



Guaranteed Energy Savings Project

Southeast CERT Workshop November 1, 2018

Big ideas. Real-world thinking.

Introductions

Minnesota State University Project Team



*Front Row: Commissioner Looman, Greg Borchert (MSU), Paul Corcoran (MSU), Pete Berger, DOC)
Back Row: Steve Ardolf (MSU), Todd Kadoun (Ameresco), Terry Lewis (MSU), Dawn LaSota (Ameresco), Kevin Morgan (MSU), Terry Webster (DOC), John Neville (Ameresco)*

The Project Team

- Minnesota State University, Mankato
- Minnesota State System Office
 - Board approval of contract
- Department of Commerce
 - Master contract – coordinator of process
- AMERESCO project management team
 - Audit team
 - Design team
 - Implementation/construction team

Scope of the MSU,M Project

- \$7,173,548 Contract financed payback 18 years (2.43%)
- 2 million GSF campus interior lighting, VFD's, chilled water control, boiler controls
- All outdoor lighting – Street, parking lot and sidewalks

Basic concept and process

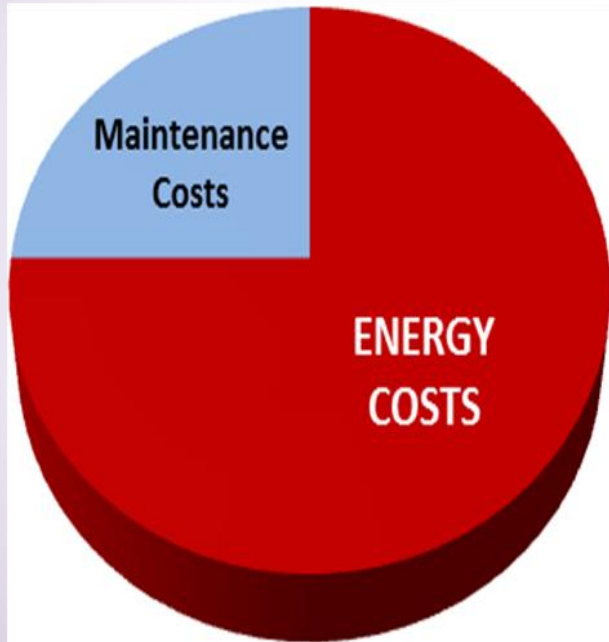
- ESPC is a powerful tool that:
 - uses private capital to;
 - reduce energy use and greenhouse gas emissions;
 - addresses deferred maintenance needs and;
 - creates jobs in the process
- Energy savings pay for the facility improvements over time (2017 statute 16C.144)
- Maximum length of agreement is 25 years

Basic concept and process

- Selection of Prime contract is an RFP process
- Pro Forma based on facility audit and estimates
- Final agreement is based aggregate pay-back
- Sub-contractors are competitively bid (by prime)
- Residual funds are returned to the University

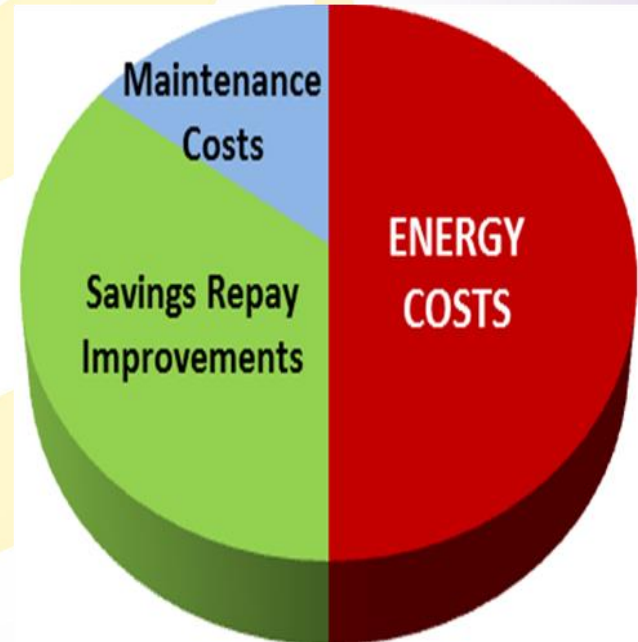
Basic concept and process

Before Improvements



Utility cost \$4.3 Million

After Improvements



Utility budget \$4.3 Million

MSU Mankato Results

- Ameresco selected via RFP as prime contract
- Competitively bid sub contracts came in \$1.1 million under estimate (mostly lighting)
- Guaranteed 5,983,084 kWh reduction
- Over \$500,000 in rebate funds made available to address other deferred maintenance
- Annual CO2 reduction of 4,434 metric tons

MSU Mankato Notable Results

- Parking lot lighting improved – dual level lighting for extra savings and security.



