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# 2021 International Green Energy Conference

## (IGEC-XIII)

## July 15-18, 2021 | Tianjin, China

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| Name | Prof. Paul Parker |
| Affiliation | University of Waterloo, Faculty of Environment |

## Invited Plenary Lecture

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| Presentation Title | **Electrification and Efficiency: Improving Energy and Emission Performance in Offices, Homes and Aircraft** |
| Abstract (Approximately 200 words) | Green energy comes in many forms and the avoided energy demand created by increased efficiency is one of the best. Electrical energy systems have improved their efficiency in many applications and the increasing use of low carbon electricity sources enables these technologies to also reduce greenhouse gas (GHG) emissions when they replace fossil fuel use. This paper will highlight the benefits of both reduced demand for energy and reduced emissions. Technologies are available to improve the efficiency of our commercial and residential buildings (e.g. heat pumps, LED lighting, energy recovery ventilation), as well as our transportation (electric motors instead of internal combustion engines).<br><br>Despite the identified benefits of many of these technologies, the adoption rates are often low. Further studies are needed into the barriers to adoption and the best means to overcome these barriers. Heat pumps are an excellent example in the building industry. In transportation, electric aviation faces many of the challenges of electric vehicles. The need to introduce policies to address the information, financial, regulatory, risk and trust barriers is highlighted. The result can be improved societal performance with reduced energy demand and a transition to a low carbon future. |
| Biographical Sketch (Approximately 200 words) | Paul Parker is a professor and former Associate Dean in the Faculty of Environment at the University of Waterloo. His research focuses on building sustainable communities by creating win-win opportunities for the environment and economy. He is particularly concerned with how local economic development strategies can achieve a sustainable future. Sustainable energy systems are an essential starting point, so he looks first at conservation and improving energy efficiency, then at renewable energy sources and smart grid networks as integral parts of community energy plans. Paul's research interests include sustainable energy policy, sustainable community development, the green economy, zero carbon buildings, residential retrofits, electric aviation and low-carbon futures. |

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