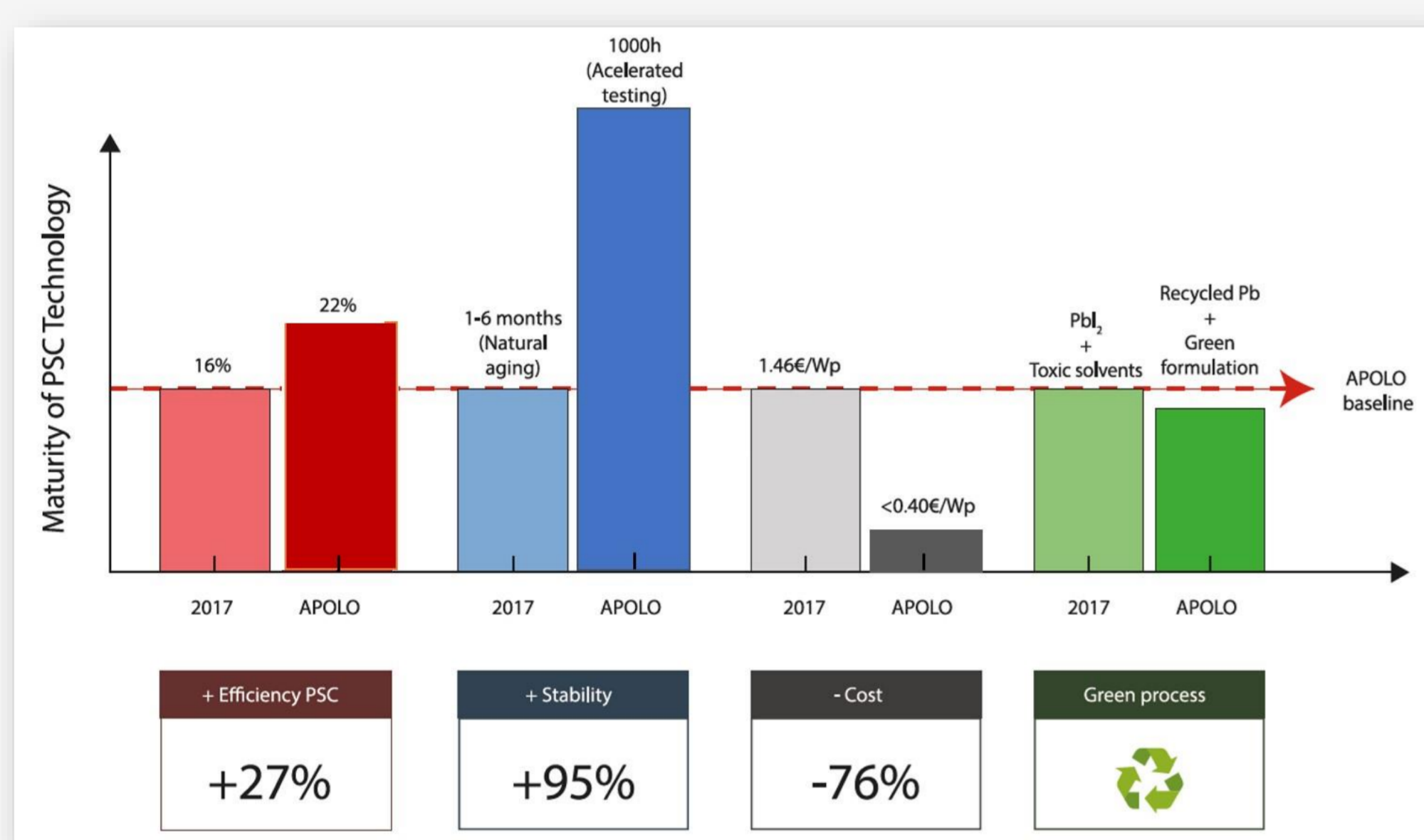







ABOUT THE PROJECT

Perovskite solar cells (PSC) have shown an impressive learning curve in the last decades in comparison with 1st, 2nd and initial 3rd generation solar cells. Since the very beginning, the main market demands for 3rd generation PV were more flexibility and more colour choices. Both ideal properties lead to new business opportunities in BIPV, electronic consumer goods, textiles, etc. These technologies also have low cost using fully printing process, low temperature processes and out of clean rooms which reduce the production cost. The most important problem in PSC technology is the short lifetime which is currently the main barrier for the marketability of PSC. Up to now all the developed PSC used cheap materials and/or solution did not exhibit high efficiencies. In contrast high efficiency PSCs usually require relatively expensive materials and vacuum deposition process. PSC toxicity is considered to be negligible since the amount of lead in perovskite layer is not so relevant if it is compared against Si technology, nevertheless, the solvent toxicity should be taken in account in order to benefit industrialization of PSC products. APOLO project pretend surpass the aforementioned barriers for market deployment by providing flexible and stable PSCs using scalable and low-cost processes, reducing amount of toxic materials tackle the challenges to provide market niches solutions. APOLO consortium works on advanced materials, from cell to encapsulant to develop flexible PSC, fully printable, with efficiency of 22% with at least 80% of initial performance after relevant accelerated test from standards. APOLO solutions will allow the development of a totally new product by integrating the modules into the architecture design of buildings. New applications of this technology open doors to other markets apart from BIPV, such as automotive, textile, etc.

