# Lawrence Township Transportation Department and PowerSync Partner to Reduce Fleet Electric Consumption Costs by 80% and Generate an ROI in Less Than Six Months

**Introduction:**

If not heated in the winter months, the fuel in diesel engines can gel and the engine oil can thicken, causing clogged fuel lines, engines that won't start and, potentially, damage to the engines or cause the buses not to start when needed. Lawrence Township is one of the largest school systems within the Indianapolis Public School system. Lawrence School Transportation Department has a diesel bus fleet of 186 buses which utilize block heaters during winter months to ensure bus engines are warm and start properly. A typical block heater can consume a constant 900 to 1500 watts of electricity when they are plugged in. Block heating can cost between $240 - $400 annually per diesel vehicle.

**The issue:**

Lawrence Township Transportation Department was spending $45,000 each year in electrical costs, most of which was attributable to the operation of the 186 diesel engine block heaters, which were required to run approximately 148 hours per week through the winter months. In an effort to increase efficiency, save cost and become more environmentally sustainable, the township evaluated options to optimize the performance of the engines in their fleet while reducing cost to do so. Other issues identified when using block heaters without controls is the failure rate of the actual engine block heaters and damaged extension cords, which would typically run 20 hours per day, 7 days per week. Lawrence Township Transportation replaced 60 engine block heaters prior to installing PowerSync at a cost of $100 per bus to replace the heaters or $6,000 annually. From a safety aspect there is always the risk of block heater causing engine fires if there is a failure.

**Solution:**

Following an evaluation of alternative solutions, Lawrence Township Transportation Department chose PowerSync Intelligent block heater controller to reduce block heating electrical usage. PowerSync's controller uses patented technology and algorithms to deliver power and heat when needed, as opposed to unnecessarily wasting energy due to constant heat delivery. By using outside temperature, patented algorithm's and scheduled day and time, PowerSync panels will sync with the power feeding the block heater circuits, making the best decision of when to activate the block heater circuits. The PowerSync panels can deliver up to 80% reduction is electrical usage, as well as a reduction of block heater failures and reduction in risk of engine fires.

**Results:**

After an initial investment of $57,522, partially off-set with energy credits offered through Indianapolis Power and Light (IPL), Lawrence Township is projecting a complete recuperation of their investment within the first 6 months of installation of the PowerSync control panels, and a three year savings of over $109,272.

- October 2018 usage – 54,360 kWh
- October 2019 usage – 25,440 kWh
    - **52.2 % kWh reduction**
- November 2018 usage – 94,200 kWh
- November 2019 usage – 30,720 kWh
    - **67.4% kWh reduction**
- December 2019 usage – 96,720 kWh
- December 2020 usage – 29,520
    - **69.5% kwh reduction**