Triboelectric Energy Harvesting (TENG) 2017-2027

Description: There are excellent summaries of the rapid academic progress in triboelectric energy harvesting including record breaking parameters achieved in record-breaking time from its inventions in 2012. There is now a deluge of proof-of-principle demonstrations for highly imaginative applications from microwatts to megawatts, millimetre devices to a one square kilometre blanket on the sea but what is the true situation in terms of feasibility and market potential for the devices and materials? What are the most commercially promising designs being progressed? What are the most important impediments to commercialisation and what should be done about them? What are the materials and device opportunities? Here are the answers.

In a world first, the analyst has researched the technological roadmaps, conducted interviews, created forecasts and assessed materials opportunities from an industrial viewpoint. The report identifies gaps in the market and prioritises impediments to be overcome.

The report navigates the often misleading jargon and double meanings and surfaces the big issues and opportunities with easily grasped infographics. This is a report for investors and materials and device makers. It will assist those planning to use the devices and merge them with their own and governments apportioning research funds. Those in green technology will be able to grasp the opportunity and the challenges without being blinded by mathematics.

After a self-sufficient "Executive summary and conclusions" for those who only have time for this, there is an introduction entirely aimed at commercialisation not history or nostalgia.

The "Introduction" then explains energy harvesting and specifically triboelectricity and the modes of operation and devices resulting, relating these to other forms of electrostatic and other energy harvesting to reveal lessons from the real world. The chapter on the "Focus of Research" summarises and assesses claims using detailed new comparison charts and infographics. Both individual TENG power sources and integrated TENG sensors are assessed.

Chapter four is particularly thorough in addressing "Commercialisation opportunities for TENG devices" based on global visits and privileged data from PhD level IDTechEx analysts. For example, there are tables comparing the commercially desirable attributes of energy harvesting technologies and how triboelectrics fits in. The analyst shares its new projections of many relevant markets in a chapter on "Potential applications - microwatts to watts" including wearables, microcontrollers, single board computers and the Internet of Things.

The chapter on "Applications from ten watts to megawatts" applies projections for electric vehicles land, water and air etc to the triboelectric capability expected. The report closes with a detailed chapter on "Materials opportunities" relating needs to achievements to reveal gaps in the market. Then the new "Interviews" are exemplified in the last part of the report which comes with 30 minutes of free consultancy.

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