

ARTICLE

Why Projected Energy Savings Fall Short

Why electrical system losses must be considered in audits, rebates, incentives, and Measurement & Verification

A recurring concern is emerging: in many approved energy projects, actual measured savings are lower than the savings estimated during the audit and assessment process.

The New Challenge

Projects that received approval—particularly those supported by government-funded audits and assessments—are now facing increased review and scrutiny when realized savings do not meet the projected values.

Why Savings Can Be Overstated

- An ECM may improve the efficiency of one piece of equipment while increasing losses elsewhere in the electrical system.
- Traditional audits may not fully evaluate power quality before and after implementation.
- Rebate, incentive, and payback calculations can therefore be based on incomplete assumptions.

System Losses That Erode Savings

- **Harmonics:** Increase current, heating, and losses in transformers, conductors, motors, and other equipment.
- **Poor Power Factor:** Raises current and reactive power demand, increasing system loading and utility demand exposure.
- **Voltage Instability:** Creates inefficient operation, stress, and reduced equipment performance.
- **Electrical Transients:** Accelerate insulation degradation and increase the risk of premature equipment failure.

The Required Improvement

Power quality should be incorporated into the audit, project design, and M&V process to:

- Establish a more accurate electrical baseline
- Identify losses introduced by the ECM
- Validate true system-level savings
- Improve confidence in rebates and grant-funded programs

Bottom Line

Equipment efficiency does not automatically equal system efficiency. Projected savings should account for power quality and electrical distribution losses before rebates, incentives, and payback claims are finalized.

MEASURE. MANAGE. CORRECT. SAVE.