

Capital Investment Strategy (CIS) to Achieve Total Netzero Energy, Waste, and Water

Porscha Porter
USACE Engineering & Support Center Huntsville
Energy Division
Strategic and Business Management
(SBM-Energy)

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Agenda

- Objective of a CIS
- Energy Division Toolbox
- Basis of Development
- 15 Steps Toward Net Zero CIS
- Benefits to Industry



Objective of a CIS

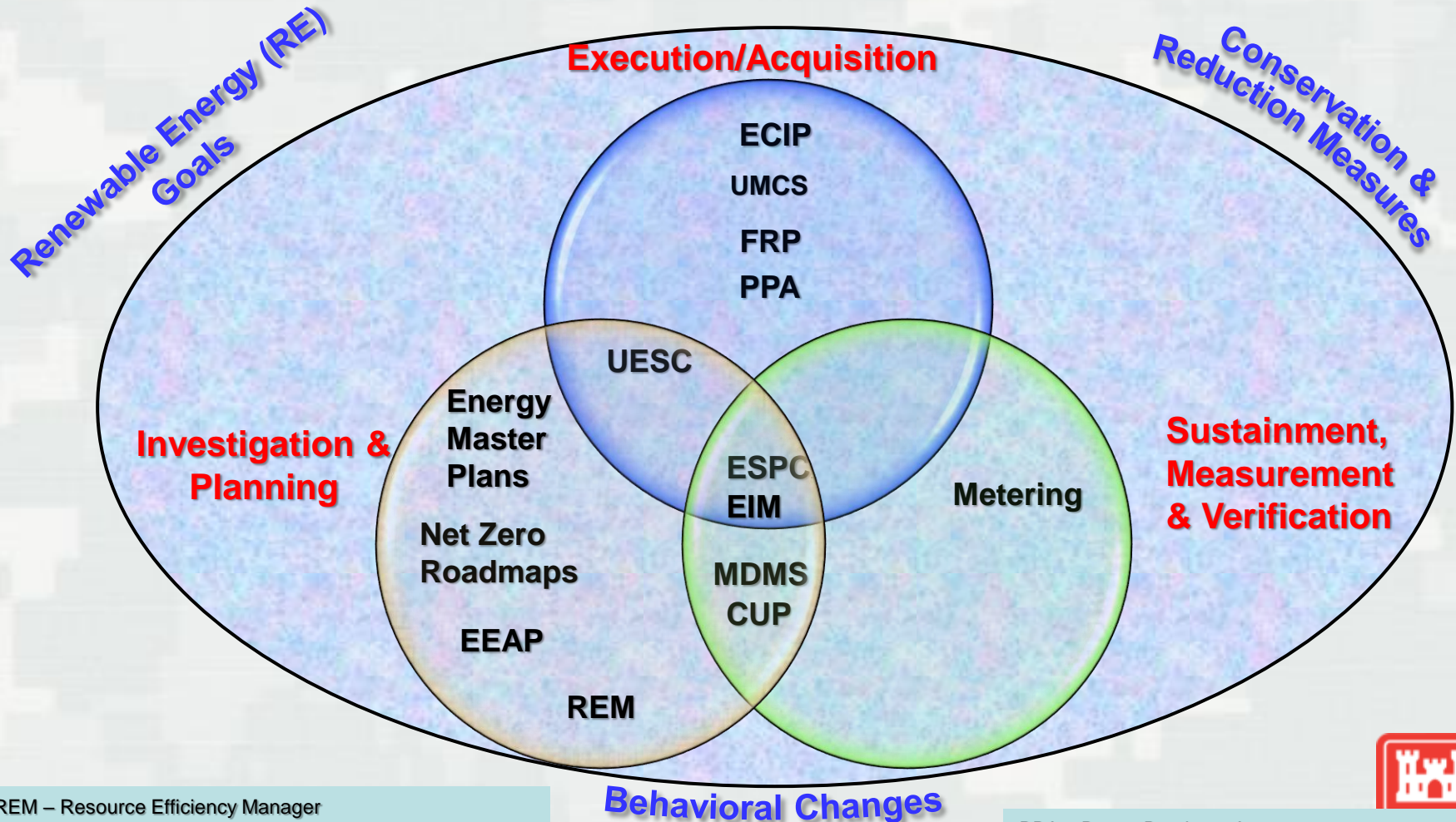
Objective –

- ▶ Identify the ability to achieve NetZero
- ▶ Implement an actionable year-over-year energy execution plan
- ▶ Identify projects that will reduce energy consumption, improve energy efficiency/recovery, and satisfy renewable energy consumption mandates
- ▶ Identify 3rd party financing opportunities to offset the impact of limited DOD appropriations funding (i.e. budget cuts, sequestration, military downsizing, etc.)



