



# Engineered Savings Program (ESP)

## Enhanced Opportunities for Energy Conservation Through Plant and System Assessments

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Sebesta Blomberg is a single source provider of services ranging from project evaluation through solution definition, design, construction, commissioning, start-up, training, and operation and maintenance.

We function as an extension of 3M's staff bringing experience, knowledge and passion to each opportunity. We take great pride in being a business partner with 3M.



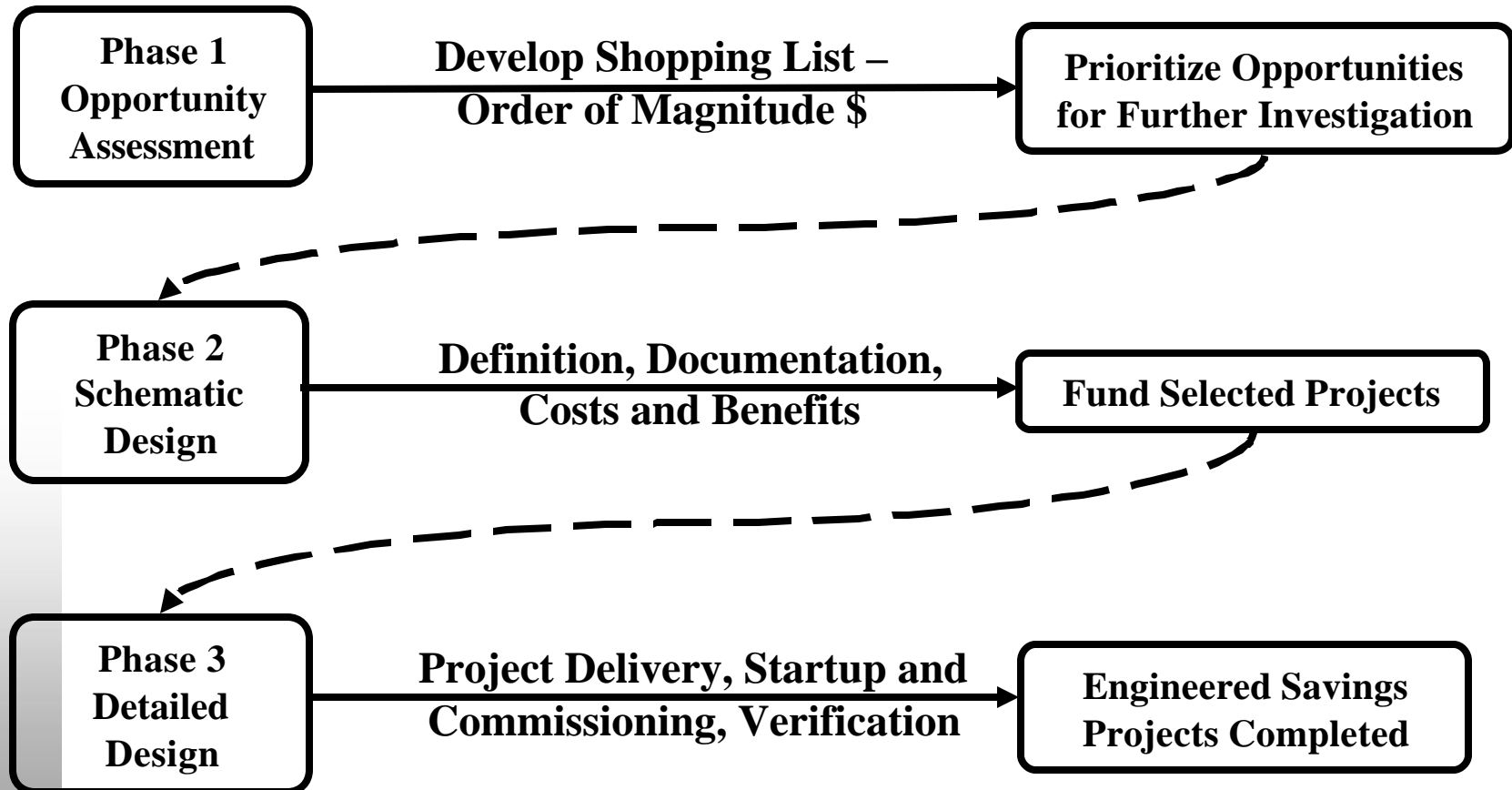
## **Engineered Savings Program**

- An integrated program that includes energy cost reduction, value-added capital expenditures, process improvements
- An opportunity assessment process that stresses define, measure, analyze, improve and control
- Performed by independent professional that is familiar with 3M processes and procedures
- Program can be plant-wide in scope or targeted for specific utility, system or process



