



*Naval Station Norfolk, VA
Energy Conservation Program
UESC Partnership Success Story*

20 November 2008



Virginia Natural Gas

ESG ENERGY SYSTEMS GROUP
Building Performance with Energy



Agenda

- ❑ Background
- ❑ Basis for Success
- ❑ Phase I
- ❑ Phase I Mod 01
- ❑ Phase II
- ❑ Other / Future Program Aspects
- ❑ Why the Partnership Works



Background

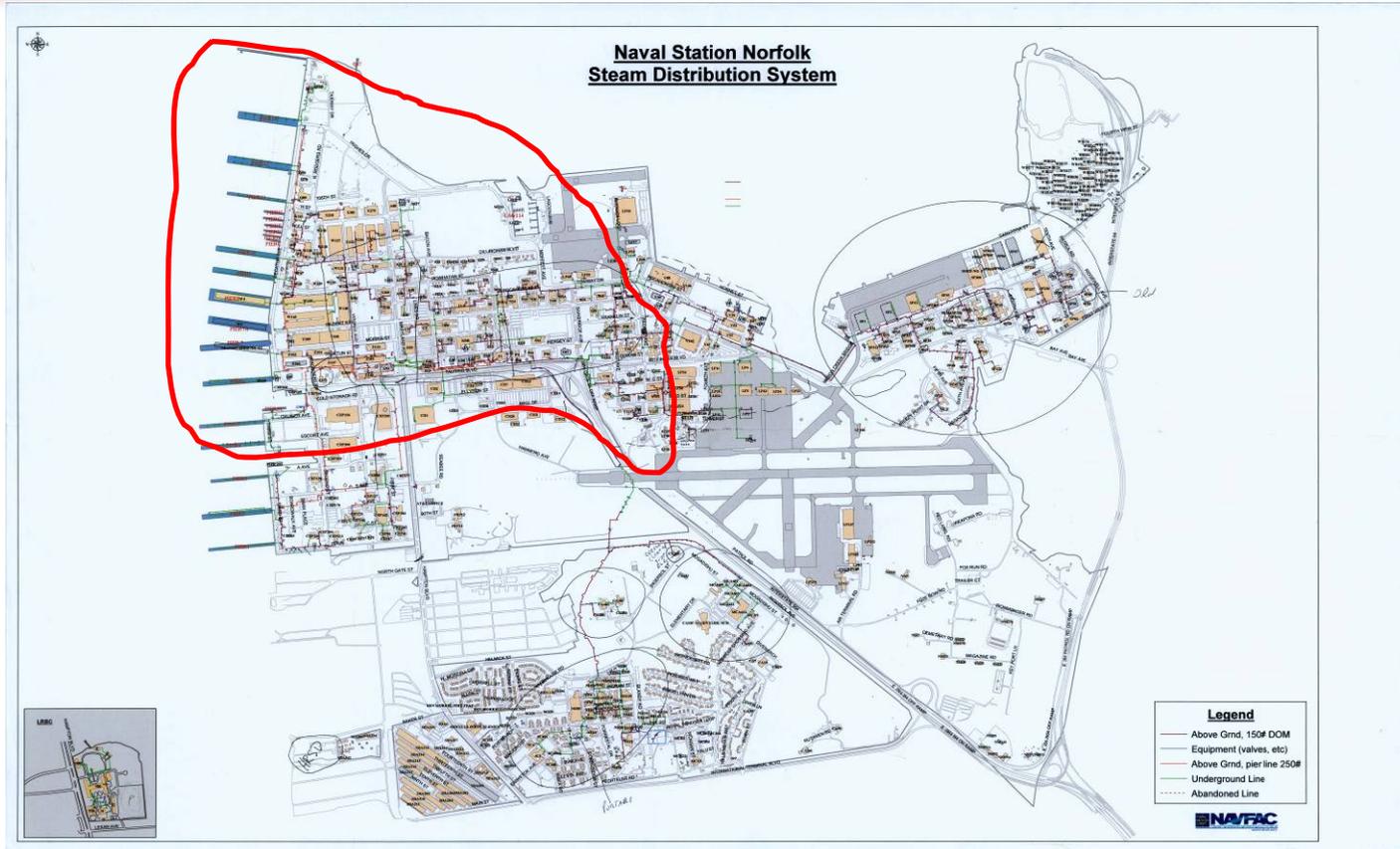
- ❑ Minimal structured plan for NS Norfolk prior to 2006
- ❑ Other MidLant Installations had aggressive ESPC programs in place
- ❑ The largest US Navy Installation in the World had only scratched the surface on all the opportunities for energy conservation
- ❑ Decision made to establish long term UESC partnership / program with VNG