Energy Division Toolbox

Pathway to Net Zero, Energy Security and Meeting Federal Mandates

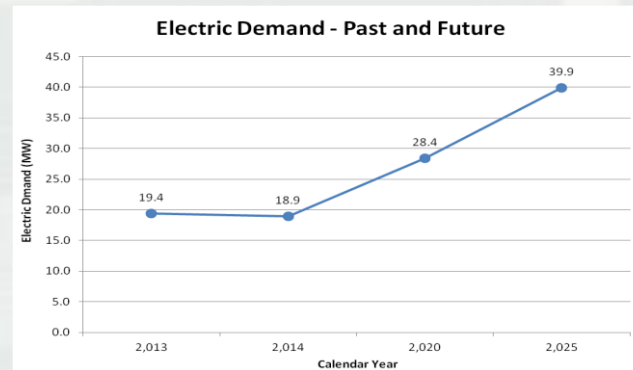
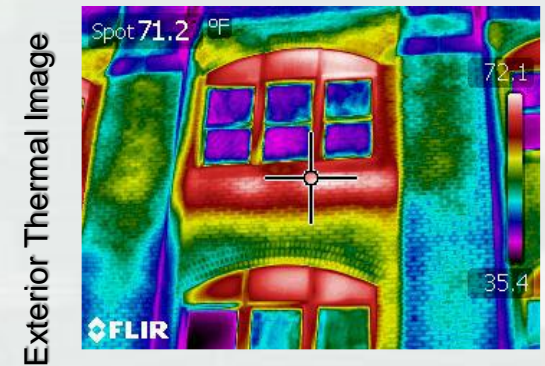


REM – Resource Efficiency Manager
 CUP – Commercial Utility Program
 MDMS – Metering Data Monitoring System
 FRP – Facility Reduction Program
 EEAP – Energy Engineering Analysis Program
 EIM – Energy Information Management

PPA – Power Purchase Agreements
 UMCS – Utility Monitoring and Control Systems
 ECIP – Energy Conservation and Investment Program
 UESC – Utility Energy Services Contracting
 ESPC – Energy Savings Performance Contracting

Basics of Development

- Identify the history & future loads
 - ▶ Supply Side
 - ▶ Demand Side
- Audits (ASHRAE Level 1-2)
- Approach - Holistic
- Envisioned Future State – Goals



15 Steps Toward Net Zero CIS

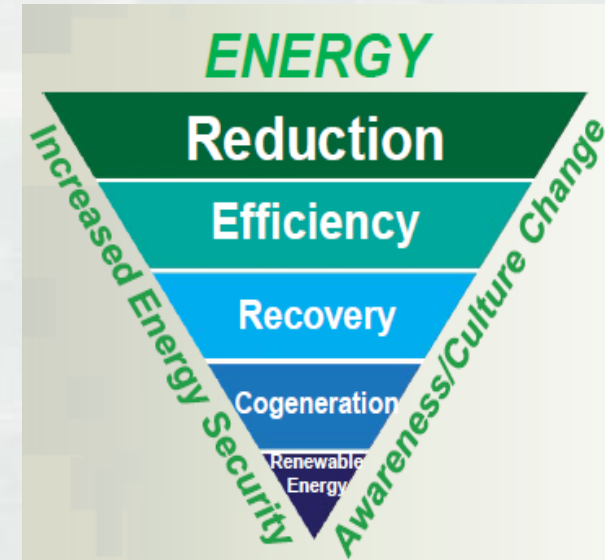
1. Define Objectives
2. Evaluate Current Site Conditions
3. Evaluate Current Reports/Analysis
4. Evaluate Planned/On-going Projects
5. Determine Current Status
6. Identify Gaps in Information
7. Estimate Optimum Site Energy Use Intensity (EUI)
8. Project Future Site Energy
9. Evaluate Viability of Renewable Technologies
10. Evaluate Peak Shavings / Power Generation
11. Evaluate CHP / Thermal Distribution
12. Determine Achievable End State - Goals
13. Create a CIS
14. Create Implementation Plan
15. Create a Feedback Loop to Update/Improve



