



# CSIR IN MEDIA

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## Yamuna e-way's human toll zooms to 30 deaths per week

*The permissible speed limit on the stretch is 60kmph for trucks and 100kmph for cars and other four-wheelers*

**Burhaan Kinu /HT file photo**

Thirty people died in road accidents on the Yamuna Expressway every week in 2015 compared to 15 the year before.

The Uttar Pradesh traffic police have for the first time come out with consolidated figures of accident fatalities on the expressway that connects Greater Noida to Agra and is extensively used by residents of the Capital.

Last year, 1,585 people died in motor accidents on the e-way against 801 fatalities in 2014 — a 98% jump. The 165-km stretch accounted for 9% of all road accident deaths (17,666) that year in UP, which has a 25,000-km-long network of state and national highways alone.

Speeding is the lone reason for the drastic rise in fatalities, UP's additional director general (traffic) Anil Kumar Agrawal said Tuesday.



The permissible speed limit on the stretch is 60kmph for trucks and 100kmph for cars and other four-wheelers.

The e-way passes through five UP districts of Gautam Budh Nagar, Aligarh, Mathura, Hathras and Agra. With Aligarh reporting a 365% jump in fatalities — from 85 in 2014 to 396 in 2015 (see box) — Agrawal said its senior superintendent of police has been asked to look into the matter.

Frequent accidents on the e-way that became operational in August 2012 had also prompted the Yamuna Expressway Industrial Development Authority (Yeida) in December 2014 to seek a safety audit. The Central Road Research Institute (CRRI) was roped in for the job and it came up with suggestions for improvement — levelling of bumps above underpasses, new air filling stations, new speed breakers and crash barriers on dividers, high-tech cameras.

A spokesperson for Jaypee Infratech, which operates the e-way, said the CRRI study suggested speeding and sleeping on the wheel as the two main reasons for accidents. It claimed it had complied 100% with the recommendations.

“Three nitrogen filling stations to check tyre bursts have been set up. Besides, rumble strips on 30 points have been installed on the advice of the police of the districts concerned to shake up drowsy drivers. Bumpy stretches have been levelled,” the spokesperson said.

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[www.hindustantimes.com/noida/yamuna-e-way-s-human-toll-zooms-to-30-deaths-per-week/story-A3b56slwAzzhRoymyG7Mkk.html](http://www.hindustantimes.com/noida/yamuna-e-way-s-human-toll-zooms-to-30-deaths-per-week/story-A3b56slwAzzhRoymyG7Mkk.html)

Pawan Pandita | Hindustan Times | Noida | 15 June 2016

## Very large lithium-ion batteries

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### **IDTechEx**

Very large lithium-ion battery banks were largely unknown ten years ago. Now, it is tough to keep up with the variety of uses for them. On ships, where there were no such batteries, we are starting to see 1-5 MWh banks. Autonomous underwater vehicles, mining trucks and buses can sport ones of up to 350 kWh but it is in stationary applications that really big facilities have arrived. Here there is a multiplier effect with Li-ion gaining market share in growth markets.

Grid functions In the case of the relatively new market for very large, ground-based lithium-ion battery packs for such things as grid peak shaving, weight is not a primary issues, volume can matter somewhat but life, cost over life, performance and reliability matter greatly.

For example, Toshiba is serving this market with its titanium dioxide anodes conferring good Li-ion cycle life. The applications include balancing and emergency power supplies for grid outage.

## 20 MW giants

The UK is to test its first battery system to provide grid-frequency after a partnership between energy utility firm National Grid and UK based Renewable Energy Systems (RES) was announced in June 2016. The 20MW battery storage system, equivalent to up to 1000 pure electric cars' batteries, follows six similar ones being installed in the US by REL. It will provide a dynamic frequency response service with a second of a deviation, either higher or lower than 50Hz, being detected. The work is a testbed to National Grid's upcoming tender for 200MW of Enhanced Frequency Response in Great Britain.

## Competing technologies

RES is technology agnostic when it comes to selecting energy storage systems. However, having used lithium-ion for all of its 74MW projects currently operating, there is a strong possibility that lithium-ion will be used for this contract, says the company. This service and the forthcoming Enhanced Frequency Response service will support the network as the UK transitions to a generation mix with greater levels of low cost renewable energy. Competition for large land-based batteries for grid-based applications comes from vanadium flow batteries. Further down the line, Central Electrochemical Research Institute (CECRI) India will demonstrate a zinc bromide redox flow battery for grid level storage of renewable energy in 2019.

## Regeneration

When it comes to large banks of energy storage alongside the railway track for grabbing regenerated electricity on braking, lithium-ion batteries are losing business to "fit and forget" supercapacitors that better harness the huge surges involved. For example, Meidensha took a \$25 million order for part of the Hong Kong Railway regeneration using supercapacitors. To a lesser extent, this is true of very fast charging of buses in transit using gantries at bus stops, whether the buses are propelled by lithium-ion batteries with supercapacitors to protect them or they simply use supercapacitors and are charged faster and more often. In both cases the land-based facility tends to use lithium-ion batteries with supercapacitors across them.

## **Lithium-ion success is ongoing**

Despite all this the penetration of large lithium-ion battery packs into grid and even microgrid applications is inexorable. There is even talk of creating microgrids in parts of cities for those having a problem with the cost and reliability of the grid and reluctant to use diesel gensets with their pollution, cost noise and reliability problems. The global base of diesel gensets is at least 600 GW and the ecological agenda calls for them all to be replaced eventually, the alternatives including solar on buildings, in roads and in parking lot surfaces plus wind turbines and airborne wind energy in the form of autonomous kites and tethered quadcopters generating electricity.

## **Overcoming intermittency**

All options are intermittent and energy storage essential. Though multiple harvesting, each part with different intermittency, balances things somewhat, reducing the amount of storage required, storage is still needed if only because the power is not always produced at the right time of day.

## **Storage time and bad lead**

Batteries can store the generated electricity for a long time - supercapacitors less so. The growing intolerance of lead pollution helps lithium-ion, with lead acid battery banks increasingly unacceptable. For example India is seeking to replace lead acid in railways and elsewhere.

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[www.energyharvestingjournal.com/articles/9594/very-large-lithium-ion-batteries](http://www.energyharvestingjournal.com/articles/9594/very-large-lithium-ion-batteries)

Dr Peter Harrop | June 15, 2016