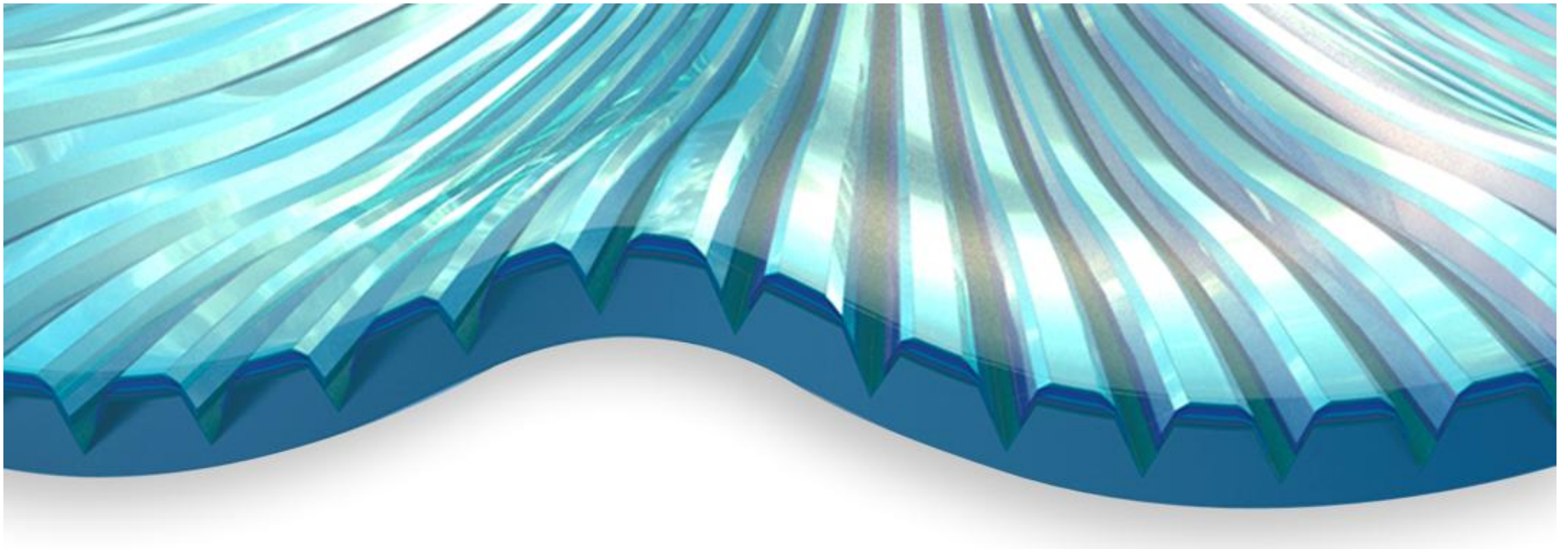


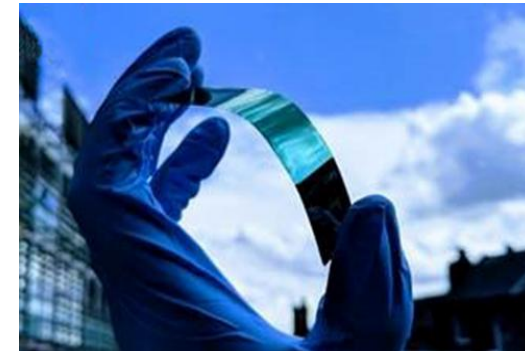


**An ultra low cost solution for energy generation and storage**

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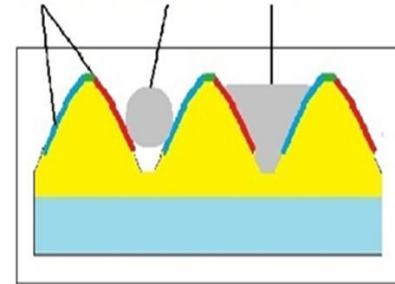


