Corporate Capabilities 2019

Sustainability. Energy. Infrastructure

101 Quality Circle, Suite 130
Huntsville, AL, 35806
Phone: (256) 533-0500 ext. 302
Email: eloy.torrez@seigroupinc.com
Customer Segment
Customer Needs
We Provide

Contract Needs
• Single Award DB/DBB ($1M - $5M)
• Medium MACC DB/DBB ($1M-$15M)
• Responsiveness
• Safety
• Quality
• Best Value
• Geographic Diversity

Engineering-Construction Needs
• Design to Requirements/Budget
• Maintain Schedule
• Control Costs
• Minimize Change Orders
• No Lost Time Incidents/Fatalities

We Provide
• Project Team Approach
• Partnering with Clients
• System Engineering Based
• MS-Project™
• Primavera

Staffed to Meet Clients Needs
• Experienced Energy & Facilities Staff
• Experienced Construction Managers
• Ability to Rapidly Respond
• All Engineering Disciplines

High Quality
• National SBA Award of Excellence
• Client Endorsed
• NASA, MSFC Small Business Contractor of the Year, 2009

Sustainability. Energy. Infrastructure
“[SEI]... always had the best interest first ahead of their own. Customer’s mission requirements were always number one.”

- Mitchell Hanson, Senior Project Manager
  Whiteman Air Force Base

“I would rate [SEI] number one or two of over 100 contractors that have performed work for our organization over the last nine years.”

- Alain Flexer, Energy Manager
  Marine Forces Reserve

“[SEI] overcame delays in obtaining access to the work site and was cooperative with scope changes... Construction was completed ahead of schedule with quality workmanship.”

- Gregory Jones, Contracting Officer
  Air Force Contracting

“All projects have their ups and downs, but this has been the easiest and most professional group that I have been around in thirty years of design and construction.”

- Contracting Officer’s Representative
  Maxwell Air Force Base

“[SEI] was excellent to work with, straight forward team player. I never felt that there was an adversarial nature to any of our encounters or discussions and that is a welcome change considering with some of our contractors it is the complete opposite.”

- Craig Hickle, PE, Senior Project Engineer/Manager
  Offutt Air Force Base
“The government performed engineering cost analyses on all aspects of the task order. The contractor was diligent in earning the government’s respect by ensuring the government received the best price available.”
- ESSV TO 28 CPARS. USACE/Aberdeen Proving Grounds, MD Senior Project Manager

“The contractor provided fantastic full time management and onsite project management personnel for this project who worked well with Huntsville Center and the [Ft. Bragg] DPW personnel. Onsite personnel were always trained for the position and professional in job performance. The schedule had been extended for this project three different times due to various delays caused by the government or changes that were within scope. These delays were handled in a professional manner and with very little negative impact to the building end users.”
- ESSV TO 18 CPARS. USACE/Ft. Bragg, NC Senior Project Manager

“QC testing was provided timely with little oversight required. Contractor QC Program was proactive which kept down time for HVAC to buildings to a very minimum.” Contract was proactive in offering alternatives when existing conditions interfered with installation. The onsite PM did an impressive job of coordinating many difficult scheduling issues and coordination with the customer and building users.
- ESSV TO 04 CPARS. USACE/Ft. Carson, CO Senior Project Manager

“Great contractor, great service. The contractor effectively managed all members their team, schedule, cost, and provided a quality product. Given what I know today about the Contractor’s ability to execute what they promised in their proposal, I definitely would award to them today given that I had a choice.
- ESSV TO 32 CPARS. USACE/Ft. Benning, GA Senior Project Manager
Contract Vehicle Segment
<table>
<thead>
<tr>
<th>Contract Vehicles</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>USAF SATOC</strong></td>
</tr>
<tr>
<td>FA3002-08-D-0014</td>
</tr>
<tr>
<td>Small Business 8(a) Design-Build</td>
</tr>
<tr>
<td>Facilities Sustainment, Renovation &amp; Maintenance</td>
</tr>
<tr>
<td>Building Systems Upgrades</td>
</tr>
<tr>
<td>Energy Conservation Measures</td>
</tr>
<tr>
<td><strong>GSA</strong></td>
</tr>
<tr>
<td>00CORP (SINs C871-202; 871 1; 871 7; 871-4)</td>
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<tr>
<td>03FAC (SINs 811 005; 811 006; 003 01) <strong>Pending</strong></td>
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<tr>
<td><strong>USACE UMCS IV</strong></td>
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<tr>
<td>W912DY-15-D-0011</td>
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<tr>
<td>Design-Build</td>
</tr>
<tr>
<td>Mechanical and Electrical Systems</td>
</tr>
<tr>
<td>Building Automation and Controls Systems</td>
</tr>
<tr>
<td>Advanced Utility Metering</td>
</tr>
<tr>
<td><strong>Joint Ventures with 8(a) Tribal or Alaska Native Corporations</strong></td>
</tr>
<tr>
<td>Design-Build</td>
</tr>
<tr>
<td>Energy &amp; Technologies</td>
</tr>
<tr>
<td><strong>Subcontractor</strong></td>
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<tr>
<td>IAP/RMS</td>
</tr>
<tr>
<td>Honeywell</td>
</tr>
<tr>
<td>Pond Engineering</td>
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</tbody>
</table>
Company Segment
Mission

