Joshua Rhodes (CAEE) : First Results and Future Research

• Education

• Most recent publication: Energy audit analysis of residential air-conditioners*

• Outreach
  – Explore UT, local elementary school volunteer

• Interests
  – Systems level analysis of the integration of smart grid technology and building physics

*J.D. Rhodes, et al., Using energy audits to investigate the impacts of common air-conditioning design and installation issues on peak power demand and energy consumption in Austin, Texas. Energy and Buildings (2011), doi:10.1016/j.enbuild.2011.08.032
First analysis results and future research

• Results for excess peak power usage
  – Inefficient A/C units
    • Excess peak power demand of 205 MW (8%)
  – Oversized A/C units
    • Excess peak power demand of 41 MW

• Future system level analysis
  – Total system energy balances
    • Technology performance
    • Environmental tradeoffs
  – Pricing plans & consumer behaviors
First results: many air-conditioners are oversized

- Thanks
  - Dr. Webber – advisor
  - Pecan Street Inc, Doris Duke Foundation, and TACC