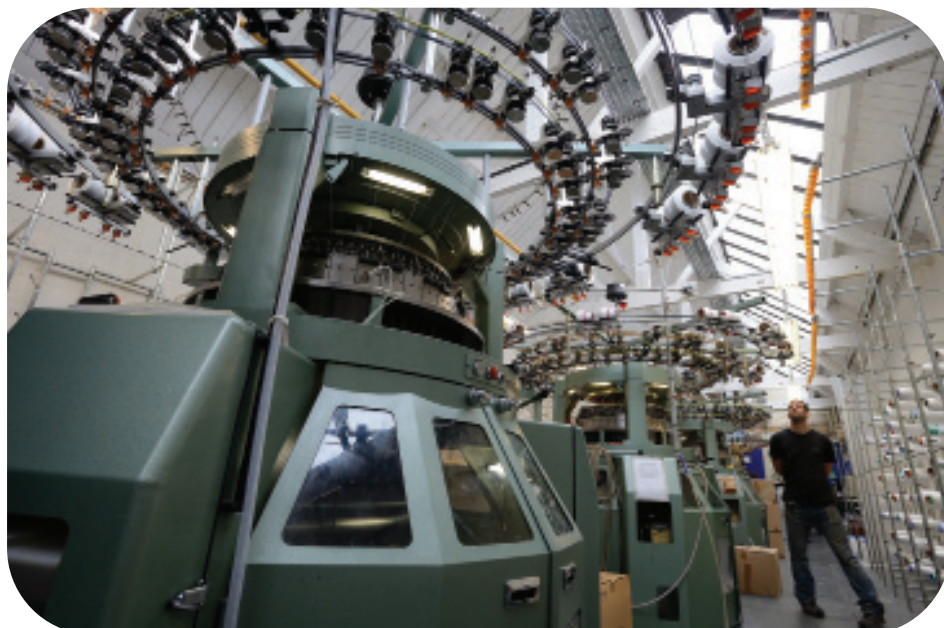


FIBRLEC – harvesting energy with smart materials:



At a glance: By coupling flexible solar cells with piezoelectric material in a hybrid and relatively low cost film/fabric structure, energy can be economically harvested from movement generated by wind, rain and light energy.

With many applications “FibrLec” material, based on flexible, extruded polymers, is expected to be a “game changer” in renewable energy. (FibrLec Ltd. was formed in March 2013 to commercialise enabling materials and technologies for low-cost renewable energy sources.)

Challenge: To integrate organic voltaic cells with polymeric piezoelectric material, thus overcoming the fragility/durability and cost issues with current technologies.

Approach: With deep expertise in smart materials science, Bolton’s Institute of Materials Research and Innovation (IMRI) developed novel technology integrating piezoelectric polymer substrate with a photovoltaic coating in a hybrid textile.

Materials chemistry and a new continuous process were key to creating a flexible structure, featuring conducting organic polymers.

Benefits: The piezoelectric polymeric substrate and photovoltaic coatings are able to transform both mechanical energy and light energy, to provide enhanced functionality.

The piezoelectric or hybrid films and fibres can be incorporated in textiles for a wide variety of applications - such as smart floors, energy generating carpets, backpacks, tents and sails. The technology also points towards future “self-charging” wearables, cellphones, laptops and tablets etc.

“FibrLec” material is significantly cheaper and much more durable and flexible than traditional photovoltaic devices.

KCMC support: Research resource that secured IP - plus equipment investment.

Timeline: First hybrid film/fibre device unveiled in 2010. Commercialisation of “FibrLec” for various applications is ongoing.