TRANSFORM
Energy Systems through Game-changing Technology

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ON THE ROAD TO RENEWABLE ENERGY: CREATING ELECTRIC HIGHWAYS

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Across Ontario, highways stretch for thousands of kilometres. They're the foundation of our transportation system, facilitating the flow of people and goods. But what if they could do even more - like generate electricity, for instance?

Waterloo engineers believe it's possible to harvest energy from the sunlight beating down on the province's roads. Photovoltaic panes embedded in the asphalt could be either hooked into the electricity grid or used to directly power streetlights and signs. In winter, the energy they generate could even melt snow and ice, eliminating the need for plowing and sanding.

A team of experts in civil, electrical and mechanical engineering are currently working together to design and test a solar road panel.

They face a host of engineering challenges. The panels must be tough enough to bear the weight of an 18-wheeler, withstand repeated cycles of freeze and thaw and provide a durable, safe road surface. On top of that, there's the question of how to transmit the electricity the panels generate.

Despite the obstacles, the team expects to have conceptual designs completed shortly. Ultimately they hope to create the world's first "electric highway," pioneering a truly sustainable form of transportation infrastructure.

Partners: NSERC, University of Waterloo