MSU Mankato Notable Results

- Clean Energy Award – March of 2018



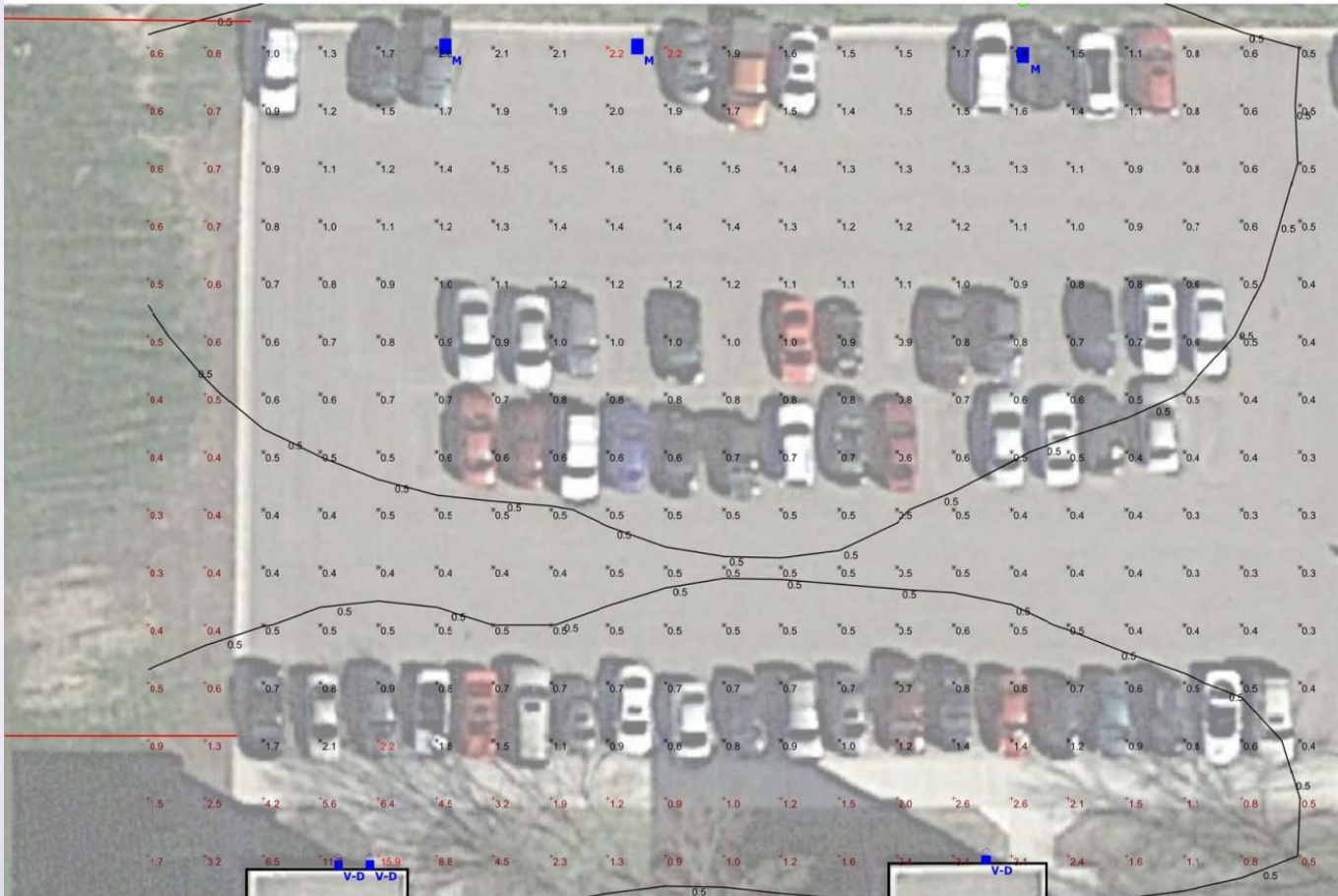
MSU Mankato – The Process

- Contact Peter Berger in Department of Commerce.
- RFP to select ESCP provider. (MSU - Ameresco)
- Preliminary Audit – general look at all opportunities.
- Investment Grade Audit – detailed inventory and analysis on selected opportunities. (MSU - \$300,000)
- Lease purchase Agreement – for selected items and payback period. (MSU - \$8.1 million and 18 years)