15 Steps Toward Net Zero CIS

1. Define Objectives

- a. Meet Federal mandates
- b. Meet reduction goals first, implement efficiency
- c. Improvements second, incorporate energy recovery opportunities third (where economic)
- d. Lastly, implement cogeneration and renewable opportunities fourth (where economic)



15 Steps Toward Net Zero CIS - (cont'd)

2. **Evaluate Current Site Conditions**
3. **Evaluate Current Reports/Analysis**
4. **Evaluate Planned/On-going Projects**
5. **Determine Current Baseline (based on footprint and onsite generation)**
6. **Identify Gaps in Information**
7. **Estimate Optimum Site EUI**
8. **Project Future Site Energy, Waste, and Water**
9. **Evaluate Viability of Renewable Technologies**
10. **Evaluate Peak Shavings / Power Generation**
11. **Evaluate Non-Renewable Technologies**

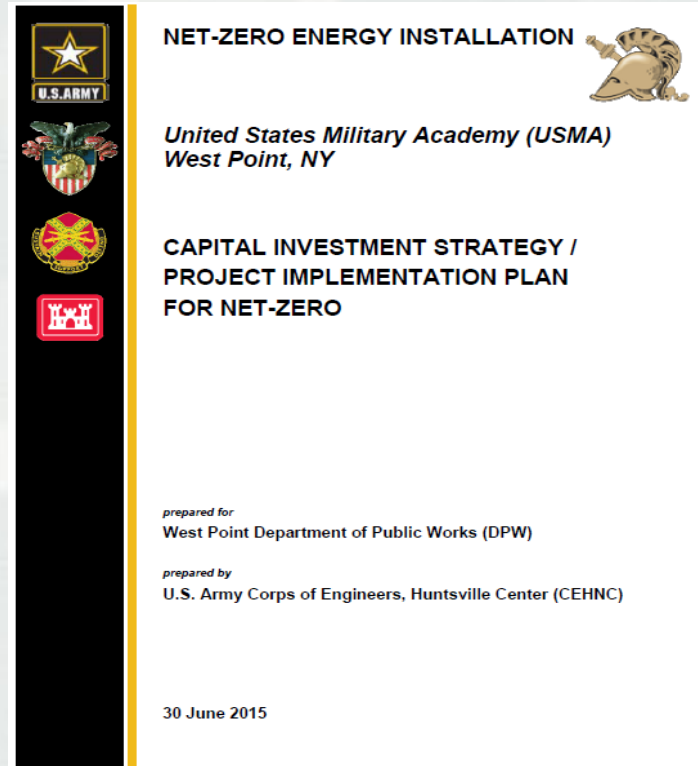


15 Steps Toward Net Zero CIS - (cont'd)

12. Determine Achievable End State - Goals

13. Create a CIS

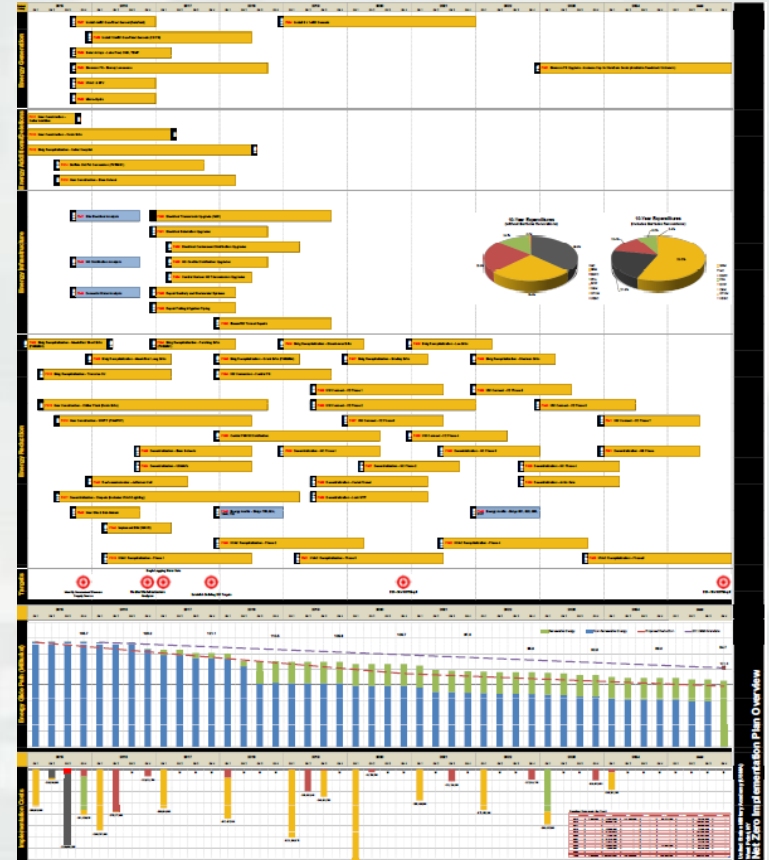
- a. Planning document that outlines strategies necessary to achieve Net Zero
- b. Addresses the following:
 - 1) Funding / Contracting Strategies
 - 2) Reduction / Efficiency strategies
 - 3) Security Strategies
 - 4) Net Zero / Renewable Strategies
 - 5) Potential Impacts to Mission and Master Strategic Plans



15 Steps Toward Net Zero CIS - (cont'd)

14. Create Implementation Plan

- a. A scheduling tool that lists and prioritizes execution of energy related projects necessary to achieve Net Zero Goals
- b. Addresses the following:
 1. Implementation Priorities
 2. Information Milestones
 3. Year-by-Year List of Projects/Processes Needed
 4. Year-by-Year Funding Requirements
 5. Year-by-Year Energy Consumption Impacts
 6. Year-by-Year Cost Impacts



15 Steps Toward Net Zero CIS - (cont'd)

15. Create a Feedback Loop to Update/Improve

- a. Audits are the lifeblood of the CIS to make important executive decisions for project execution
- b. Life Cycle Cost Analysis will validate future projects
- c. Infrastructure Analysis and Energy Security Assessments are needed to maximize energy projects
- d. CIS are living, working documents that require updating frequently



Benefits to Industry

