

Volume I Technical Submission

Response to
Small GESA Request for Proposals

For A Guaranteed Energy Savings Contractor For:

Small GESA-3 Project for
Department of General Services at

Department of Human Services
Selinsgrove Center

Commonwealth of Pennsylvania
Department of General Services
Harrisburg, PA

March 17, 2017

Submitted by:



Company Name: McClure Company
Company Address: 4101 North Sixth Street, Harrisburg, PA 17110
Contact Person: Alyssa Wingenfield, Account Executive
(717) 514-0576 (phone)
(717) 236-5239 (fax)
alyssawingenfield@mcclureco.com

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ATTACHMENTS

ATTACHMENT 1 – RETAINED PROFESSIONAL AND SUBCONTRACTOR RESUMES

ATTACHMENT 2 – LIPTEN COMPANY CASE STUDY & REFERENCES

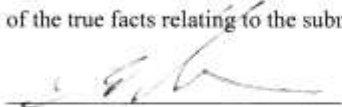
Proposal Signature

Proposer's Representations and Authorizations. Proposer by signing on the signature page and submitting its proposal understands, represents, acknowledges and certifies that:

- a. All information provided by, and representations made by, the Proposer in the proposal are material and important and will be relied upon by the Issuing Office in awarding the contract(s). Any misstatement shall be treated as fraudulent concealment from the Issuing Office of the true facts relating to the submission of this proposal. A misrepresentation shall be punishable under 18 Pa. C.S. § 4904.
- b. No attempt has been made or will be made to induce any firm or person to refrain from submitting a proposal on this contract, or to submit a proposal higher than this proposal, for to submit any intentionally high or noncompetitive proposal or other form of complementary proposal.
- c. The proposal is made in good faith and not pursuant to any agreement or discussion with, for inducement from, any firm or person to submit a complementary or other noncompetitive proposal.
- d. To the best of the Company's knowledge, neither the Company nor any of its affiliates, subsidiaries, officers, directors or employees are currently under investigation by any governmental agency regarding a matter concerning conspiracy or collusion with respect to proposing and/or bidding on any public contracts, and have not been convicted or found liable for any act prohibited by state or federal law in any jurisdiction regarding conspiracy or collusion with respect to proposing and/or bidding on any public contracts.
- e. To the best of the knowledge of the person signing the proposal for the Proposer and except as otherwise disclosed by the Proposer in its proposal, the Proposer has no outstanding, delinquent obligations to the Commonwealth including, but not limited to, any state tax liability not being contested on appeal or other obligation of the Proposer that is owed to the Commonwealth.
- f. The Proposer is not currently under suspension or debarment by the Commonwealth, or any other state, or the federal government. If the Proposer has received, within three years of the issuance of this RFP, a Notice of Default from the Commonwealth, other state or the federal government, then the Proposer shall submit, as part of the Technical Submission, seven copies of a written explanation of why such Notice of Default was issued. This written explanation shall not exceed 1 sheet (2 pages) and shall not count towards the sheet and page limit established for the Technical Submission of the proposal.
- g. The Proposer has not, under separate contract with the Issuing Office, made any recommendations to the Issuing Office concerning the need for the services described in the proposal or the specifications for the services described in the proposal.

- h. Each Proposer, by submitting its proposal, authorizes all Commonwealth agencies to release to the Commonwealth information related to liabilities to the Commonwealth including, but not limited to, taxes, unemployment compensation, and workers' compensation liabilities.
- i. Until the awarded Small GESA Contractor receives a fully executed and approved written contract from the Issuing Office there is no legal and valid contract, in law or in equity, and the Small GESA Contractor should not begin to perform.
- j. The total energy savings projected in the final scope of work will be at least 95% of the savings projected in the proposal and that the project will be self-funded over the financial term of the project (maximum term of 20 years.)
- k. Proposer agrees and certifies in accordance with the enclosed Commonwealth of Pennsylvania:
 - o Nondiscrimination/Sexual Harassment Clause
 - o Tax Liability Certification
 - o Americans Disabilities Act
 - o GESA Contractor Integrity Provisions
 - o GESA Contractor Responsibility Provisions
 - o Environmental Statement
 - o Compliance with State and Federal Statutes, Rules and Regulations
 - o Non-Collusion Affidavit

I am authorized to sign this proposal on behalf of the Proposer and I agree and state that McClure Company (Name of Firm) understands and acknowledges that the above representations are material and important, and will be relied upon by the Department of General Services in awarding the contract(s) for which this proposal is submitted. I understand and my firm understands that any misstatement shall be treated as fraudulent concealment from the Department of General Services of the true facts relating to the submission of this proposal.


Signature

SHAYNE A. HOMAN, P.E.
Print Name Legibly

DIRECTOR OF ENERGY SERVICES
Title

INSTRUCTIONS FOR NONCOLLUSION AFFIDAVIT

1. This Non-collusion Affidavit is material to any contract awarded pursuant to this proposal. According to §4507 of the Commonwealth Procurement Code, 62 Pa.C.S. §4507, governmental agencies may require Noncollusion Affidavits to be submitted with proposals.
2. This Non-collusion Affidavit must be executed by the member, officer, or employee of the Proposer who makes the final decision on prices and the amount quoted in the proposal.
3. Bid rigging and other efforts to restrain competition, and the making of false sworn statements in connection with the submission of proposals are unlawful and may be subject to criminal prosecution. The person who signs the affidavit should examine it carefully before signing and assure himself or herself that each statement is true and accurate, making diligent inquiry, as necessary, of all other persons employed by or associated with the Proposer with responsibilities for the preparation, approval or submission of the proposal.
4. In the case of a proposal submitted by a joint venture, each party to the venture must be identified in the proposal documents and an affidavit must be submitted separately on behalf of each party to the joint venture.
5. The term “complementary proposal” as used in the affidavit has the meaning commonly associated with that term in the proposal process, and includes the knowing submission of proposals higher than the proposal of another firm, any intentionally high or noncompetitive proposal, and any other form of proposal submitted for the purpose of giving a false appearance of competition.
6. Failure to submit an affidavit with the Proposal in compliance with these instructions may result in disqualification of the proposal.

NONCOLLUSION AFFIDAVIT

DGS Project Number: Small GESA - 3

State of Pennsylvania _____ :

County of Dauphin _____ : s.s

I state that I am the Executive Vice President (Title) of McClure Company (Name of Firm) and that I am authorized to make this affidavit on behalf of my firm, and its owners, directors, and officers. I am the person responsible in my firm for the prices(s) and the amount of this proposal.