NS Norfolk Basis for Success

- ❑ Focus on long term partnership with Utility to meet infrastructure needs and energy goals
- ❑ Gear project efforts to support core Mission of NS Norfolk
- ❑ Long term benefits more important than strict focus on quick, low hanging fruit focus
- ❑ Flexibility is paramount

Phase I





Phase I

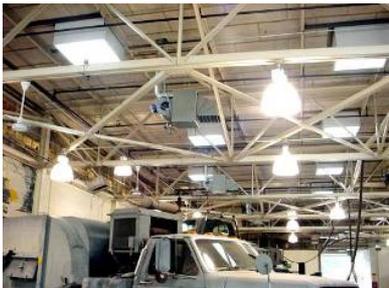
- ❑ Phase I Preliminary Audit conducted May - Oct, 2006
 - \$20M+ project potential identified
 - Project payback less than 10 years
- ❑ ***...Hurry up and wait...***
- ❑ Phase I ECM Feasibility Study Conducted May – July, 2007
- ❑ ***...Wait a little more...***
- ❑ Implementation November, 2007 – April, 2009

Phase I Scope

- \$5.7M Investment & over \$750K / year in energy savings



ECP 1 – Lighting retrofits in
28 buildings including
LED exit signs



Phase I Scope (cont.)



ECP 2 – Water
Conservation
Measures in
9 Buildings



Phase I Scope (cont.)



ECP 3 – Steam to
Natural Gas
Conversion at
Hangars LP-33
and LP-34

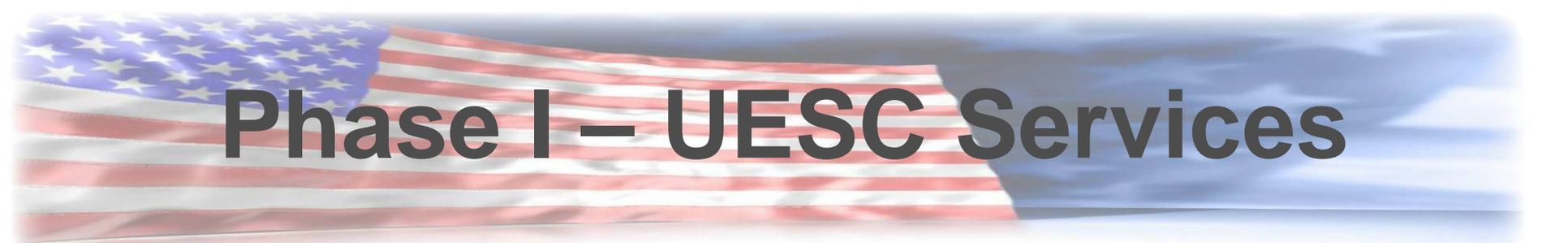


Phase I Scope (cont.)