SEI achieves operational success by satisfying customer needs, selecting growth opportunities, rewarding associates for performance, and meeting citizenship responsibilities for society.

Values

• Global Market Focused
• Superior Quality Performance
• Profit is Defined as Customer Satisfaction
  – Perform on Contracts
  – Meet Technical, Quality, Schedule, and Cost Requirements
  – Reduce Schedule Time
  – Reduce Cost Continuously
• Health & Safety
• Learn
• Organize
History

- Founded in 1996 in Huntsville, Alabama
- 51 Employees and 17 Engineers
- Small Disadvantaged Business
- $50 Million Bonding Capacity ($15 Million/Project)
- Completed 650+ Projects in 17 Countries
- Current Projects Total Value Exceed $53.15M
- Joint Venture & Mentor to ANCs and Tribal 8(a)s
- Boeing Performance Excellence Award 2007
- Hispanic Business 500 Magazine Feature Every Year (2002-2015)

NASA MSFC Small Business Prime Contractor of 2009
Highlights

Sales
($ Millions)

<table>
<thead>
<tr>
<th>Year</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales</td>
<td>$21.2</td>
<td>$13.2</td>
<td>$29.1</td>
<td>$24.3</td>
<td>$19.2</td>
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</table>

Contracts

<table>
<thead>
<tr>
<th>Year</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
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<td>Contracts</td>
<td>16</td>
<td>16</td>
<td>15</td>
<td>13</td>
<td>10</td>
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</tbody>
</table>

Employees

<table>
<thead>
<tr>
<th>Year</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
</tr>
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<tbody>
<tr>
<td>Employees</td>
<td>31</td>
<td>32</td>
<td>36</td>
<td>41</td>
<td>46</td>
</tr>
</tbody>
</table>

Backlog
($ Millions)

<table>
<thead>
<tr>
<th>Year</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Backlog</td>
<td>$18.2</td>
<td>$36.2</td>
<td>$33.6</td>
<td>$31.6</td>
<td>$53.3</td>
</tr>
</tbody>
</table>
Our Culture
The SEI 3 P’s

People.
- Diversity
- Business Integrity
- Social Responsibility

Process.
- Discipline
- Feedback

Products.
- Quality
- Innovation

Our Inverted Pyramid of Values
Registered Engineers & Architects
Total - 11
### People

#### Expertise and Certifications

<table>
<thead>
<tr>
<th>Discipline</th>
<th>Registration/Certification</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 Mechanical Engineers</td>
<td>3 PE, 1 CEM, 1 CPD, 1 LEED ®</td>
</tr>
<tr>
<td>3 Civil/Structural Engineers</td>
<td>3 PE</td>
</tr>
<tr>
<td>8 Electrical Engineers</td>
<td>4 PE, 3 CEM, 1 CEA</td>
</tr>
<tr>
<td>1 Architect</td>
<td>1 RA</td>
</tr>
<tr>
<td>2 Security/Electronics Engineers</td>
<td>1 RCDD</td>
</tr>
<tr>
<td>14 Construction &amp; Cost Managers</td>
<td>1 PE</td>
</tr>
</tbody>
</table>

- Member, Association of Energy Engineers
- RCDD Registered Communications Distribution Designer
- USGBC LEED ® Accreditation
- CEA Certified Energy Auditor
- CPD Certified Plumbing Designer
- CEM Certified Energy Manager
Process

