

Researchers develop devices for harvesting energy from flag flutter

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The researchers at Indian Institute of Technology Indore have fabricated small flag based piezoelectric energy harvesting devices,

IIT INDORE

which can be powered by wind at low velocity.

Piezoelectricity is the property of materials to produce charge (or voltage) when stimulated by a mechanical strain. The all-pervasive vibrations existing in the surroundings from various machines are traditional source strain, which can be converted to

energy through piezoelectric crystals.

"The need to regulate usage of lead-based piezoelectric, there is a need to replace it with highly biocompatible and high performance devices. Also, implementation of such energy harvesting devices in real time requires them to be of low impedance," IIT Indore media coordinator Rahul Sharma said.

"To achieve high productivity of such devices, improving flexibility and inducing flow instability are some of critical parameters. Dr Palani's and Dr Vipul Singh's research group at IIT Indore have fabricated an ultra-flexible



lead-free piezoelectric device using bio-compatible material," he added.

The knowledge of aerodynamics of flow around the structure can be of significant advantage to increase fluttering capacity.

These forces are not desirable for structures like bridges and towers conversely we use these forces for development of efficient energy source.

The detaching of discrete vortices behind a bluff-

body immersed in stream is known to generate transverse periodic forces on the structure. The piezoelectric output is directly proportional to the strain produced.

"The fabricated ultra-flexible flag based flutter piezoelectric composite device has been tested under three different flow regimes. It can be used in place where windmill becomes inefficient. Hence, this technology can be used in powering small scale devices," a press release issued by IIT Indore stated. The device stability was ascertained for more than 4500 cycles and found to be stable.

HAPPY WITH LOW POWER BILLS? JOY WON'T LAST LONG

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Many residents are happy to have received extremely low electricity bills and some even in minus but their happiness won't last long.

Western Madhya Pradesh Power Distribution Company stated that the bill amount is low due to technical reasons and would be recovered subsequent months. There was bliss among consumers when they received 60 to 70 per cent less electricity bills this month.

University Zone, Gumashta Nagar Zone, Satya Sai Zone etc people received low bills. In Sangam Nagar Zone, many consumers received bills in minus. Some anx-

ious consumers fearing double the bill amount next month enquired but did not get any satisfactory answer.

A Discom official stated that smart meters were installed at many parts of Sangam Nagar zone last month. Since old reading could not be feed in Smart meters, it was manually noted. That reading was not added so many consumers got lesser bills. With adding old readings, the Discom would make recovery in coming months. In other zones, Discom officials stated that the reason behind low bills was launch of Indria Grah Jyoti Yojana. The government had directed to launch the scheme from February 25. So making it a cut-off date, the Discom released bills for February month.