I state that:

1. The price(s) and amount of this proposal have been arrived at independently and without consultation, communication or agreement with any other contractor, proposer, or potential proposer.
2. Neither the price(s) nor the amount of this proposal, and neither the approximate price(s) nor approximate amount of this proposal, have been disclosed to any other firm or person who is a proposer or potential proposer, and they will not be disclosed before the proposal submission date.
3. No attempt has been made or will be made to induce any firm or person to refrain from proposing on this contract, or to submit a proposal higher than this proposal, or to submit any intentionally high or noncompetitive proposal or other form of complementary proposal.
4. The proposal of my firm is made in good faith and not pursuant to any agreement or discussion with, or inducement from, any firm or person to submit a complementary or other noncompetitive proposal.
5. To the best of the Company's knowledge, neither the Company nor any of its affiliates, subsidiaries, officers, directors or employees are currently under investigation by any governmental agency regarding a matter concerning conspiracy or collusion with respect to proposing and/or bidding on any public contracts, and have not been convicted or found liable for any act prohibited by state or federal law in any jurisdiction regarding conspiracy or collusion with respect to proposing and/or bidding on any public contracts.

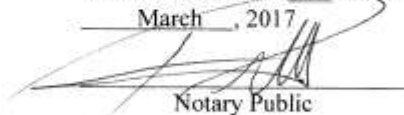
I state that McClure Company (Name of Firm) understands and acknowledges that the above representations are material and important, and will be relied upon by the Department of General Services in awarding the contract(s) for which this proposal is submitted. I understand and my firm understands that any misstatement in this affidavit is and shall be treated as fraudulent concealment from the Department of General Services of the true facts relating to the submission of this proposal.


(Signature)

Todd C. Ray, P.E.
(Signatory's Printed Name)

Executive Vice President
(Signatory's Title)

SWORN TO AND SUBSCRIBED
BEFORE ME THIS 17 DAY OF
March, 2017


Notary Public

My Commission Expires 12/14/19

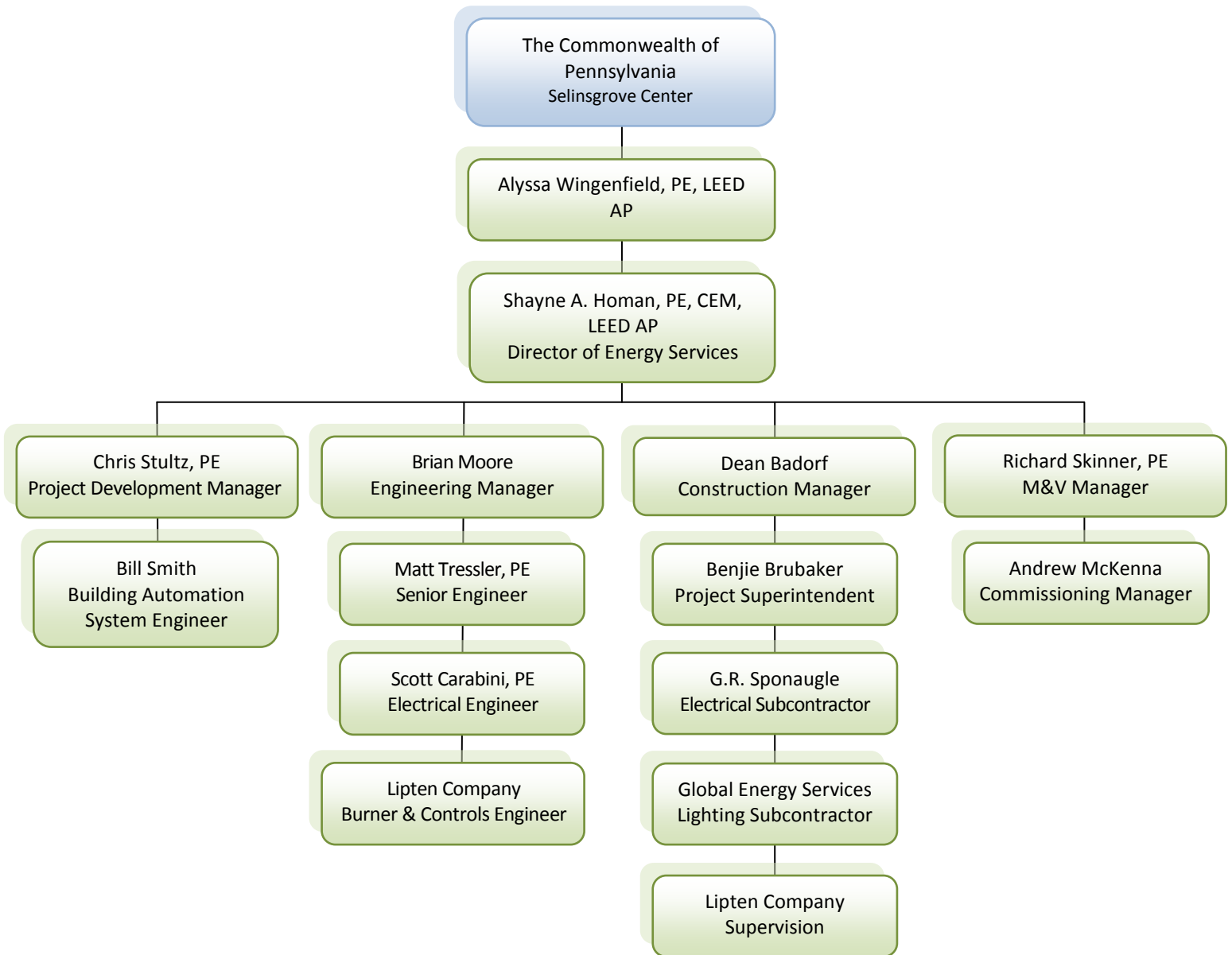
COMMONWEALTH OF PENNSYLVANIA
NOTARIAL SEAL
Roxann E. Maxwell, Notary Public
Susquehanna Twp., Dauphin County
My Commission Expires Dec. 14, 2019
MEMBER, PENNSYLVANIA ASSOCIATION OF NOTARIES

1 Project Management Team

1.1 Project Team Organization Chart

McClure has provided an *Organizational Chart* (Figure 1) that clearly depicts hierarchy and reporting structure of the core project team members, with specific individuals named with roles, and it can be found at the end of this section. McClure Company (McClure) has extensive experience with Guaranteed Energy Savings within the Commonwealth and has performed a previous energy savings project at Selinsgrove Center in 2010. McClure’s project team has familiarity and firsthand knowledge of the energy systems at the Selinsgrove Center, which is a crucial component to ensure continuity for another successful project.

Figure 1 – Project Team Organization Chart



1.2 History of Working Relationships on Past Projects by Core Team Members

McClure’s project team has a successful history of working relationships on past projects by core project team members. McClure’s has selected a robust team of engineers, managers, and project developers to ensure the Selinsgrove Center project is seamless. Most of the core team members were a part of the 2010 Selinsgrove Center project, so there will be a continuity of knowledge and experience.

Below is a chart depicting our core successful history of working relationships on previous successful projects, including the 2010 DPW Selinsgrove Center project. The projects listed below were all completed on time, on budget and the projected energy savings met or exceeded the guarantee.