SEI Requirements:
SEI Management System
Quality & Safety Plans

Customer Requirements:
Quality & Safety Plans

Work Process
Function (Technical, Time & Cost)
Documentation and Standardization

Improvements

Technical, Quality & Time & Cost
Metrics

Customer & SEI Milestones
& Deliverables
FEOTB Winning Contracts Process

Select Markets
(MR & CM)

Conduct Secondary Research
(MR)

Conduct Primary Research
(CM & M)

Mkt Research Reports
(MR)

Identify Segments & Customer Relationships
(M)

Make Interest/Pursue/Bid Decisions
(M & CM)

Visit & Qualify Prospects
(M & CM)

Business Area Plans
(M)

Identify Proposal Milestones & Resources
(CAM, M, & PM)

Assess Competition & Teammates
(CAM, M, & PM)

Make Final Bid/No Bid Decisions
(CAM, M, PM & CM)

Capture & Proposal Plans
(CAM)

Write Winning Proposals
(CAM, PFM, PM & FBA)

Win Contracts

Follow-On Marketing Plans
(PM)

Responsible Organization

MR = Market Research
M = Marketing Management
CAM = Capture Management
PFM = Proposal Factory Management
PM = Program Management
CM = Corporate Management
FBA = Finance & Business Administration

Sustainability. Energy. Infrastructure
Program – Contract Execution Process

Responsible Organizations:
CM = Corporate Management
PM = Program Management
FBA = Finance & Business Administration
CAM = Capture Management
FM = Functional Management

Contract or Task Order RFP
Proposal Plan (PM & CAM) → Bid/No Bid Decision (PM & CM) → Site Visit (PM & FM) → Technical & Cost Proposals & Preliminary Program Plan (PM & FBA)

Budget Authorization (CM, PM & FBA) → Final Program Plan (PM)

Review & Approve Proposals (CM, PM, CAM & FBA) → Negotiate Contract Task Order (CM, PM & FBA) → Receive Contract Task Order (FBA)

Perform Work & Deliver Items (PM & FM) → Cost Reports (FBA) → Invoices / Payments (FBA) → Red Zone Plan & Punch List (PM & FM) → Archive Data/Close Contract or TO (FBA)

Technical & Schedule Reports (PM)
Products - Services

Sustainability
- Turnkey Sustainable Solutions
- Architecture Engineering & Design Services
- Design-Build & Design-Bid-Build Construction
- Construction Management & Inspection
- Operations & Maintenance
- Information Assurance & Cyber Security

Energy
- Energy Services
- Control Systems Technologies
- HVAC
- Renewables
- Wind, Photovoltaic, Solar Thermal, Geothermal
- Power Generation & Distribution

Infrastructure
- Building Automation Systems
- Utility Monitoring & Controls Systems
- Fire Protection and Alarm Systems
- Electronic Security Systems
- Advanced Utility Metering & Monitoring
Management Segment
• First Who ... Then What ... Right People ... Right Places
• Innovative ... Proactive ... Responsive ... Disciplined
• Decentralized Structure ... Follows Strategy
• Information & Communications ... Team Manager
• Plan the Work ... Work the Plan ... Review the Plan ... Review the Work
• Fulfill People’s Needs ... Mentor ... Objectives & Performance ... Not Personality/Charm
Program Management

- Planning
- Design to Requirements
- Scheduling
- Cost Control
- Lessons Learned
Construction Management

• Construction Plan Execution
• Cost Estimating
• Cost-Loaded Scheduling
• Procurement
• Safety
• Quality
Construction Management

**Functions**

- Planning
- Procurement
- Site Management
- Inspections
- Troubleshooting
- O&M Training
- Retrofitting
- Restoration
- Modernization

**Facilities**

- Military
- Dams
- Airfields
- Industrial
- Office/ Admin
- Laboratories

**Systems**

- Lighting
- Power Generation
- Power Distribution
- Controls
- Meters
- Fire Alarm Systems

Sustainability. Energy. Infrastructure
Services Business Lines Segment
• Requirements Definition
• System & Major Component Specifications
• End to End Integrated Design Development
• Energy Audits
• Energy Efficient System Trade Studies/Troubleshooting
• Integration With Existing Equipment
• Real Time Optimal Control
• Project Commissioning/Retro-Commissioning
• System Integration & Test
• Measurement and Verification
• Hardware/Software Integration & Test
Design Engineering

