

## PECI Grocery Smart Software Review

- Microsoft Access based
- Predicts energy savings – not energy usage.
- Refrigeration measure and HVAC measure savings are based on a combination of engineering calculations and parametric runs of DOE-2.1E model for different grocery store prototypes. (Approximately 13,800 simulations.) Parameters used were:
  - Store Schedule,
  - Age of HVAC and refrigeration equipment,
  - Climate Zone (16 California zones),
  - Case Temperature (low, medium, high),
  - Compressor Type (integral, stand alone, multiplex),
  - Compressor Efficiency (standard, high),
  - Condenser Type (air, water),
  - Head Pressure Control (fixed, floating),
  - Condenser Fan Control (1-speed, 2-speed, VFD),
  - Suction Pressure Control.
- Refrigeration component (i.e. refrigeration case auxiliary and refrigeration loads, compressor efficiency) system efficiencies are averages – not site specific.
- Lighting component includes a detailed database of fixture options. Savings and costs are calculated based on fixture types and operating hours.
- Input to software requires a survey of existing grocery store refrigeration cases. (Refrigeration case data generates list of measures and savings.)
  - Case type,
  - Product type,
  - Display lighting type (T8 or T12),
  - ASH control (yes/no),
  - Compressor type (integral, stand alone, multiplex)
  - Condenser type (air/water)
  - Store operating hours
  - Walk-in door gasket condition
  - Beverage vending machine count
  - Case night covers (hours/night)
  - Door type (1-4 pane)
  - Damaged door gaskets (count)
  - Damaged door closers (count)
  - Walk-in door dimensions (height, width)
  - Walk-in open door time (low, typical, high)
  - Strip curtains (yes/no)
  - Evaporator fan control (t-stat or solenoid)
  - Night covers (yes/no, hours)
  - Refrigeration case dimensions.