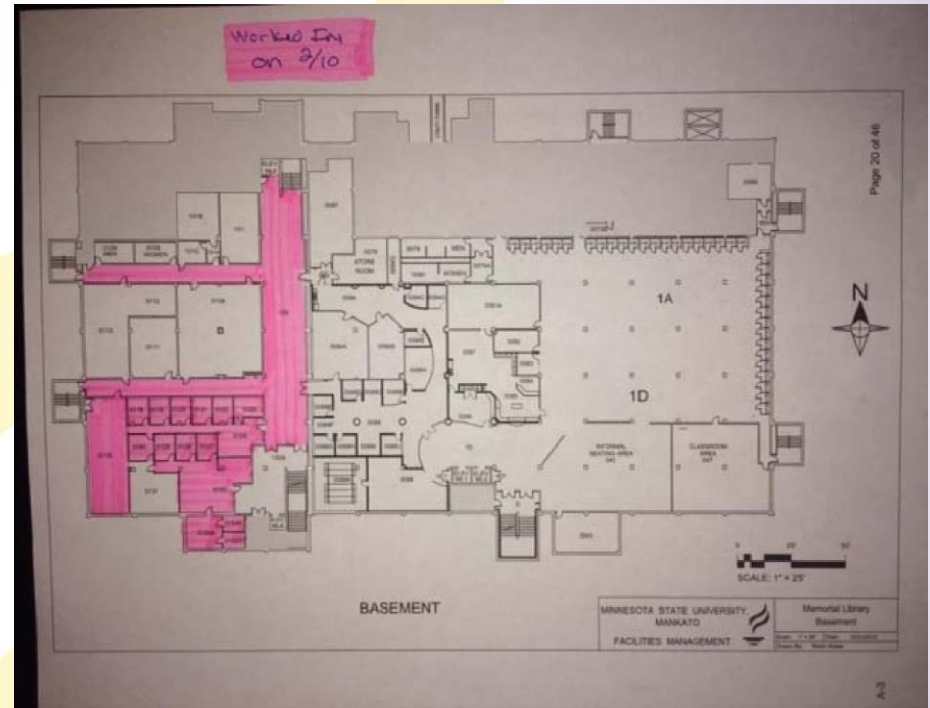
MSU Mankato – The Process

- Bid document development and campus input.
 - Target light levels (Illuminating Engineering Society) IES Standards.
 - Selected 4000 Kelvin color. (cool white)
 - Lighting level for outdoor lighting. (.5 fc average)
- ESCO vendor performs bidding – open book
- Project moved into implementation.
 - October 2016 to October 2017. (on schedule)
 - Academic buildings predominately evening work.

MSU Mankato – The Process



MSU Mankato – The Process



Each week we sent a notice to the building of plan. Each day the contractor showed completed areas.

MSU Mankato – The Process



MSU Mankato Results

- Guaranteed annual energy savings amount
 - 5,983,084 kWh and 2,048 therms
- Additional benefit during summer months due to reduced cooling load – 242 Tons
- Final project cost \$7,173,548
 - Financed at 2.43% for 18 years

MSU Mankato Results

- Very few complaints - (over 2 million square feet and 2600 different rooms) only a few issues.
- General perception is that the lighting improved with the 3500K to 4000K color change.
- Fluorescent lamp disposal process eliminated.
- Difficult to access fixtures will have long life LEDs.
- Reduced labor for multiple trades (electricians, repairmen, custodial).

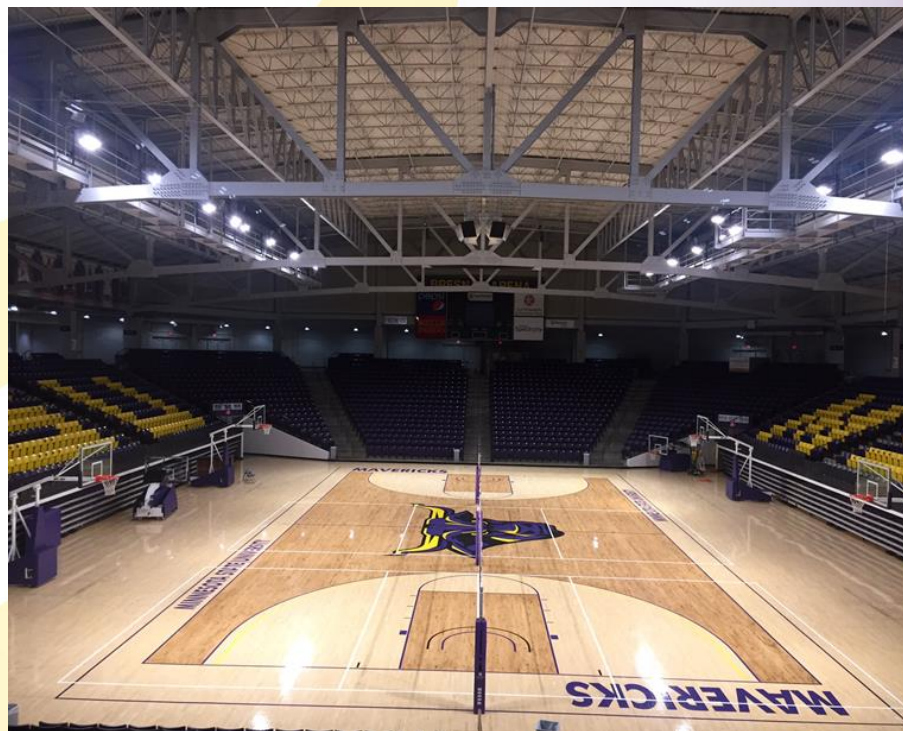
MSU Mankato Results



MSU Mankato Results



Schellberg Gym



*Taylor Center
Bresnan Arena*

MSU Mankato Results – Challenges

- Few complaints were usually “lights are too bright”.
- Not zero maintenance – still need cleaning.
- Lease language not flexible enough for scope change. Bid savings could not be expanded past lighting.
- Requests for dimming capability - would have factored in dimming for classrooms from the start.

Questions?