- Architectural, Civil & Structural Engineering
- Electrical, Mechanical & Controls Engineering
- Design Plan
- Energy Efficient Designs
- Validation of New Technologies
- Optimal Control Designs
- LEED Design & Services
- Applied R&D Engineering
- Retrofit-Renovation Design
- Renewable and Alternative Energy Systems
- Energy Audits & Surveys
- Measurement and Verification
- System Commissioning/Retro-Commissioning
Architect Engineering Services

Marshal Space Flight Center and NASA Project

A-E & Design Services Include:

- Design + Planning
- Engineering Support
- Construction Support
- Cost Estimating
- Facility Maintenance
- Emergency Response
- Contingency Engineering

Awarded 2009 MSFC Small Business Prime Contractor of the Year for this Project
Engineering - Construction Services

**Services**
- Designs
- Reviews
- Assessments/Inspections
- Consulting
- Installation
- Demolition
- Renovation
- Construction
- Construction Management
- Cost Estimating
- Emergency Response

**Projects**
- Anti-Terrorist / Force Protection
- Security Gates & IDS
- Test & Training Ranges
- Office Buildings, Medical Facilities, Dorms, Utilities, HAZMAT Storage & SCIFs, Science Labs & Clean Rooms
- Airfields, Hangars, & Lighting Systems
- Electrical Power Generation, Distribution & Utilities Metering
- HVAC Systems Renovation & Repair
- Alternative Energy – Solar, Wind & Geothermal
Maintenance and Services (M&S) of Facilities and Equipment

**Noble Training Center, Anniston, AL**
National Center for Health and Medical Education in Disasters and Terrorism

- 162,000 square feet & 20 acres of land
- Utilities Relocation
- Fleet Management
- Training Support
- Student Support
- Dormitory Management
- Student Transportation

**West Point, NY.**
United States Military Academy.

- Installation’s utilities metering systems.

**Ft. AP Hill, VA.**
Regional Training Center

- Geothermal System
- HVAC Systems
- UMCS/DDC

**Fort Meade, MD.**
The Nation's Center for Information, Intelligence and Cyber Operations.

- HVAC
- SCADA
- UMCS/DDC
- Electrical Power
Energy Audits
LEED Services
Validation of New Technologies
Applied Research & Development Engineering
Energy Efficient Design
Retrofit-Repair-Renovation
Integration with Existing Equipment
New Construction
Project Commissioning
Retro-Commissioning
Independent Evaluation Measurement & Verification

Ft Bliss PV Canopies
Ft. Sill Solar Thermal Swimming Pool Technology Demonstration
Contingency Operations

AFCAP Projects

Created infrastructure for deployed forces in Afghanistan and Kyrgyzstan

Power Generation and Distribution

Airfield Lighting Design

Emergency Response for Natural Disasters

Eglin and MacDill Featured

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Emergency Response
Disaster Relief

- Recovery from 2003 Hurricane Isabel, Langley AFB, VA
  - Evaluated numerous buildings for USAF
    - Site assessment
    - Specification preparation
    - Design analysis & drawing preparation
    - Cost estimation
    - Prepare construction documents

- Recovery for 2004 Hurricanes, Hurlburt Field, FL
  - Evaluated entire base for USAF
    - Site assessments & construction document preparation
    - General design analysis & cost estimates for numerous renovations caused by wind damage
    - Detailed design and repair

- Recovery for 2005 Hurricane Katrina, NASA Michoud Assembly Facility, LA
  - Evaluated entire facility for NASA
    - Site assessments & construction document preparation
    - Cost estimates for budget submission
Product Business Lines Segment
Sample Projects

**NOAA- MATOC**
Weather Station, AK
Hollings Marine Lab, SC

**US Air Force / SR&M Contract (SATOC)**
Holloman AFB (6), Whiteman AFB, Westover ARB, Wright-Patterson AFB (4), Maxwell AFB, Langley AFB, Offutt AFB (2), Vandenberg AFB, Hill AFB

**NAVFAC HVAC MACC**
Miramar Marine Base, Camp Pendleton

**US Army / UMCS III & IV**
Aberdeen Proving Ground, MD (23)
Restoration - Modernization

Customer: United States Air Force - SATOC
Location: US Air Force Installations Worldwide