Core Team Member	DPW Selinsgrove Center	DPW White Haven Center	East Lycoming SD	Northampton County	York County
Was the project completed on time?	YES	YES	YES	YES	YES
Was the project completed on budget?	YES	YES	YES	YES	YES
Did the project savings meet and/or exceed the guaranteed?	YES	YES	YES	YES	YES
Alyssa Wingenfield, <i>Acct. Executive</i>					
Shayne Homan, <i>Department Director</i>					
Christopher Stultz, <i>Project Develop.</i>					
William Smith, <i>BAS Engineer</i>					
Brian Moore, <i>Engineering Manager</i>					
Matthew Tressler, <i>Senior Engineer</i>					
Dean Badorf, <i>Construction Manager</i>					
Richard Skinner, <i>M&V Manager</i>					
Andrew McKenna, <i>Commissioning</i>					

1.3 Specific and Meaningful Roles Fulfilled by Core Team Members

Each core team member has a specific and meaningful role that will be fulfilled on this project. Below is chart describing the specific and meaningful role of each member and the interrelationship and management structure of the team overall.

Core Team Member	Specific and Meaningful Role Fulfilled by Core Team Member	Interrelationship & Management Structure
Alyssa Wingenfield, P.E., LEED AP® <i>Account Executive</i>	Alyssa is the primary point of contact for the Department of General Services’ (DGS) and Department of Health Services (DHS). Alyssa will form and maintain the partnership between the Commonwealth, Selinsgrove Center and other project stakeholders.	Conduit between the Commonwealth/DHS and McClure
Shayne Homan, P.E., LEED AP® <i>Department Director</i>	Having led multiple Commonwealth GESA projects, Shayne will ensure that the team has adequate resources to meet performance, financial, and scheduling goals.	Directly Manages all Team Members
Christopher Stultz, P.E. <i>Project Development Manager</i>	Chris will perform utility analysis and energy audits to identify and qualify technical energy conservation measures (ECMs). Chris will design the ECMs, with focus on the performance savings, costs, and technical specifications.	Directly Manages all Project Development Team Members
William Smith <i>Building Automation System Engineer</i>	William will oversee the building automation system design and sequencing of the selected energy conservation measures (ECMs). He also works closely with the Commissioning manager.	Reports to the Project Development Manager
Brian Moore <i>Engineering Manager</i>	Brian will utilize his 20+ years of engineering experience to oversee all the engineering activities associated with the project. Brian’s responsibilities include design assistance and equipment selection.	Directly Manages all Engineering Team Members
Matthew Tressler, P.E., CEM <i>Senior Engineer</i>	Matthew will utilize his 15+ years of engineering experience to will develop all mechanical engineering designs. His responsibilities include development, design, specification and layout of systems.	Reports to the Engineering Manager
Dean Badorf <i>Construction Manager</i>	Dean will oversee the field supervision and coordinate manpower to accommodate requirements during the construction phase. Dean oversaw the project manager who led the DPW White Haven Center project in 2010 and has managed other DGS projects.	Directly Manages all Construction Team Members and Subcontractors

Richard Skinner, P.E. <i>M&V Manager</i>	Richard will manage the measurement and verification of the ECMs and accurately record and analyze pre- and post-retrofit energy use. Over the last five years, Richard has administered the M&V reports for the Selinsgrove Center and DPW White Haven.	Directly Manages all M&V and Post Construction Team Members
Andrew McKenna <i>Project Commissioning</i>	Andrew will coordinate the commissioning of the ECMs and accurately record results, analyze the entire process, and oversee all subcontractors commissioning collection.	Reports to M&V Manager

McClure Company’s core team members will effectively manage the Selinsgrove Center project through (5) specific project phases: RFP Phase, Final Development Phase, Pre-Construction Phase, Construction Phase, and Post-Construction Phase. Below is a summary of the various project tasks and the specific core members responsible for each task through the duration of the project.

Project Phases	Project Responsibilities	Core Team Member Assigned to Project Responsibility					
		Alyssa Wingenfield	Shayne Homan	Chris Stultz	Brian Moore	Dean Badorf	Richard Skinner
RFP Phase	Prelim. Facility Audit						
	Prelim. Energy Analysis						
	Prelim. Cost Estimating						
	Prelim Subcontractor Selection						
	RFP Assembly						
Final Development Phase	Detailed Facility Audit						
	Detailed Energy Analysis						
	Final Cost Estimating						
	Final Subcontractor Selection						
	Energy Audit Report Assembly						
	Contract Administration						
Pre-construction Phase	Engineering Design Phase						
	Equipment Procurement						
	Subcontractor Design Phase						
	Design Review & Permitting						
	Owner Coordination Meeting						
Construction Phase	Mobilization						
	Project Installation						
	Project Meetings						
	Project Safety Analysis						
	Quality Control / QA Testing						
Post - Construction Phase	Punch list & Project Closeout						
	Commissioning						
	As-Built Drawings						
	Owner Training						
	On-Going M&V						

1.4 History of Working Relationship on GESA Projects

McClure has a history of working relationship with the proposed Retained Professionals and selected subcontractors on GESA project. Subcontractors are selected through a competitive selection process that evaluates experience, performance, and other important metrics. Below is a chart depicting the selected McClure’s experience working together on previous successful projects with the proposed retain professionals and subcontractors. The projects listed below were all completed on time, on budget and the projected energy savings met or exceeded the guarantee.

Core Team Member	DPW Selinsgrove Center	DPW White Haven Center	East Lycoming SD	Northampton County	York County
Was the project completed on time?	YES	YES	YES	YES	YES
Was the project completed on budget?	YES	YES	YES	YES	YES
Project met the savings guarantee?	YES	YES	YES	YES	YES
Lipten Company	NO	NO	NO	NO	NO
Global Energy Solutions	NO	NO	NO	NO	NO

G.R. Sponaugle	YES	YES	YES	YES	YES
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2 Work Plan for This Project

2.1 Coordination with DGS and Funding Agency

McClure will coordinate with DGS and the Funding Agency, the Department of Health Services, as described below. Having completed a previous energy project at the Selinsgrove Center, McClure Company’s team is very familiar with managing and executing a project that will minimize DGS’ and Department of Health Services’ risk. McClure’s management team will be structured the same as the 2010 project

McClure Company’s construction manager and field superintendent will coordinate all project tasks and installation and will work closely with the local facility staff and DGS as described below:

- Execute the project by fulfilling all contract actual obligations, policies, and procedures
- Facilitate DGS, Department of Human Services, Selinsgrove Center, and other major project stakeholder’s goals, objectives, requirements and installation requests.
- Safely and responsibly coordinate and complete daily tasks in a continuously occupied facility
- Supervise daily labor and safety of all subcontractors, installers, and field personnel
- Ensure major equipment and materials that arrive on site are stored and installed correctly
- Follow the project schedule closely to ensure major milestones are met
- Monitor and ensure all quality control and quality assurance protocols are being followed and met
- Lead progress construction meetings by reviewing schedule, construction challenges, safety protocols and project opportunities
- Identify and rectify any project-related deficiencies or risks to the Commonwealth

2.2 Design Process and Retained Professional Coordination

McClure has a thorough understanding of the design process and will coordinate the design with our Retained Professionals. The Design Process between McClure, Department of Human Services, Selinsgrove Center and the Commonwealth shall commence as follows:

- Initial Design Process Meeting: introduction and review of requirements, procedures and approval process
- Re-occurring Design Meetings: presentation and facilitation of design decisions and energy measures
- Design Progress Meetings: strategic review of detailed design work, project schedule, and installation
- Design Approval: obtain approval of all local, state, federal and other regulatory agencies with jurisdiction
- Energy Audit Report: submission of final design, costs, and savings of each measure
- Final Project Acceptance: Commonwealth accepts the final project

McClure Company will oversee and procure the services of multiple Retained Professionals to prepare the plans and specifications for the energy conservation measures proposed, reviewed and accepted by the Commonwealth.