- Power Roll is a **unique and patented solution** for **two terminal electrical devices**
- Current focus on **solar power generation** and **energy storage** applications
- Derived from stealth technology utilising a dense pattern of micro grooves in a plastic substrate - **thinner than a human hair**
- Manufacturing is based on **simple and scalable Roll-to-Roll processes** used in other sectors – simplicity of this process drives down production costs and increases throughput
- **Materials agnostic** – i.e. most existing materials used in current equivalent technologies can be - deployed more effectively using our architecture
- The **technology is verified** by independent and reputable research bodies and is underpinned by a **strong patent portfolio – 19 patent families granted in 48 countries**
- Both **technologies** have been **demonstrated** and strategic partners/investment required to **scale up and commercialise**
- **Significant commercial traction** – on both technologies
- **Strong management team** - with a track record of delivering shareholder value



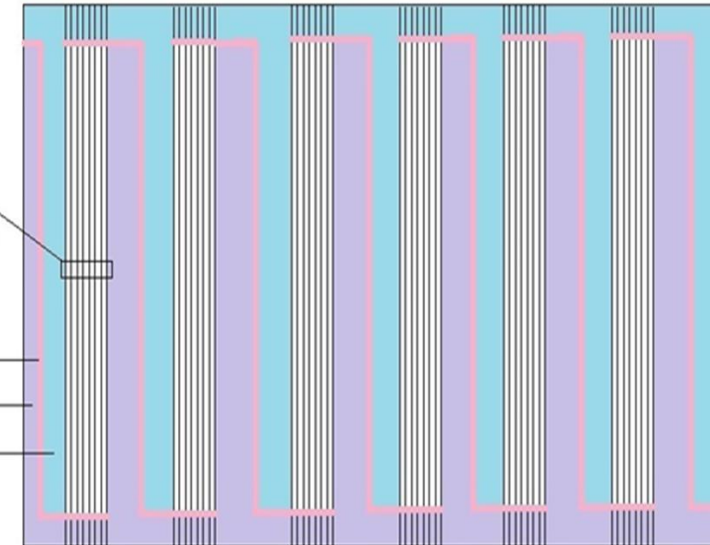
- Ingenious and unique microgroove architecture
- Eliminates many of the process steps used by other flexible pv companies
- 5x cheaper to manufacture – 40% cheaper to install – 2X shorter payback period = **40% lower LCOE**
- Simple, scalable and fast Roll-to-Roll manufacturing
- 25x lighter and 110x thinner than silicon pv
- Voltage and power flexibility and lower impact of shading / defects

The selectively coated metals make cavities that can be filled with suitable materials for photovoltaic applications. Materials; particulate continuous

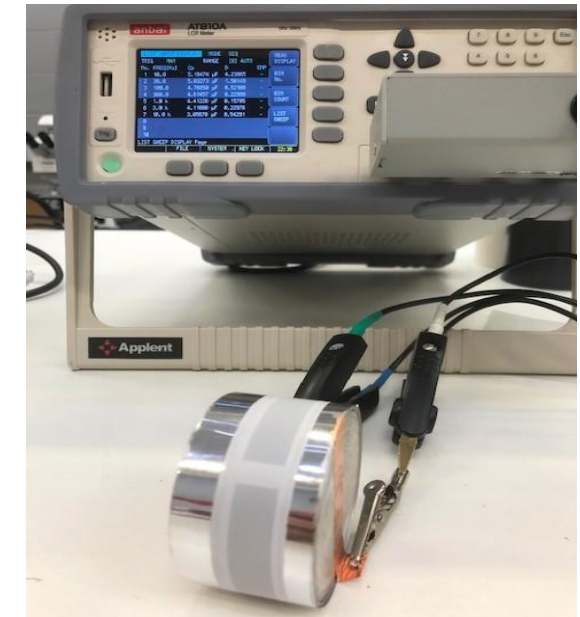


Expanded cross section of the embossed structure showing how metals can be connected at the top of the structure while leaving the bottom un coated. This cascades the structures allowing higher voltages to be used or generated

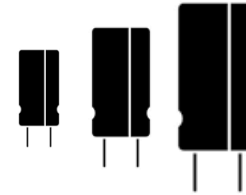
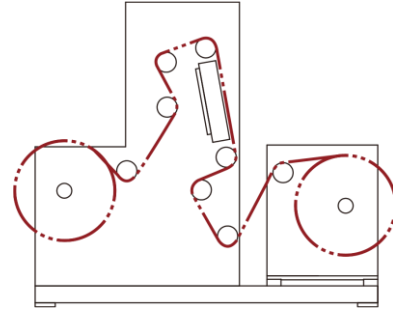
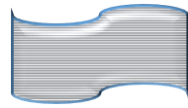
Schematic representation of the patterned surface showing the embossed areas and how the cascades can be connected using simple demetalisation techniques along the lines indicated in pink. This leaves the positive and negative rails accessible via the top and bottom edges for easy connection.