- Provides a strategic plan to allocate funding and resources effectively
- Gain valuable information and commitment from Government and Industry
- Provides long-term sustainability and economic growth



Summary

- **CIS created to help achieve the following goals:**
 - ▶ Developing effective energy management strategy in support of mission resiliency/reliability/readiness/security, and enable projects to meet reduction, Total Netzero, and to meet or exceed all Federal Mandates
 - ▶ Increase energy security by implementing non-renewable onsite generation
 - ▶ Provides yearly projects and steps/funding stream needed
 - ▶ Addresses energy security risks
 - ▶ Improve infrastructure
- **3rd party financing is the best option to offset the impact of budget cuts, continuing resolution acts, sequestration, etc**
- **Benefits industry to have a comprehensive year-by-year basis of development, CIS, and implementation plan to better posture the Government and Industry for future economic growth**



Questions & Discussion

SBM – Energy Business Card

US Army Corps of Engineers

**US Army Engineering and Support Center, Huntsville
Energy Division, Strategic and Business Management
4820 University Square, Huntsville, Alabama 35816**

Email: SBM-Energy@usace.army.mil

Telephone: (256) 895-1866

Website:

<http://www.hnc.usace.army.mil/Missions/InstallationSupportandProgramsManagement/EnergyDivision.aspx>



Acronym List

| Acroymn | Definition |
|---------|--|
| ASHRAE | American Society of Heating, Refrigerating, and Air-Conditioning Engineers |
| CIS | Capital Investment Strategy |
| CUP | Commercial Utility Program |
| E.O. | Executive Order |
| ECIP | Energy Conservation and Investment Program |
| EEAP | Energy Engineering and Analysis Program |
| EIM | Energy information Management |
| ESPC | Energy Savings Performance Contracting |
| EUI | Energy Use Intensity |
| FRP | Facility Reduction Program |
| MDMS | Meter Data Management System |
| NZ | Netzero |
| PPA | Power Purchase Agreements |
| REM | Resource Efficiency Manager |
| SBM | Strategic and Business Management |
| UMCS | Utility Monitoring and Control Systems |
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