Program Details:

- Competitively won 44 task orders exceeding $74.5M
- Design-Build and Construction only tasks
- Energy, security, infrastructure, building renovation and POL facilities tasks
- Tasks in AL, AZ, CA, FL, GA, IL, MA, MI, MO, MS, NE, NM, OH, OK, PA, SD, TN, TX, UT, and VA

Barriers at Maxwell AFB
High Performance, Low Energy Lighting
US Air Force Museum, W-P AFB
Relays and Controls, Sqd Ops
Bldg, Westover ARB, MA
New Pumps, Valves APS Ops
Bldg, Westover ARB, MA
Construction of PV Parking Canopy
Los Angeles AFB
Site Prep, Child Development Ctr
Davis-Monthan AFB
Building Systems

- Utility Monitoring and Controls Systems
- Optimal Energy Management Controls
- Process and Facility Instrumentation
- Supervisory Control and Data Acquisition
- Programmable Logic Controllers
- Distributed Control Systems
- Single Loop Controllers
- Variable Speed Drives
- Relay Based Controllers
- Real Time Optimal Control
HVAC and Controls Systems

• **Mechanical/HVAC Design & Install**
  - 48 Tasks for US Navy involving new technology worth $15.8M over 4-1/2 years
  - 55+ Tasks for US Army and USAF involving HVAC Systems and UMCS Integration worth more than $48M in past 6 years.

• **Controls**
  - Over 8 UMCS/DDC Upgrade Tasks worth $14.0M in past 4 years.

- Cooling Towers at APG, MD
- Chiller at Ft. Carson, CO
- Relays and Controls, Sqd Ops Bldg, Westover ARB, MA
- New Pumps, Valves APS Ops Bldg, Westover ARB, MA
- New Boiler at APG, MD
- Base Wide UMCS at Ft. Benning, GA
- Upgrade DDC Controls at Ft. Polk, LA
• **Ft. Polk, LA.** Utility Monitoring and Control System (UMCS) Direct Digital Controls (DDC) for 26 buildings. Provided a Niagara AX-based Tridium framework utilizing Vykon branded JACE-600 controllers.

• **Ft. Campbell, KY.** Installed & integrated 180 new AX JACES at multiple facilities throughout Ft. Campbell.

• **Ft. Benning, GA.** Installed all hardware and software and accomplished system programming to integrate 116 buildings’ existing controllers into the installation’s NiagaraAX Server.

• **Presidio of Monterey, CA.** Installed new Direct Digital Control (DDC) equipment and controllers for 4 Buildings, to include the HQ’s building.

• **Ft. McNair, Washington, DC.** Replaced the head end of the UMCS system and installed DDC components in the central HVAC plant.

• **88th USARC, Wabasha, Duluth & Brainerd, MN.** Procured and installed all new DDC hardware, software & accomplished system programming.

• **Ft. Bragg, NC.** Update controls on 17 hot water boilers and 19 chillers (multiple buildings).
Utility Monitoring and Control Systems

USACE- Huntsville Center

Includes:
• Electronic Security Systems (ESS)
• Heating, Ventilation, and Air Conditioning (HVAC) Controllers
• Direct Digital Control (DDC) Systems
• Supervisory Control and Data Acquisition (SCADA) Systems
• Fire Alarm Safety (FAS) Systems
• Advanced Metering

Implementation:
• Specialty computer-based monitoring, surveillance, and control systems
• Connection of sensors, surveillance equipment, and control devices to the local monitoring system via hardwiring
• Connection of local monitoring, surveillance, and control systems to campus-wide supervisory systems via the secure IP network

Examples:
Vendor specific camera systems, radar systems, intrusion detection systems, access control systems, annunciation systems, etc.

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Installation and Integration of Smart Meters: 7 Task Orders worth $6.152M in past 4 years.