ECP 4 – Administration Building Retro-commissioning and HVAC Upgrades





Phase I – UESC Services

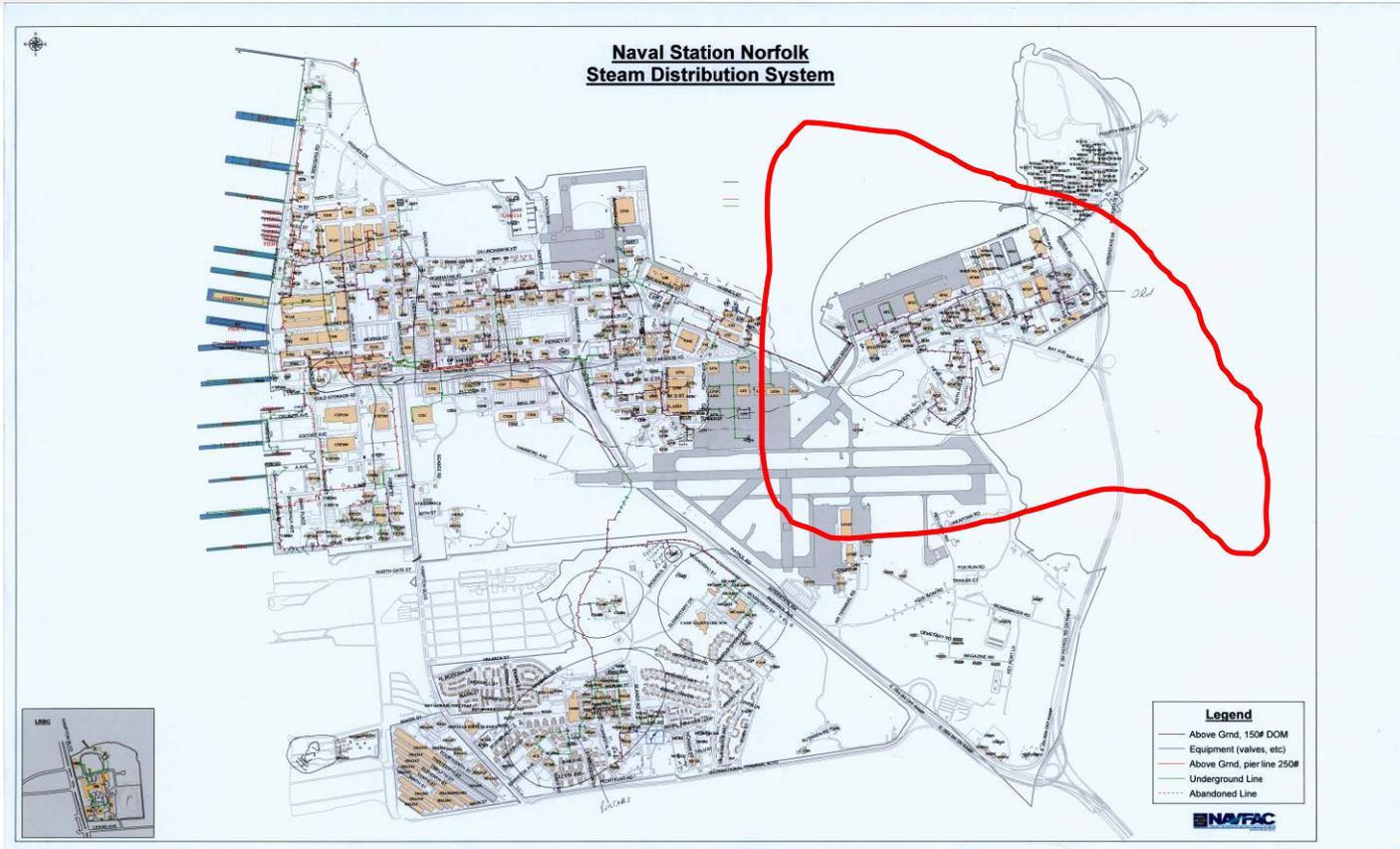
- ❑ Financing and Bonding Package
- ❑ Engineering, Development, Design and Installation
- ❑ Measurement and Verification Services
- ❑ Project Management & Ongoing Staff Training
- ❑ Strategic Energy Master Planning



Phase I – Mod 01

- ❑ Additional opportunities identified but not originally included in Phase I
- ❑ Additional investment of \$3.3M with added annual energy savings of \$450K
- ❑ Scope included:
 - Central steam to NG conversion – 3 buildings
 - HVAC efficiency improvements – 4 buildings
 - Emergency Generator replacement
 - AMR system enhancements
- ❑ Implementation Sept., 2008 – March, 2009

Phase II





Phase II

- ❑ Program starting to “pick up steam?”
- ❑ Phase II includes partial steam system decentralization
- ❑ Scope included:
 - ECM 1: Lighting Retrofits (44 Buildings)
 - ECM 2: Water Conservation (31 Buildings)
 - ECM 3: Central Steam-to-Point of Use conversions (30 Buildings)
- ❑ Estimated investment less than \$22M and annual energy only savings of \$2.7M
- ❑ Estimated 18 month implementation schedule

Other / Future Program Aspects

- ❑ ECIP opportunities implemented
 - VNG / ESG team able to make an ECIP project fit the program / budget
 - Project included Geothermal HP's, Chiller & Boiler replacements and controls for building SP-17
- ❑ Future partnership program plans
 - Phase III – additional steam plant decentralization
 - Phase IV – Potential on site generation
 - Phase VI - ???????

Why the Partnership Works

- Key personnel now understand the benefits of and how the UESC program process flows
 - Very flexible and streamlined
 - Key infrastructure needs and NAVFAC mission requirements can be achieved through the UESC program – not just lighting and the easy stuff
 - VNG and ESG work hand in hand with NS Norfolk to achieve the US Navy's short and long term energy goals
 - Continuous education and training for all parties