APOLO OBJECTIVES

APOLO aims to develop a new generation of flexible perovskite solar cells



-  Reliable
-  Fully printable
-  High efficiency
-  Stable in from ageing tests
-  Low cost

THE TEAM

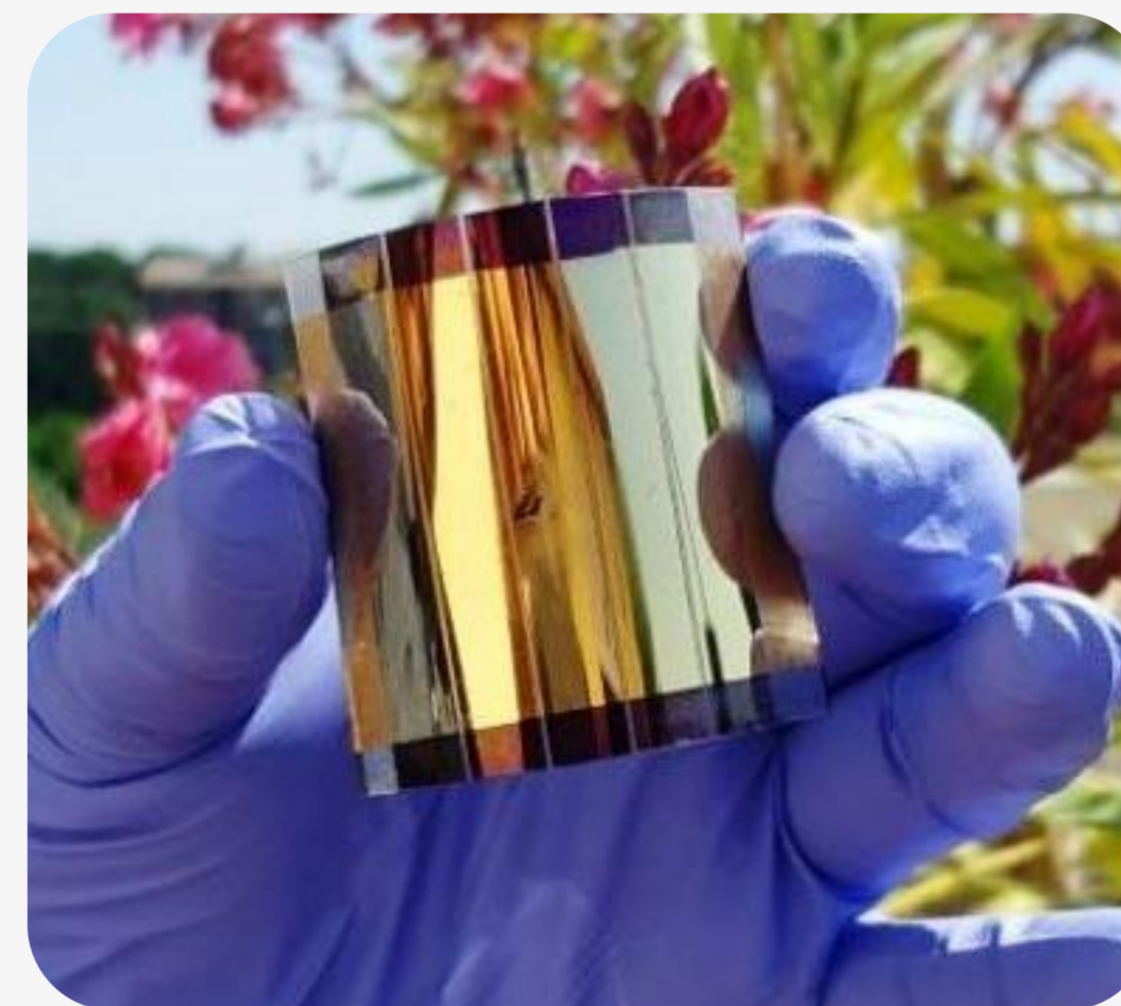
APOLO consortium cover almost the whole value chain of perovskite solar cells, with industrial partners from materials providers (ARKEMA), cell designer and manufactures (GreatCellSolar) and final end users (FLEXBRICK) combined with social assesment (RELATIONAL) for market breakthrough and end of life solutions (AC). These companies collaborate with 6 RTOs (LEITAT), Fraunhofer, UNINOVA, CEA, EPFL and UNITOV) toward strengthening European Photovoltaic leadership in line with their business and strategy plan.



HIGHLIGHTS

The new generation of photovoltaic cells

- ✓ Advance materials development (*new HTM, antisoiling coatings, interface layers, new encapsulants*)



- ✓ Utilization of green processes for flexible devices (*printing scalable techniques, green solvent engineering*)

- ✓ Smart encapsulation for a more stable technology

- ✓ Optimization of a complete recycling process dedicated to Perovskite Solar Cells



- ✓ Significant cost reduction for market entry (*continuous economical and environmental assesment trough LCA, LCC and LCOE analysis*)



- ✓ Integration into building products and other new markets