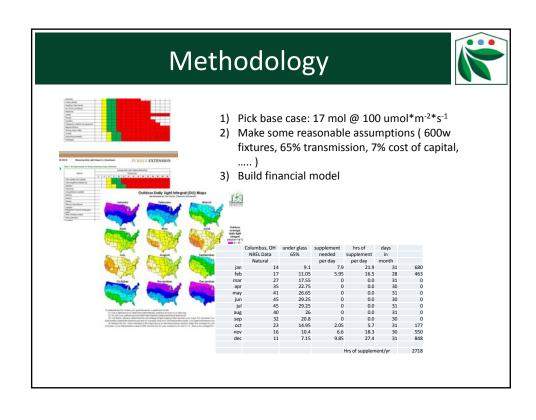
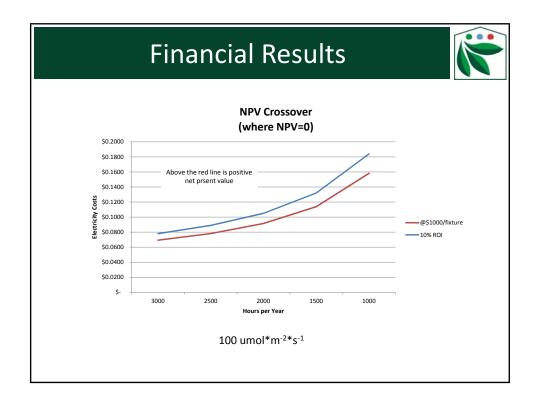
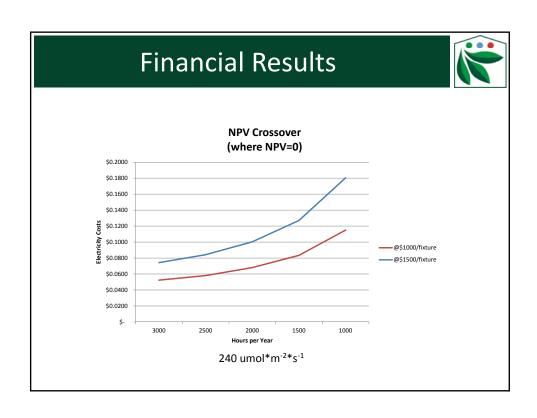


Economics and Life Cycle

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Results

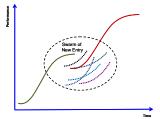


- In many cases, economics do support conversion to LED
- Heat: Although heat from HID is beneficial, it is not economically efficient
 - For every \$1 spent in electricity for heat, you lose \$.60 (calculated at \$.06/kWh)
- Life cycle impact
 - Incandescent vs LED reduces carbon footprint ~ 80%
 - HOS vs LED tomato reduces carbon footprint ~ 55%
 - Note that these numbers are approximate

So should you buy?



- Larger concerns?
- Technology shifts tend to be accompanied by new entrants and later shakeout



- Are we taking advantage of physical properties in LED or are we trying to mimic current behavior?
 - Why do we light with multiple fixtures?
 - Can we achieve uniformity with current technology? – compare light maps

Assumptions



- 1:1 replacement of LED to HID
- Same size overhead fixture (consider shading)
- 600 w fixture with 10% loss for 660 W
- 65% transmission value inside
- 1 fixture for every 188 ft2
- 35% energy used for LED vs HID
- Natural gas heat 85% efficiency \$8/Kft³ m
- 10000 hour lamp life- 15 year fixture life
- 7% cost of capital 17% tax rate
- Calculations do not take into account economic advantages in power distribution if infrastructure needed