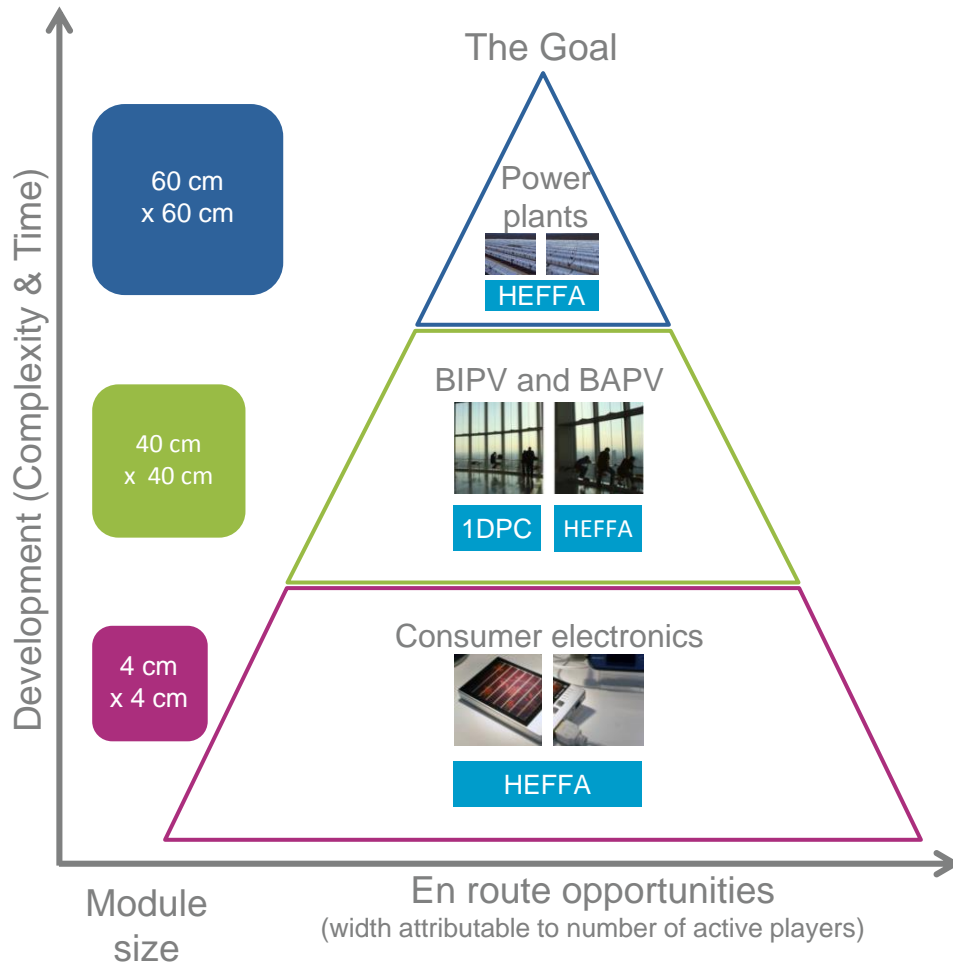
*“It makes me very happy to see the recent developments of NLAB Solar, a strong management and great technological knowledge together with its collaborations will shorten the time to market substantially. The entire DSC business is at the verge of a commercial break-through and NLAB Solar together with its partners has a strong position and can advance rapidly”*

Professor Michael Grätzel, inventor of the DSC and the winner of the Millennium Technology Grand Prize in 2010

# Technological roadmap

En route opportunities

Boundary conditions determining positioning



NLAB Solar's positioning accommodates the boundary conditions of the market, technology and regulations



## **Contacts**

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