McClure will oversee all engineering coordination. For the burner retrofit, Lipten will provide the necessary engineering, equipment and supervision to convert two boilers from firing Coal to Natural Gas or No. 2 Oil. During design, Lipten and McClure Company will jointly provide all the engineering development and documentation, including demolition, mechanical, electrical, and controls drawings and equipment submittals. Lipten Company’s engineering scope pertains the boiler conversion proper starting at the inlet to the fuel trains. Lipten will also provide the combustion air requirement calculations and ensure the building modifications required to support the conversion are met. McClure will coordinate the environmental and construction permitting and related inspections. McClure’s mechanical engineers will design the fuel oil tank, pumps, utilities tie-in locations, hangers, insulation, tubing, valves, conduit and wire.

McClure will rely on a partnering structural engineer to design the platform system. G.R. Sponaugle will design on the electrical engineering required for the burner project. Global Energy Solutions will design the lighting retrofit. All engineering will be fully coordinated and submitted for Commonwealth and Code Approval as one cohesive set of drawings.

2.3 Small GESA Design Process Understanding

McClure has a thorough understanding of the design process on small GESA projects using the DGS Procedure Manual. McClure will utilize the ‘Small GESA Project Design Manual’, 2014 Edition, which was found in Appendix J of the RFP.

For project administration, McClure will incorporate the manual into the Small GESA project documents. All correspondence will be handled per DGS’ Administrative Procedures and all minutes will be furnished by McClure. Progress reports will be emailed monthly as a part of the invoice. The design submission will be approved by the Funding agency following the review conference. McClure will obtain the design and approval of all Local, State, Federal and other regulatory agencies having jurisdiction over the work of the project.

For the construction document submission, McClure will provide 100% complete final construction drawings, including an electronic set submitted on disc, to DGS’ Bureau of Engineering & Architecture (E/A). McClure will also coordinate with Pa. Department of Labor and Industry. A review conference will be scheduled with the Funding Agency and E/A group. McClure will follow Section 301 ‘Construction Documents Submission’ of Small GESA Project Design Manual for the construction documents submission package, specifications, drawings, site plans, engineering analysis utility services, and construction schedule. McClure will obtain formal approval from Department of Health Services, Engineering and Architecture, and other DGS final approval parties before starting the project. For drawings, McClure will provide CADD-generated drawings and an ‘As-built’ record set. The drawings will include a cover sheet and a professional seal and signature. Legends showing symbols will be provided, as well as industry recognized reference standards and schedules. Individual engineering trade will show the minimum drawing requirements referenced in Section 403 ‘Miscellaneous’ of Small GESA Project Design Manual. For project specification McClure will provide a consistent project manual format in CSI or AIA Master Spec format.

For DGS Standard design practices, McClure will utilize Section 602 ‘Civil/Structural, 603 ‘Heating, Ventilating and Air-Conditioning’, Section 604 ‘Plumbing’ and Section 605 ‘Electrical’ from the Small GESA Project Design Manual for engineering standards and best practices throughout the design.

2.4 Design Issues, Project Management and Project Execution

McClure has identified design issues and has established a plan to manage and execute the Project. McClure Company has identified potential design issues utilizing 60+ years of design/build construction experience. Our design approach will strike a balance between the complex array of interdependent activities and close relationship between design and construction.

Issues	Proposed Solutions
Design Team Collaboration & Communication	<ul style="list-style-type: none"> • Early identification of priorities, resources and budget will be established with the design team • McClure’s expansive engineering team will resolve design related challenges which result in savings and improved outcomes, utilizing 360° peer reviews for immediate quality cost control review, open communication between the trades, and increased project understanding throughout the entire construction team
Subcontractor Involvement	<ul style="list-style-type: none"> • Construction insight from subcontractors and their specialized knowledge will be employed early on in addition to comprehensive safety / asbestos plans • Teamwork and clear, continuous communication will prevail throughout the entire project life cycle
Constructability, Sizing and Installation of HVAC Burners	<ul style="list-style-type: none"> • Engineers will locate the burners, taking into account boiler size, clearances, removal of hazardous materials, and accessibility • Selecting the correct size of burner to ensure each boiler is capable of handling the full facility heating load • Identification and proper removal of asbestos and other hazardous containing materials during the project demolition phase
Design of Facility LED Lighting	<ul style="list-style-type: none"> • Glare and luminous efficacy shall be carefully considered, in addition to maximizing lumens per watt, while maintaining specified color temperatures • Budget and integration into certain spaces are carefully considered during the lighting design

2.5 Construction Challenges and Proposed Solutions

McClure has identified construction challenges and is proposing the following solutions as described in thorough detail below.

Construction Challenges	Proposed Solutions
Modifications for the new burners	<ul style="list-style-type: none"> • Survey the existing steam systems and site logistics to design the burner installation • Consideration of site slope, connections, pathways, and existing site equipment will addressed
Mission Critical Facility	<ul style="list-style-type: none"> • Understanding of facility operation procedures in order to develop an accurate schedule and implementation plan • Communicate and coordinate with Selinsgrove Center staff to safely and securely complete work in occupied areas of the facilities
Hazardous / Asbestos Materials	<ul style="list-style-type: none"> • Utilize prior identification and removal experience of Asbestos and Hazardous material to safely and securely remediate affected materials • Coordinate all testing and sampling with the state’s environmental consultant and budget the costs of testing / sampling into project cost
Utilizing Existing Equipment and Systems	<ul style="list-style-type: none"> • Carefully survey and test all existing equipment and tie-in locations to ensure all components are functional and safe • Closely monitor startup and commissioning of major systems to ensure all system components are fully operational and functioning

2.6 Construction Plan

With past experience with DGS and Selinsgrove, McClure has a thorough construction plan that includes site operations, logistics, and lay down areas. McClure also has a detailed plan on project execution, which is described below:

Topic	Detailed Discussion
Site Operations / Layout	<ul style="list-style-type: none"> • All site operations will be communicated and coordinated with staff, including work hours, weekly meetings, critical work, site layout, and other construction-related activities. • Site Layout will be pre-planned and revisited, per phase, to ensure proper location and coordination
Logistics	<ul style="list-style-type: none"> • Logistics will be based upon phase and number of escorts available to ensure maximum productivity • Phasing will be based on the final energy conservation measures selected
Lay Down Area / Offices / Parking	<ul style="list-style-type: none"> • Lay down area, similar to last project and upon approval, can be located on grassy area to right of boiler house • A trailer of offices and parking can be located in close proximity to boiler plant or near/in a vacant mission ready facility, similar to last project and upon Selinsgrove Center approval
Fully Occupied Environment	<ul style="list-style-type: none"> • Temporary measures, including power, temperature and air movement, will be agreed upon to ensure minimal disruption in the fully occupied environment. • Review of the facilities security and safety policies / procedures will occur for all project staff

McClure has a detailed plan for project execution. McClure Company has identified early construction packages, long lead items and phases of construction utilizing internal standards and best practices, which will ensure successful project planning.

