

**McKinney Independent School District**  
#1 Duvall Street, McKinney, Texas 75069

**To:** Board of Trustees  
**From:** Shawn Pratt, Superintendent  
**Subject:** Design and Installation of Electrical Power Factor Correction Equipment at 19 School District Campuses  
**Date:** February 24, 2025

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**Overview:**

All the discussions and information that are part of this board agenda item only deals with 19 campuses within the McKinney Independent School District that receive their electricity from Oncor Electric Delivery Company (Oncor). All the campuses are different sizes, were constructed in different years or decades, and house all ages of students and programs. Each of the 19 campuses we will be discussing have one thing in common, each campus is currently penalized by Oncor for not utilizing our electricity efficiently enough.

The cost of the electrical penalty per campus is not a large amount of money but if we add up the total cost of the electrical penalty across the 19 schools it adds up to an average cost of \$64,359.10 per year. Here is a list of the 19 campuses with their estimated yearly electrical “penalty” utilizing utility bills from the 2022-2023 and 2023-2024 school years.

Caldwell ES	\$ 4,123.80	Lawson ECDC	\$ 4,605.66
Malvern ES	\$ 2,766.07	McClure ES	\$ 4,699.29
McGowen ES	\$ 3,375.41	McNeil ES	\$ 2,677.42
Minsheu ES	\$ 807.98	Press ES	\$ 3,873.82
Slaughter ES	\$ 1,910.36	Valley Creek ES	\$ 2,071.42
Vega ES	\$ 2,196.33	Walker ES	\$ 1,512.06
Cockrill MS	\$ 5,135.65	Dowell MS	\$ 2,751.28
Evans MS	\$ 3,195.75	Faubion MS	\$ 3,173.48
Scott Johnson MS	\$ 5,193.68	McKinney HS	\$ 6,782.74
McKinney North HS	\$ 3,506.90		

**Penalty Summary:**

Let’s now look at why and how we are penalized by Oncor. To keep the discussion simple, let’s say the electrical company sends electricity to a school campus and using their new “smart” electric meters they can calculate how efficiently each school campus utilizes the electricity they send us. Each school utilizes electricity with many different types of motors, compressors, electric water heaters, lights, printers, transformers, etc. If the campus does not utilize the electricity that is sent to us in a manner that is “efficient”, the district is assessed a small monetary penalty for each unit of power. For

this discussion, let's say the electric company sends 1 Kilowatt of power to a campus. If the campus utilizes 95% or more of that 1 Kilowatt of power, that is considered **good** and there is no monetary penalty assessed to the campus by Oncor. But if we do **not** utilize at least 95% of each unit of electricity sent to the school by the power company, we are penalized.

To eliminate this penalty, the school district can install Power Factor Correction equipment (capacitors) that will help the campus utilize our electricity more efficiently. The term *Power Factor* is an expression of energy efficiency. It is usually expressed as a percentage—and the lower the percentage, the less efficient power usage is. Power Factor is the ratio of working power, measured in kilowatts (kW), to apparent power, measured in kilovolt amperes (kVA). When the apparent power (kVA) is greater than the working power (kW) then Oncor must supply the excess reactive current plus the working current. Power Factor Correction Equipment (capacitors) act as the reactive current generators. **By providing the reactive current, the capacitors reduce the total amount of current our systems must draw from Oncor to operate.** This new equipment will increase our electrical current efficiency so that we can eliminate the penalty charged by Oncor to our schools.

**Project Costs and Projected Pay-Back:**

EMA conducted a field survey documenting our existing electrical panels, electrical equipment and electrical rooms sizes at all of the school campuses where Oncor delivers our electricity. Using the field information and the past utility bills, EMA created a report that calculated the electrical penalties at each of our campuses based on our power usage inefficiencies. The report also verified the existing electrical rooms have the capacity and room to hold the new Power Factor Correction equipment - *Complete*

\$ 26,600

Cost for EMA to produce the needed Construction Documents that will detail the size, type, and installation locations of the required Power Factor Correction equipment.

\$ 35,000

*The EMA report also estimated what it will cost approximately \$348,000 for an electrical contractor to provide and install the Power Factor Correction equipment at the 19 selected campuses. Estimate*

\$ 348,000

**Total Cost of the Power Factor Correction Equipment Project: \$ 409,600**

Return on Investment Summary:

Total Cost of the Project is estimated to be \$409,600 which can be divided by the yearly savings of \$64,359.10 and that equals a Return on Investment of 6 years and 4 months. The district will be utilizing bond funds to complete the project but since the district utility bills are paid out of the General Operating Fund, we will be saving \$64,359.10 in Maintenance and Operations funds starting the first year after the project is completed. The savings will be reflected in reduced electrical billing from the Oncor Electric Delivery Company for the 19 campuses listed.

After EMA completes the Construction Documents for the Design and Installation of the Power Factor Correction equipment, the facilities department will take bids from various district approved vendors to provide the services needed to complete the project. After those bids are collected the preferred vendor and installation cost will be presented to the school board for approval prior to the start of the work.

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**Impact Statement:** N/A

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It is recommended: The Board approve EMA Engineering to provide the Construction Documents for the Design and Installation of Electrical Power Factor Correction Equipment at 19 School District Campuses as presented.

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**Resource Person(s):** Greg Suttle

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Respectfully submitted,

Shawn Pratt  
Superintendent

Greg Suttle  
Chief Operations Officer