

Combined Heat and Power (CHP) for Hospitals

*An Energy Efficiency
Education and Implementation Program*

Module #4

CHP: Next Steps

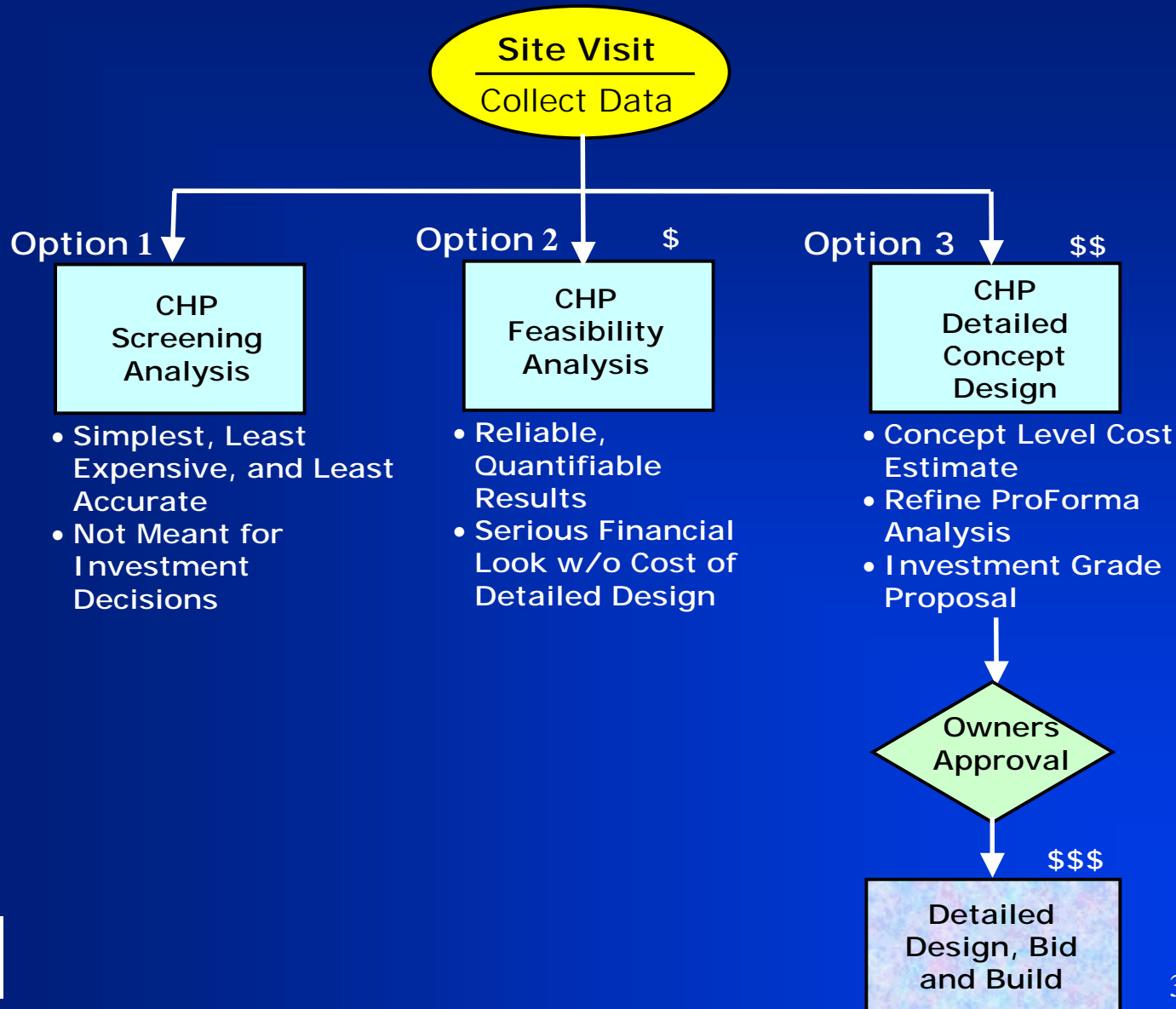
March 18, 2003



Purpose of Today's Meeting

- **Encourage Hospital Executives to Evaluate CHP as an Investment in Their Facility**
 - **Module #1 – The Concept**
 - **Module #2 – The Business Case**
 - **Module #3 – Case Studies, A Panel Discussion**
- **Provide An Incentive to Conduct the Evaluation**
 - **Module #4 – Next Steps**
- **Provide Information on Financial Community Interest**
 - **Financial Fair**

Next Step Options



Incentive Program

- **Offered By:**
 - City of Chicago Department of Environment
 - State of Illinois DCEO
- **Administered By:**
 - University of Illinois @ Chicago
- **Co-fund 50% (Up to a Maximum of \$5,000) to Evaluate CHP at Your Hospital (Facility)**
 - Screening Analysis
 - Feasibility Analysis
 - Detailed Concept Design

Option 1: Screening Analysis

- **Site Visit to Collect Information on:**
 - Energy Usage
 - Operating Schedules
 - Electric Service
 - Existing Equipment
(*Size & Location*)
- **New Construction Discuss Site with:**
 - Owner
 - Architect
 - Engineer
- **Preliminary (Rough First Cut) Concept & Savings Calculation - Range of Simple Paybacks**
- **Simplest, Least Expensive and Least Accurate**
- **Investment Decision Normally Requires More Detail Analysis**

Option 2: Feasibility Analysis

- **Cost Effective Intermediate Step:**
 - Energy Analysis
 - Conceptual Development
 - Financial Pro Forma Analysis
- **Energy Analysis**
 - Develop Load Profiles and Duration Curves
 - Analyze Waste Heat Utilization
 - Hour by Hour Simulation of System Operation
 - Normalize for Weather Conditions
 - More Detailed First Cost Analysis
 - Analyze Existing and Projected Energy Rates
 - Optimize Sizing

Option 2: Feasibility Analysis

- **Conceptual Development**
 - Major Components (*Type and Size*)
 - One Line (Block) Diagrams (*Power Electrical and Mechanical*)
- **Financial Pro Forma Analysis**
 - 5 to 7 Year Cash Flow
 - Annual Maintenance Costs
 - Initial & Out Year Investments
 - Annual Energy Cost Savings
 - Annual Capital Repayment & Carrying Charges
 - Annual Depreciation
 - Tax Implications
 - IRR

Option 2: Feasibility Analysis

- **Provides Serious Financial Look w/o Cost of Detailed Concept Design**
- **Reliable, Quantifiable Results**

Option 3: Concept Design

- **Seeking Project Commitment:**
 - Energy Analysis
 - Financial Pro Forma Analysis
 - Detailed Concept Design

- **Concept Design:**
 - Rough Floor Plans
 - Installation Issues (Construction)
 - Interconnect Issues / Costs
 - Design Tradeoffs
 - Concept Level Cost Estimate

Option 3: Concept Design

- **Utilize Concept Design Information To Refine Pro Forma Financial Analysis**
- **Investment Grade Proposal**

Who Can Perform The Analysis

- **Hospital Chooses the Engineering / Consulting Firm, Provided:**
 - **Meet Program Administrator's Guidelines**
- **Program Administrator's Guidelines:**
 - **See CHP Evaluation In Packet**
 - **Brief Explanation of Contractor's Approach / Methodology (1 to 2 Pages)**
 - **Example of Output Report**

How Do I Proceed?

- **Fill Out The Form In The Packet:**
 - **Interest In Phase II - Hospital CHP Evaluation**

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