Construction packages have been assembled and estimated among multiple local manufacturers and vendors during the RFP phase. This amount of research and due diligence allows McClure Company to provide the Commonwealth with accurate pricing and construction planning. During the design phase, construction packages will be reassessed and estimated. Preliminary construction packages already identified include:

- Burner equipment, accessories and materials
- Lighting and lighting sensor equipment and materials

Lead times have also been assessed, especially for sophisticated boiler equipment and accessories, and these durations have been factored into preliminary construction schedules. McClure Company will regularly check in with equipment and material vendors, suppliers and manufacturers to ensure lead times are accurate and on schedule. During the design phase, lead times and schedule will be reassessed. Preliminary lead times already identified include:

- HVAC equipment
- Lighting equipment

Phasing of the project has been an early focus of McClure Company. Depending on the final scope agreed upon, McClure Company may need to phase the burner work portion of the project to minimize disruption of the Selinsgrove Center campus.

2.7 Scheduling and Construction Practices

McClure Company has a thorough understanding of scheduling and construction practices using DGS' General Conditions and Administrative Procedures as described below.

For *scheduling*, McClure will reference Article 7 of PA Department of General Services General Conditions for Small GESA Projects 2016 manual, which was found in Appendix H of the RFP. Article 7 outlines the requirements of the Baseline project submission, which shall be submitted within 30 days of the Contract Start Date in Primavera format (.XER) and P6 compatible software. The Critical Path Method (CPM) project schedule calculation shall be utilities and final acceptance by the Funding Agency will be required. While the project schedule is being developed, McClure will proceed with other work associated with the project. McClure will meet the schedule requirements, including 30 day activity limit, identify subcontractor progress, include UCC inspections and testing, facilitate utilization of required metrics, include no more than 15% critical activities, highlight milestones, and disregard any resources leveling or float suppression techniques. McClure will show design activities, construction activities, procurement activities, and will anticipate weather delays and allow the funding agency to control any float time. McClure will ensure the schedule is accepted and will maintain and update the schedule accordingly.

For *construction practices*, McClure will reference the PA Department of General Services General Conditions for Small GESA Projects 2016 manual, which was found in Appendix H of the RFP. For use of site, job conferences, drawings, performance of work, permits and fees, existing utilities, interruption of services, warranties, and more, McClure will follow Article 5. For subcontractor construction management, McClure will reference Article 6. For submittals and protection of property, insurance and indemnification, McClure has reviewed Article 8 and Article 9. Changes in work and non-confirming work and corrections, McClure will reference Article 10 and 11. Article 12 'Payments and Completion', will be closely reviewed with McClure's accounting team and project closeout in Article 13 will be reviewed by Dean Badorf, project manager. Legal Matters, which is outlined in Article 14 through 17, will be closely reviewed by McClure's team to ensure compliance and expectations of McClure are met.

2.8 Project Safety Plan and Monitoring

McClure has a project safety and monitoring plan to ensure safety for all building occupants and workers. Below is a description of the safety plan, management and monitoring.

A *Safety Plan* will be developed to ensure safety for all building occupants and workers. McClure's safety management policy will assign and hold employees accountable for safe work practices. Audits will occur periodically to ensure compliance with OSHA safety guidelines and McClure safety policies. Safety management for the project will be completed by the onsite foreman and overall project manager, Dean Badorf. This will be accomplished through weekly tool box training and site specific safety notifications and discussions, based upon phase and the working environment. We have a full-time safety director, Tom Scott, who has overseen our safety program.

Safety monitoring of energy use will be provided by our onsite foreman and company safety director, Tom Scott. Daily walkthroughs to document investigate and train personnel on proper safety guidelines will occur. Lockout tag procedures, fall protection procedures, confined spaces training and abatement for hazardous materials will be closely monitored.

2.9 Quality Control Plan

McClure Company has an effective Quality Control plan for procurement and construction, as described below.

McClure's effective *procurement quality control plan* includes: Review, approve and submit construction submittals to all team members; create special approval methodologies given to project engineers to ensure a streamlined approach; and facilitate an adequate review timeline, approval process, and delivery mechanism for submittal materials.

McClure's effective *construction quality control plan* includes: Ensure work is performed in compliance with contract requirements, code, recommendations and construction industry standards; develop a training plan for personnel; manage and coordinate all QC activities and documentation; ensure proper document control; hold weekly job meetings; and institute a phased inspection plan with major stakeholders.

2.10 Commissioning Methodology

McClure has a specific methodology for commissioning this project as clearly described below. McClure's team will develop commissioning specifications and complete a commissioning report at the end of the project. Our commissioning plan will specify:

- General commissioning requirements common to all systems and assemblies
- Detailed description of the responsibilities of all parties
- Details of the commissioning process (i.e. schedule and sequence of activities)
- Reporting & documentation requirements
- Alternatives to coordination issues
- Deficiency resolution
- Commissioning meetings
- Submittals
- O & M Manuals
- Construction Checklists
- Functional testing process and specific functional test requirements including acceptance criteria
- Occupancy & Final Inspections
- As-built drawings

Each measure will undergo one of three levels of commissioning, each with specific requirements and deliverables. While much more complex, the overview of these levels is as follows, with each level including the necessary documentation from the previous level:

- Level 1 - System Readiness and Start-Up; a basic inspection of the equipment to ensure the contractual obligations have been met, including equipment specific specification and warranty data
- Level 2 - Initial Operation; a pre-start check out and test of the equipment to ensure required components are functioning properly. Equipment specific, detailed start up sheets become an addition to the Level 1 documentation
- Level 3 - Functional System Test; the most rigorous commissioning level, this includes full performance testing of the equipment to verify it operates as designed and provides the necessary levels of operation based on actual environmental parameters. Included with the Level 1 & 2 documentation is a granular level document indicating specific operation of the equipment including the environmental conditions.

The final commissioning report will serve as a reference and benchmark document for future re-commissioning of each facility. The commissioning supervisor assures the design updates to the As-Built drawings have been completed.

2.11 Final Close-Out Approach

McClure has an understanding of the close out process for training of Funding Agency personnel, manuals, occupancy permits, commissioning and final closeout, as shown below. These items will be expanded upon during IGA.

- *Training:* Train and repurpose the current staff to operate, utilize, monitor, and maintain the installed systems.
- *Manuals:* By combining new & existing O&Ms, a master operation & maintenance manual will be created
- *Occupancy Permits:* McClure will facilitate all code required inspections for legal compliance.
- *Commissioning:* McClure will develop, optimize, and implement a commissioning plan by ECM. This process will focus and ensure system functionality, optimization, longevity, reliability and efficiency.
- *Final Close-Out:* All undocumented changes post-design will be recorded and delivered at project closeout.