• US Military Academy, West Point, NY (Installed electric, gas, water & steam meters in excess of 90 buildings)
• JB Langley-Eustis, VA. (92 AMRS compliant electric meters)
• Beale AFB, CA (49 AMRS compliant electric meters)
• Arnold AFB, TN (65 AMRS compliant meters)
• Hill AFB, UT (Installed AMRS compliant electric meters and gas meters in 16 bldgs).
• USACE Civil Works Locations at New Orleans, LA; East Alton, IL; Warsaw, MO. (Electric meters)

• Ft. Campbell, KY (Install advanced electric, gas, water, and steam meters)
Projects

Vulnerability Assessments
179 Offices Across United States
And 2 US Territories

Vehicle Gate Modifications/ACP
Andrews AFB, Maxwell AFB, Fort Campbell, Redstone Arsenal

Electronic Security/CCTV
Ft. Meade, JB Eustis-Langley, Ft. Sam Houston, Grand Coulee Dam, Jennings Randolph Dam, Jones Bluff Dam, Millers Ferry Dam, Huntsville Madison County Airport Authority

Fire Alarm and MNS Systems
Ft. Wainwright, Grissom ARB, Holloman AFB, Adelphi Laboratory, USARCs in Wabasha & Brainerd, MN
Installation of Fire Alarm and MNS Systems:

- Ft. Wainwright, AK
- Grissom ARB, IN
- Holloman AFB, NM
- Adelphi Laboratory, MD
- 88th USARC in Brainerd, MN
Electronic Security/CCTV
Ft. Meade, JB Eustis-Langley, Ft. Sam Houston, Grand Coulee Dam, Jennings Randolph Dam, Jones Bluff Dam, Millers Ferry Dam, Huntsville Madison County Airport Authority

Vulnerability Assessments
179 Offices Across United States And 2 US Territories

Vehicle Gate Modifications/ACP
Andrews AFB, Maxwell AFB, Fort Campbell, Redstone Arsenal
Representative Projects

**US Navy NAVFAC**
- Point Mugu, CA; Monterey, CA; Pearl Harbor, HI; Portsmouth, ME; Newport, RI; Port Hueneme, CA

**US Army Corps of Engineers**
- Grissom ARB, IN; Ft. Bragg, NC; Ft. Campbell, KY; DLA Richmond, VA; AFRRI Bethesda, MD

**Air Force Civil Engineering Center**
- Wright-Patterson AFB, OH
Geothermal

Projects

USAF – Langley AFB, VA
• ACC HQ’s Campus
• Two Bore Fields
• 528 Total Wells @ 400’ Deep
• Approx. 880 Tons of Cooling
• $6.706M

US Army – Ft. Hunter Liggett, CA
• Family Housing Duplex
• 8 Total Wells up to 500’ Deep
• $394K

US Army – Iowa Army Ammunition Plant
• Administrative Building
• Remove steam requirement from building by modifying HVAC, connecting to new geothermal field.
• $1.294M

Sustainability. Energy. Infrastructure
Electrical Power Design - Build ... Over 35 Tasks

- 1250KVA Substation, Ali Al Salem AB, Kuwait – Construction Value: $1,000,000
- Aircraft Parking Ramp Electrical, Al Dhafra AB, UAE and Al Udeid AB, Qatar - Construction Value $29,000,000
- 7 MW Power Plant Design and Build, Iraq Construction Value: $6,900,000
- Special Operations Command (SOCOM) Data Center Upgrades, MacDill AFB, FL
- Redundant Electrical System Study – Missile Defense Agency (MDA) HQ’s; Ft. Belvoir, VA
- Replace Backup Generator at Ft. Leavenworth, KS
Electrical Power Systems

- Camp Falcon 7 MW Power Plant
  Complete Diesel Fueled Generation
- High-Security Industrial Facilities
  1,000,000 Sq Ft High-Bay Lighting
  Electrical Panels & Wiring
- Electrical Substation– 1250KVA Substation
  3-167KVA UPS 1,000KW Emergency Generator
- Electrical & Lightning Protection System, 3 Pad-Mounted Substations
- Primary and Secondary Distribution System for 5,000 Man Military Camp
- Power Plant Improvements– Cable and Fuel Troughs
- Modular Office Electric Power Maintenance Shelter Water Line & Power