# Plant-Wide Opportunity Assessment

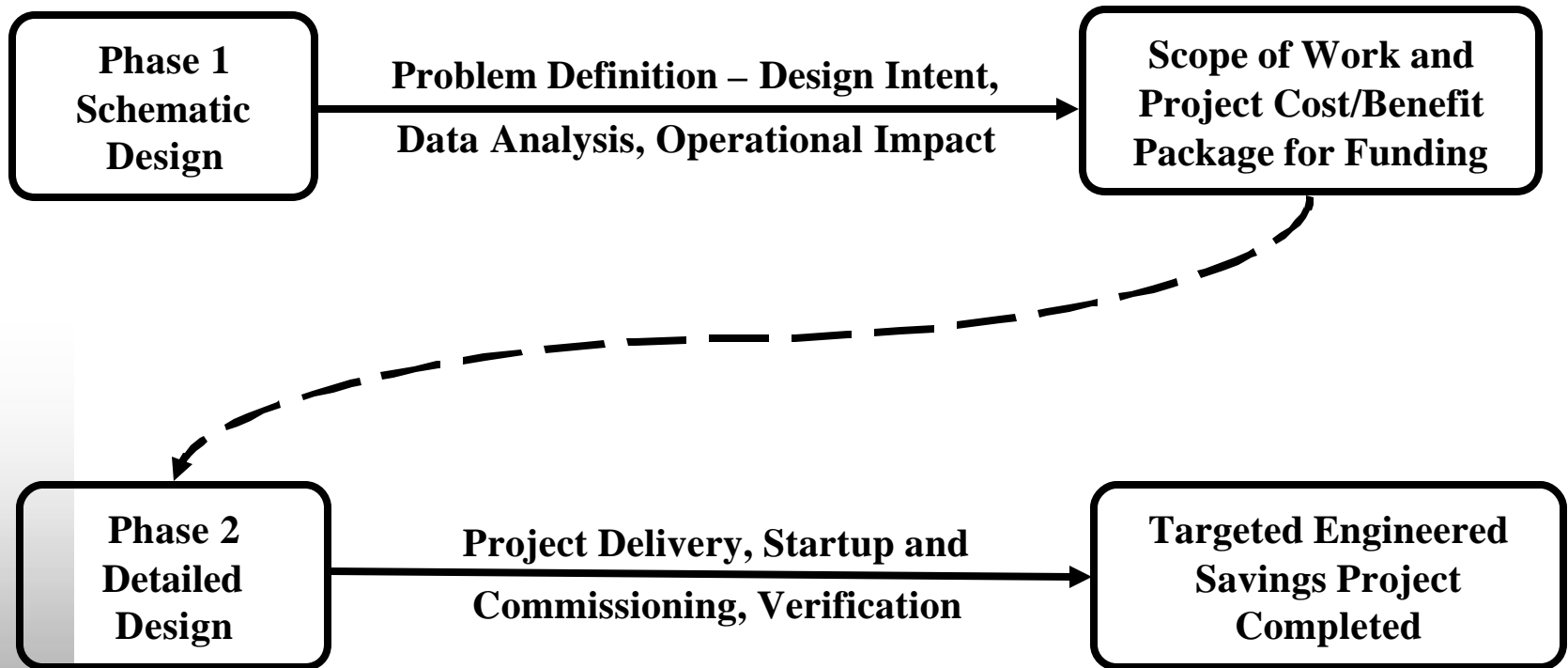
## Open Season on Identifying Improvements





# Targeted System Opportunity Assessment

Service Provider is Challenged to Provide  
a Targeted Project Solution that is Fundable





## **Keys to Success:**

- Commitment of plant and consultant resources
- Hands-on plant walk-through and interviews with appropriate staff
- “Shopping list” of valid potential projects for plant-wide assessments
- Solutions with costs, benefits and plant impact for targeted assessments
- Accurate project definition
- Secure funding for priority work



## Challenges:

- 3M staff is very energy conscious and have harvested the “low hanging fruit”
- Don’t mess with the process culture
- Strict requirements for project execution
- Many levels of input, approval and review
- Short payback requirements



## **Northridge Chilled Water Targeted Assessment**

- Challenge given to Sebesta Blomberg – develop a project that can be funded through energy savings that will also address chilled water system shortfalls
- Document how system is currently operated, develop energy usage profiles, establish verifiable cost reduction strategies, identify operational improvements, define project implementation plan.





## **Northridge Background**

- Pharmaceutical plant w/critical utility
- Constant speed primary pumps, 50% 3-way control valves, 2 chillers
- Plant automation (chiller staging, tower and pump control) not performing – operator initiated
- System was never commissioned
- Chilled water - 26% of total plant electric usage
- Chilled water pumps - 23% of total chilled water system electric usage
- Site temperature difference (DT) was 3° - 5°



## **Northridge Modifications**

- Installed VFD On Primary Chilled Water Pump
- Installed Site Instrumentation Required To Operate Variable Flow Primary Pumping
- Installed Metering To Control Chillers And Flows
- Converted 3-way Valves To 2-way Operation
- Revised Control Sequences To Provide Reliable Automation
- Lowered Tower Water Temperature Setpoints
- Commissioned System



## **Northridge Outcome**

- Reduced CHW system electrical consumption by 25% - overall plant energy by 6.3%
- System energy usage reduced from 0.88 kw/ton to 0.67 kw/ton (delivered to user)
- Reduced chilled water pumping energy by 71%
- Site DT doubled to 8° (in progress)
- Successfully implemented control sequences using detailed verification test procedures
- Met performance and financial goals



## **Teaming Relationship with 3M and Sebesta Blomberg for Engineered Savings Program Provides**

- A method of initiating energy cost reduction projects as well as process improvements
- Plant-wide or targeted assessments
- A partner that successfully interfaces plant staff with corporate staff and contractors/vendors
- A process that 3M controls
- An independent resource that has A solution goal instead of A sales goal - build A long term relationship based on value



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