McClure will reference Article 13: Project Closeout of the PA Department of General Services General Conditions for Small GESA Projects 2016 manual, which was found in Appendix H of the RFP. Dean Badorf will ensure the project closeout consists of:

- An occupancy permit from Labor and Industry prior to Final Inspection
- Funding Agency, retained professionals, and McClure all approve substantial completion
- Final Set of Contract prints documenting as-built conditions
- Punch List items are complete
- Final inspection report coordination with Department of Health Services

2.12 Measurement and Verification Plan

McClure has a specific methodology for creating the appropriate Measurement and Verification plan, as clearly described below.

First, McClure ensures the M&V Plan adheres to all DGS' M&V protocol standards. Listed below are the procedures and guidelines for quantifying savings resulting from the installation of ECMs under energy performance contracts and is intended to comply with the International Performance Measurement & Verification Protocol (IPMVP):

- **Option A – Partially Measured Retrofit Isolation**

Key performance factors (lighting wattage or chiller efficiency) are determined with spot or short-term measurements and operational factors (lighting hours of operation or cooling ton-hours) are stipulated based on analysis of historical data or spot/short term measurements. The savings are determined using spot or short-term measurements, which would occur in both the pre and post retrofit installation periods. An example of the measurements will be measuring the wattage use of fixed number of samples of lighting fixtures both before and after the lighting retro-fit. In the lighting retro fit example the light burn hours are mutually agreed upon variable.

- **Option B – Retrofit Isolation**

The energy savings are determined by field measurement of the energy use of the systems to which the ECM was applied separate from the energy use of the rest of the facility. Short-term, long-term or continuous measurements are taken throughout the pre and post-retrofit periods. Engineering calculations using the short term, long term or continuous measured variables determine both the baseline energy use and post installation energy use. The savings are determined by comparison of the pre-installation measurements to the post-installation measurements results.

- **Option C – Whole Building**

Often referred to as the “whole house” method to determine savings, this option uses the current year utility bills as compared to historical bills determined to be the baseline. The historical bills are adjusted to account for factors such as weather, outdoor air increases, changes in facility use, and other baseline adjustments outlined in the Energy Audit Report. The savings are determined by analysis of utility meter (or sub-meter) data using techniques from simple comparison to regression analysis

- **Option D - Calibrated Building Simulation (Prohibited)**

Option D is not an option for DGS Small GESA projects.

McClure has a full time, locally residing engineer assigned to manage the measurement and verification process of this contract. Richard Skinner, P.E., the Measurement and Verification (M&V) manager, will be the supervisor responsible for all ongoing M&V. Richard will also have a support staff of technicians and engineers that will be assigned to this project to perform the necessary functions to accurately determine the reduction in energy use and provide the required reports in the timely fashion.

In a post-installation M&V verification, McClure Company and the customer agree that the proper equipment components or systems were installed, are operating correctly and have the potential to generate the predicted savings. Verification methods may include surveys, inspections and/or continuous metering. McClure Company is expected to complete the system/equipment commissioning. McClure Company and the customer will determine energy savings in accordance with an agreed-upon M&V method using verification techniques defined in this M&V plan.

3 Critical Path Schedule

3.1 Project Schedule Narrative

McClure Company has identified critical aspects of the schedule, including the associated risks and how our team’s process will ensure achievement of critical milestone dates. McClure has assembled a project schedule narrative, below, which discusses the challenges of the schedule and proposed solutions. McClure will provide project milestones and complete the project with minimal or no disruption to agency daily operations. Our Project Manager, Dean Badorf, will assume responsibility to coordinate the Project Schedule and track and manage the critical path milestones. Within 30 days of the contract start date, McClure will furnish an updated CPM (Critical Path Method (CPM) Schedule of the forecasted construction progress schedule.

Critical aspects of the schedule have been identified and will be carefully planned, executed and expedited to ensure the project schedule stays on track. The critical activities (with target start dates) include:

1. *Review and Notice of Award:* Evaluation of Proposals and Notice of Award within 60 calendar days of proposal submission. **Target: 4/7/17**
2. *Energy Audit (EA) Report:* The final audit report will be submitted within 60 calendar days upon a Notice of Award. We will perform detailed engineering, on site equipment testing, live metering and hard cost estimating to include energy baseline data, measurement and verification plan, financing, detailed descriptions of each ECM, commissioning plan and the contract. **Target: 6/30/17**
3. *Contract Procurement:* Review of EA, execution of GESA contract and award of GESA within 60 calendar days of EA submission. **Target: 9/1/17**
4. *Engineering & Major Equipment Procurement:* Final mechanical, electrical and building engineering as well as project permits and coordination with utilities. McClure will also prepare and submit equipment submittals. Long lead equipment, coordination with utilities, subcontractors, equipment suppliers and DGS facility personnel.
5. *Pre-Construction:* Review scope of work, general conditions, work sequences, early startup requirements, and commissioning requirements to develop a baseline work flow at a pre-construction and orientation meeting.
6. *Critical Path Coordination:* Long lead equipment, coordination with utilities, subcontractors, equipment suppliers and DGS facility personnel.
 - a. *Completion of Energy Audit Report Target: 6/30/17*
 - b. *DGS Review/Contract Procurement Target: 9/1/17*
 - c. *New Burner Installation Target: 8/10/18*
 - d. *As-Built and O&M documentation Target: 10/10/18*
7. *Construction milestones/Fixed dates set:* With the understanding that no activity, aside from design/procurement shall exceed 30 days, the following are established: Start date, substantial completion, daily hours, commencement tasks, subcontractor awards, engineering, procurement of major material, site approvals, permits, site mobilization and preparation, electrical shutdown, site and installation work, inspections, testing, training and commissioning. Although show as one continuous activity, construction is the combination of activities to complete all recommended core ECM’s. Each ECM’s duration will be less than 30 days; however, specific project implementation timelines have not yet been established. More coordination is required from DGS.
8. *Irregular circumstances:* As atypical conditions arise, the Project Manager will determine task priorities and make adjustments. The start-finish relationships for each task are adjusted accordingly to meet specific deadlines.
9. *Weekly construction and safety meetings established:* Consistent communication will mitigate potential issues.

Associated Risks with schedule, which are identified below, will be identified, monitored, and mitigated by the following risk mitigation techniques:

Associated Risks	Risk Mitigation Techniques to be Employed
Hazardous Materials	<ul style="list-style-type: none"> • Prior to construction, McClure’s construction experts will locate hazardous materials • McClure will identify, tag and communicate all hazardous materials affected during construction
Weather Impacts	<ul style="list-style-type: none"> • 2-week look ahead schedules, with built-in schedule flexibility, will mitigate weather impacts • Weekly schedule updates and communication will allow for adjustments and sequence changes

Occupied Facility	<ul style="list-style-type: none"> • Weekly communication with Selinsgrove Center staff will ensure coordination by ECM, space & trade • McClure will be flexible and schedule construction activities around occupancy needs
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McClure’s team process to ensure achievement of critical milestone dates is paramount. One critical step in the team process approach is to review the final schedule with Selinsgrove Center. This step will help develop and confirm the best means, methods, and durations to execute each schedule task and the effect of the task in the facilities’ occupied areas. Each energy conservation measure (ECM) will be carefully coordinated and executed, by phase, with all parties and subcontractors involved through weekly project meetings and on-going group communication. McClure understands that proper planning and increased communication are two major factors in ensuring a successful, expedited schedule.

