Massive UAE’s Cost Power Evaluation

The Abu Dhabi water and electricity company (ADWEC) expects that the electricity demand is going to grow by 15% annually till 2015. Since the last decade, the UAE’s electricity demand has been increasing exponentially, as shown in Figure 1. Abu Dhabi water and electricity company (ADWEC) expects that the electricity demand is going to grow by 15% annually till 2015 [3].

To solve these problems and help satisfy the increasing energy demand we propose using piezoelectric technology on roads.

**Piezoelectric System:**
Piezoelectricity is generated by using piezoelectric crystals that are present in the piezoelectric generators. These generators are embedded 5-6 centimeters below asphalt, concrete or composite concrete roads and deform slightly when pressure is applied on them. These deformations result in electric current. The generators are connected either to the battery that stores the electrical energy for later use or directly to the main grid [4].

**Energy Storage:**
Converting non-uniform voltage pulses due to an expected traffic conditions.

**Components of the Circuit:**
1. **Rectifier:** is an electrical device that converts alternating current (AC), which periodically reverses direction, to direct current (DC), which flows in only one direction
2. **Super capacitor**
3. **Regulator:** is an electrical device that is designed to help the circuit maintain a constant voltage level

**References**