Sustainability. Energy. Infrastructure
Energy Products

Roof Mounted Crystalline PV
Ft. Benning, GA & Tampa, FL

Geothermal
Langley AFB, VA & Ft. Hunter Liggett, CA

Wind Turbines
Great Lakes, IL; Amarillo, TX, and Battle Creek, MI

PV Parking Canopies
LAAFB, CA & Ft. Bliss, TX

LED Parking Lot Lighting
NBVC Port Hueneme, CA

High Bay Hanger Lighting
Point Mugu, CA & Ft. Bragg, NC

Sustainability. Energy. Infrastructure
Other Energy Products

- Clean Coal to Liquid Fuels
- Waste to Energy
- Geothermal Energy
- Solar Thermal Energy
- Geothermal Heat Pump Systems
- Waste Fuels Recycling
- Integrated Energy Technologies Systems
Renewable Energy

- Building Integrated Photovoltaics
- Turbocor Compressor Chiller Retrofit
- LED Parking Lot Lighting
- Roof Mounted Crystalline PV
- External Insulation Finish Systems
- Microturbines / CHP
- Destratification Fans
- Window Films
- Induction Lighting
- CO₂ Control
- Zinc Bromide Flow Battery
- Desuperheaters
- Occupancy HVAC Control
- Building Pressure Control Optimization
- Aerosol Duct Sealant
- Solar Air Conditioning
- Condensing Boilers
- Wind Turbines
POL Systems ... USAF SATOC ... Over 17 Tasks Exceeding $40.3M in Value

- Demolition of Jet Fuel Complex at Lambert IAP/ANGB, MO
- Repair Above Ground Fuel Storage Tanks IAW API 653 and API 579 Standards
- Repair Fuel Stands and POL Facilities to include:
  - Construct New Canopies
  - Repair Grounding & Lightning Protection Systems
  - Repair Electrical Systems to NFPA Class 1/Div1 Standards,
  - Correct Drainage and Secondary Containment Deficiencies
  - Repair/Replace Fuel Distribution Piping
  - Install New Fuel Dispensing Control Systems
• Demolition-Remediation-Renewal of Fueling Station...Point Mugu NAWS, CA
  – Disposition...Gasoline & Diesel Fuel Pumps and Underground Pipe...Underground Gasoline Tank...Valves on Tank Berms
  – Remediation...20,000 Cubic Foot Area
  – Installation...Dual Hose Fuel Pumps...Containment Pan...Double Walled Pipe...Fuel Farm Pumps...Vapor Recovery System...Under Ground Piping Leak Detection System

• Maintenance, Service, & Emergency Repairs for 14 Army Sites in Republic of Korea
  – MOGAS Stations & “Hot Point” Aircraft Refueling Facilities
  – Maintenance and Minor Repairs
POL Tanks & Pipelines

Prime Contract with
Naval Facilities Engineering Service Center

• Program Management & Design-Build ... IN-HOUSE
• Over 20 miles of Pipeline Inspection & Repair, NAS Guam
• Repair / Alteration of Large Bore Pipelines (6 miles) at Seymour Johnson AFB, NC...Indian Head NAS, MD... Patuxent River NAS, MD...El Centro NAF, CA
• API 650 Tank Retrofitting at Point Mugu NAWS, CA
• Accommodated Increased Refueling Capacity & Emergencies
• Sales...$986,700...2000 to 2002
Facilities Support

Marshall Space Flight Center, Alabama
Approximately 300 Buildings and Structures
4.2 Million Gross Square Feet
1,841 Acres

Rocket Engine Test Stands
Cryogenics
High Pressure Systems

Communications and ADP Facilities
UPS and Critical Power Distribution
Redundant HVAC Systems

Space Utilization
Master Planning
Cost Estimating
Energy Management
Interior Design
Civil/Surveying
Systems Drawings

Mission Essential Infrastructure
Security and Facility Protection
Utility Control Systems

Utilities and Installation of Special Test Equipment
Clean Room Designs
Feasibility Studies
• **FEMA National Emergency Training Center**
  – McClellan, AL (2003-2005)
  – $3M for facility operations ... transportation services ... maintenance ... student support services.