3.2 Critical Path Method (CPM) Schedule

McClure Company has created a project schedule graphic, or critical path method (CPM) schedule, which sets forth a logical progression of critical path activities, including:

- the Notice of Selection
- duration and submission of the Energy Audit Report
- full execution of Energy Contract
- permit submission and approval dates, including L&I, DEP Title V, and Insurance
- durations of on-site work
- scheduling of start-up and testing of equipment
- commissioning
- training of personnel

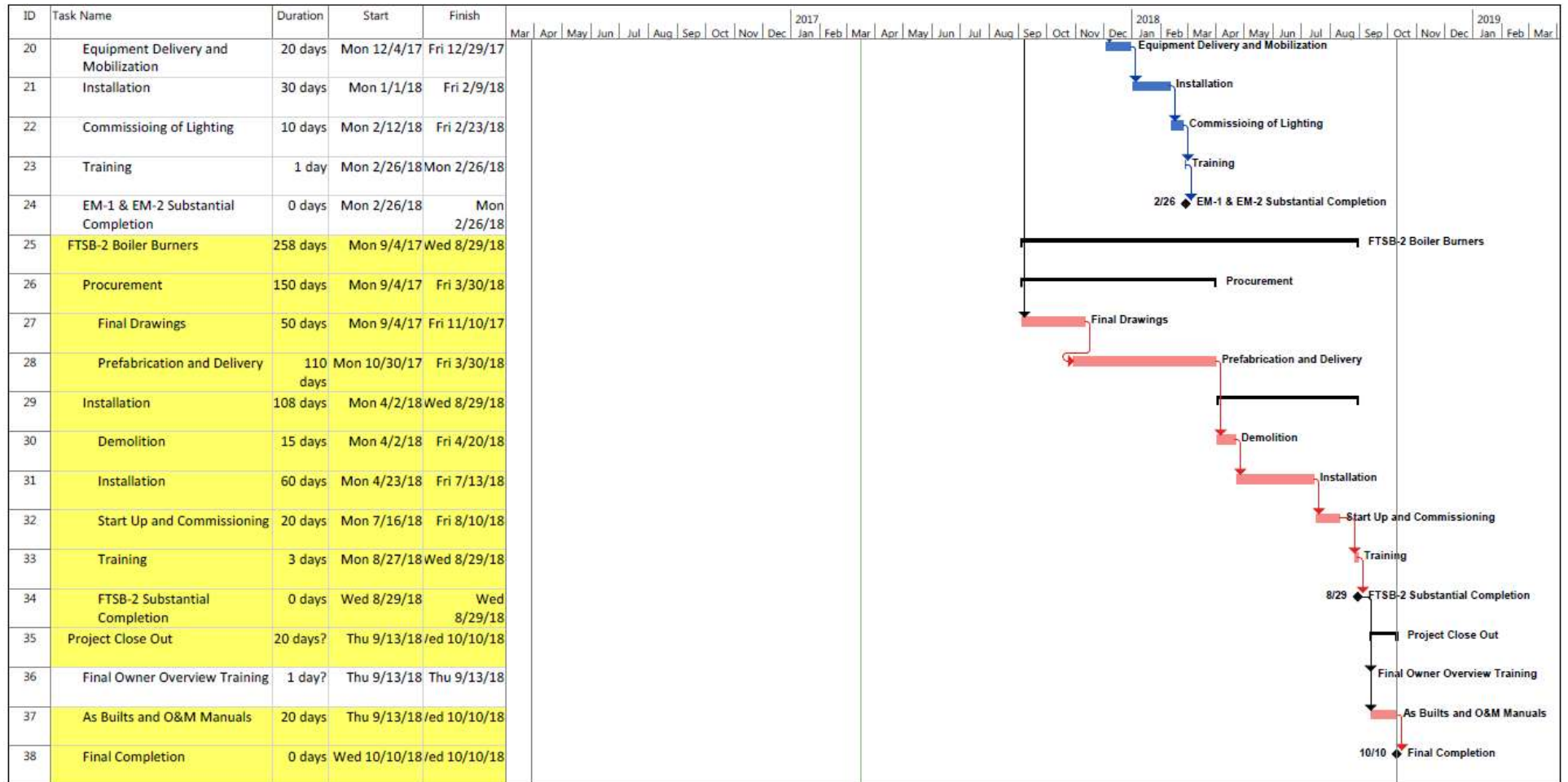
The project schedule graphic can be found in [Figure 2 – Project Schedule](#), located at the end of this section.

3.3 Project Coordination

McClure Company’s critical path method (CPM) schedule integrates and coordinates construction with local utilities, subcontractors, equipment suppliers and Selinsgrove Center facility personnel. Below is a table summarizing the integration and coordination techniques with the respective project entities:

Entity	Project Schedule Integration and Coordination Techniques
Local Utilities	<ul style="list-style-type: none"> • McClure Company will assist with UGI Utility on final design, including capacity and pressure required as well as the gas line extension and final meter location • McClure will assist with the service rate types, suppliers, and financial options available
Subcontractors	<ul style="list-style-type: none"> • McClure will incorporate and coordinate subcontractor schedules and critical path items • McClure will communicate and revise the schedule weekly and create a forum for open issues
Equipment Suppliers	<ul style="list-style-type: none"> • Equipment submittal review and lead times will be evaluated and integrated into the schedule • Equipment production, shipping, and site arrival will be carefully monitored and documented
Selinsgrove Center Personnel	<ul style="list-style-type: none"> • Selinsgrove Center personnel and other project stakeholders will be invited to attend weekly construction meetings where schedule updates and planning will occur • Activities performed in occupied areas will be closely coordination with Selinsgrove Center





Project: Selinsgrove Center Preliminary Date: Thu 3/16/17	Task		Inactive Task		Manual Summary Rollup		External Milestone		Manual Progress	
	Split		Inactive Milestone		Manual Summary		Deadline			
	Milestone		Inactive Summary		Start-only		Critical			
	Summary		Manual Task		Finish-only		Critical Split			
	Project Summary		Duration-only		External Tasks		Progress			

4 Qualifications, Experience & Past Performance

4.1 Qualifications and Experience of All Core Members

McClure’s core team members have the qualifications and experience necessary to perform this project. Below is a non-generalized description of each team member’s project specific role. The majority of the core team was involved in the Selinsgrove Center project in 2010, so each member is familiar with the site, design, and facility requirements. Below are brief resumes of all the core team members.