- Unique design creating a single advanced film for storage applications
- Simple and low cost manufacturing process
- Proven integration into existing production processes
- Materials agnostic - working demonstrators produced with multiple materials
- Multiple form factors
- Numerous technical benefits to existing capacitor technologies



Enhancing incumbent capacitor solutions

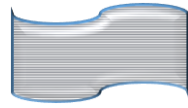


Energy storage film

Existing roll-to-roll process

Enhanced Power Roll capacitors

Storing energy in flexible forms

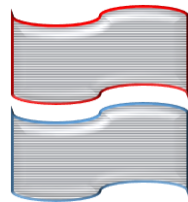


Energy storage film

Bespoke processes

Flexible form factors for integrated storage

Hybrid energy scavenging and storage

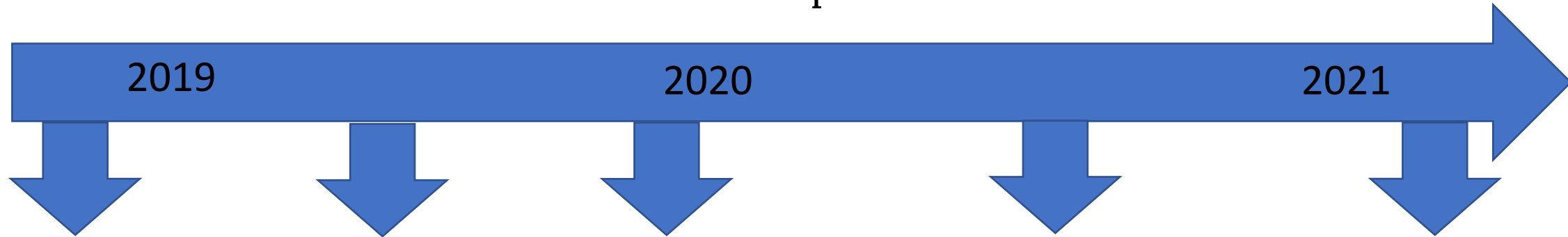


Energy storage and solar pv films

Integration process

Energy scavenging and storage for sensors

Commercial Roadmap



**Capacitors/JV in India**

**Advanced energy film licenses**

**Small scale flexible pv**

**Large scale flexible pv (rolls)**

**High energy storage**

Status

Secured

In Progress 10+ Companies

Approaching the Market

2020/21

2021+

Applications

Power Supplies  
Motorstart  
White Goods

Consumer  
Industrial  
Military

IoT/Sensors  
Picosolar  
Off-Grid

Commercial Rooftops  
Military  
Portable Power  
Transport  
BIPV

Automotive  
Military  
Transport

Market

India & Neighbouring

Global

Global

Global

Global

- **£7m of equity investment** raised from HNW investors to date
- The company is raising **£4-5m** of investment in two tranches:
  - **Interim raise** from existing and a small number of individual investors - **£1.5m – secured June 2019**
  - **“Institutional round” - £3-5m – next 9-12 months**
- In addition, this **funding is leveraged** with the following:
  - £1.0m of secured grant funding with more pending
  - £0.9m in R&D tax credits
- Investment will accelerate development of;
  - **First revenues** with overseas JV and other third-party license income from capacitors
  - **Roll to roll pilot demos for solar pv** and securing first scale up and licensing partner
  - **High energy storage demonstrators**
  - Progress and engage with strategic manufacturing partners **to exploit larger commercial royalty opportunities**

Innovate UK



Department for  
Business, Energy  
& Industrial Strategy



*Any questions ?*

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