• **Corps of Engineers Gulf Region Division (2005-2006)**
  – $2M for operations ... repair & maintenance of 7 MW power plant ... substations ... distribution systems
  – Camp Falcon, Baghdad, Iraq

• **Corps of Engineers, Huntsville**
    • $3M for operations ... maintenance and engineering ... repair and upgrades.
    • $2.54 M ceiling (to date) for preventive maintenance ... corrective maintenance

**Corps of Engineers, Mobile (2003-2004)**
  – $15M ceiling for O&M ... support repair ... incidental demolition and construction ... renovations
  – North and central Mississippi & Alabama
Technologies
## Energy Solutions

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Sustainability. Energy. Infrastructure
Energy Renewables R&D

PV

PV

Battery

Inverter

Transformer

AC Load

AC Bus

AC Power Meters

Auto-Switch Equipment

Utility Grid

Status Information

DC Bus

Voltage & Current

Status Information

Status Information

Sustainability. Energy. Infrastructure
System Components

- 18 kW Copper Indium Gallium Selenide (CIGS) Photovoltaic (PV) – 200 panels
- 17 kW Amorphous Silicon/Microcrystalline PV – 132 panels
- Zinc Bromide Flow Technology Battery – 50kWh
- Auto-Switching Equipment Grid Connection
- New LED and Induction Lighting Fixtures Load
- Monitoring System
Modular Battery Technology

Zinc Energy Storage System (ZESS)

- 50kWh Regenerative Fuel Cell (RFC) system
- Chargeable from a variety of power sources
- Differing charge rates
- Fast re-charge time (3-4 hours)
- Discharge at continuous rates up to 300A
- Totally self-contained
- Runs independently from the grid
- Fully automated control system
Roof Mounted PV Technology

PV Mounted on existing Roof Facade to Avoid Roof Penetrations

Sustainability. Energy. Infrastructure
Solar Partnership and ESTCP Research & Development

- Solar Cogeneration Technology Manufacturer Co-Performer
- ESTCP Proposal to develop the SEI SOLVE
  - Our new solar software solution currently in development

Sonoma Winery Solar Cogeneration Project
The SEI- SOLVE
Magnetic Bearing Chiller Compressor

Customer: United States Navy – NAVFAC ESC

Location: NAS Jacksonville, FL – Bldg 926

Project Details:

- Oil free chiller compressor
- Magnetic bearings
- 60 to 90 ton capacity
- Retrofit to existing York chiller
- 286,000 kWh annual energy savings (41%)
- Reduced operating noise levels
- Operates as low as 0.3 kW/ton
Magnetic Bearing Chiller Compressor

Scope of Work:

- Site assessment
- Risks and issues reports
- Project plan development
- Designs
- Procurement and installation of chiller for Rhode Island
- Procurement and retrofit of chiller in California
- Installation of selected monitoring system components
- Minimal disruption to facility
- Commissioning
- O&M training

New Chiller with Magnetic Bearing Compressor at Newport

Compressor Retrofit, San Diego – Three Compressors

Compressor Retrofit at San Diego – Two Compressors

Sustainability. Energy. Infrastructure
Scope of Work:

- Diesel fired Microturbine
- Electric generator
- Heat exchanger
- Controls
- Emissions test
- Data collection equipment
- Boiler feed water tie-in
Indirect Evaporative Cooler

Sustainability. Energy. Infrastructure
Occupancy HVAC Control
Small Destratification Fans
Aerosol Duct Sealant
Customer: United States Navy – NAVFAC ESC

Location: NBVC Port Hueneme, CA – Bldg 1100

Project Details:

• 23 Existing 400W high pressure sodium fixtures
• Replaced with 19 new 156W LED fixtures
• > 60% measured and validated reduction in energy usage
• Non-existent to minimal lumen depreciation
• 150,000 hour lamp life
• Designed to IESNA standards
Building Integrated Photovoltaics

Customer: United States Navy – NAVFAC ESC

Location: NAS Patuxent River, Maryland – Bldg 515

Project Details:

• Peak power output of 27 KWp DC STC
• Expected energy output of 31,560 kWh annually
• Building integrated PV meeting Cool Roof rating standards
  – Overlay of existing roof without exceeding roof loading units
• Panel type
  – Amorphous silicon panels enable maximum kilowatt-hour output, producing electricity using a wider spectrum of light than traditional
• Remote on-line monitoring of energy production and usage in real-time
Customer: United States Navy – NAVFAC ESC

Location: NAS Lenmore, California- Bldg 50

Project Details:

- Peak power output of 14.4 kWp DC STC
- 72 - 200 Watt high efficiency solar modules
- Expected energy output of 26,280 kWh Annually
- Stainless & galvanized custom mounting
- Without exceeding roof loading limits
- Monitoring and validation of energy output
- Reduction of over 800,000 lbs. CO₂ during 20 year life of product