Alyssa Wingenfield, P.E., LEED AP BD+C

Account Executive

Project Responsibilities **Time with Firm: 8 years**

Primary contact responsible for engineering, design and coordination tasks for successful project completion. Alyssa will communicate District project goals to the entire team, including all listed subcontractors, as well as manage the engineering effort, assist with securing project financing, and negotiate the contract.

Educational or Technical Training

Bachelor of Architectural Engineering, Architectural Engineering, The Pennsylvania State University

Experience with GESA and LEED Accredited Projects (all LEED projects are designated by an asterisk*)

<i>Project</i>	<i>Type</i>	<i>Year</i>	<i>Cost</i>	<i>Role</i>
Lehigh Area School District*	K-12	2015	\$7.7 M	Sustainability Coord.
Southern Columbia Area SD, Catawissa, PA	K-12	2014	\$4.6 M	Account Manager
Danville Area School District, Danville, PA	K-12	2014	\$6.2 M	Account Manager
Northampton County, Easton, PA	Gov’t	2011	\$19 M	Design Engineer
York County, York, PA	Gov’t	2010-13	\$9.5 M	Design Engineer
DPW Selinsgrove Center, Selinsgrove, PA	Gov’t	2010	\$12 M	Design Engineer
DPW White Haven, White Haven, PA	Gov’t	2010	\$9 M	Design Engineer
East Lycoming School District, Hughesville, PA	K-12	2002-11	\$11 M	Design Engineer

Shayne Homan, P.E., CEM, LEED AP

Department Director

Project Responsibilities **Time with Firm: 15 years**

Shayne is responsible for all project services, from engineering to construction. After 15 years, Shayne is experienced in the entire engineering and design work for large, complex institutional work, overseeing all phases from initial concept and design to implementation and construction monitoring.

Educational or Technical Training

Bachelor of Science, Mechanical Engineering Technology, The Pennsylvania State University

Experience with GESA and LEED Accredited Projects (all LEED projects are designated by an asterisk*)

<i>Project</i>	<i>Type</i>	<i>Year</i>	<i>Cost</i>	<i>Role</i>
Lehigh Area School District*	K-12	2015	\$7.7 M	Director
Williamsport Area SD, Williamsport, PA	K-12	2014	\$9.1 M	Director
Susquehanna Twp SD, Harrisburg, PA	K-12	2014	\$7.8 M	Director
York County, York, PA	Government	2010-13	\$9.5 M	Account Manager
Northampton County, Easton, PA	Government	2011	\$19 M	Account Manager
DPW Selinsgrove Center, Selinsgrove, PA	Government	2010	\$12 M	Account Manager
DPW White Haven, White Haven, PA	Government	2010	\$9 M	Account Manager

Brian Moore

Engineering Manager

Project Responsibilities **Time with Firm: 5 years**

Brian is responsible for the day to day management of our engineering efforts

Educational Background

Mechanical Design Technology Degree, Thompson Institute

Recent Projects

<i>Project</i>	<i>Type</i>	<i>Year</i>	<i>Cost</i>	<i>Role</i>
Northern York SD, Dillsburg, PA	K-12	2015	\$3.9 M	Engineering Manager
Williams Valley SD, Tower City, PA	K-12	2015	\$3.8 M	Engineering Manager
Greencastle-Antrim SD, Chambersburg, PA	K-12	2015	\$7.9 M	Engineering Manager
East Lycoming SD, Hughesville, PA	K-12	2002-12	\$14 M	Senior Engineer
York County, York, PA	Gov't	2010-13	\$9.5 M	Design Engineer
Northampton County, Easton, PA	Gov't	2011	\$19 M	Senior Engineer

Christopher Stultz, P.E., CEM
Project Development Manager

Project Responsibilities

Time with Firm: 9 years

Chris is responsible for facility scoping and investment grade audits to identify and qualify technical energy conservation measures.

Educational or Technical Training

Master of Architectural Engineering, Architectural Engineering, The Pennsylvania State University
 Bachelor of Architectural Engineering, Architectural Engineering, The Pennsylvania State University

Experience with GESA and LEED Accredited Projects (all LEED projects are designated by an asterisk*)

<i>Project</i>	<i>Type</i>	<i>Year</i>	<i>Cost</i>	<i>Role</i>
York County, York, PA	Government	2010-13	\$9.5 M	Energy Engineer
Northampton County, Easton, PA	Government	2011	\$19 M	Energy Engineer
DPW Selinsgrove Center, Selinsgrove, PA	Government	2010	\$12 M	Energy Engineer
DPW White Haven, White Haven, PA	Government	2010	\$9 M	Energy Engineer

Matthew Tressler, P.E., CEM
Senior Engineer

Project Responsibilities

Time with Firm: 16 years

Responsible for the day to day management of our engineering efforts. Matt has 16 years of engineering, design, and construction experience.

Educational or Technical Training

Bachelor of Architectural Engineering, Architectural Engineering, The Pennsylvania State University

Experience with GESA and LEED Accredited Projects (all LEED projects are designated by an asterisk*)

<i>Project</i>	<i>Type</i>	<i>Year</i>	<i>Cost</i>	<i>Role</i>
Northampton County, Easton, PA	Government	2011	\$19 M	Senior Engineer
DPW Selinsgrove Center, Selinsgrove, PA	Government	2010	\$12 M	Senior Engineer
DPW White Haven, White Haven, PA	Government	2010	\$9 M	Senior Engineer
East Lycoming SD, Hughesville, PA	K-12	2002-12	\$14 M	Senior Engineer

Dean Badorf
Construction Manager

Project Specific Role

Experience with GESA: 36 years

Dean will oversee the field supervision and coordinate manpower and site planning requirements during the construction phase. Dean brings with him over 38 years of experience as a project manager and field supervisor in the construction field and labor force management. Dean will be in charge of the overall management of the projects including the coordination of subcontractors.

Educational Background

Associates Degree, Engineering Drafting , Pennsylvania College of Technology (formerly Williamsport Area Community College)

Experience with GESA and LEED Accredited Projects (all LEED projects are designated by an asterisk*)

Project	Type	Year	Cost	Role
DPW White Haven, White Haven, PA	Gov't	2010	\$9 M	Project Manager
Millville Area SD, Millville, PA	K-12	2005-16	\$8.1 M	Project Manager
Bedford County, Bedford, PA	Gov't	2015	\$1.7 M	Project Manager
Williamsport Area SD, Williamsport, PA	K-12	2014	\$9.1 M	Project Manager

Richard Skinner, P.E., CEM, CPQ
Measurement and Verification Manager

Project Specific Role

Experience with GESA: 11 years

Richard will generate the energy saving reports and document the performance guarantees. Richard will extend his experience to provide the technical engineering support for the energy-related issues and energy cost savings.

Educational Background

Bachelor of Science, Mechanical Engineering, University of Maryland

Experience with GESA and LEED Accredited Projects (all LEED projects are designated by an asterisk*)

Project	Type	Year	Cost	Role
West Branch Area SD, Morrisdale, PA	K-12	2015	\$2.2 M	M&V Specialist
East Lycoming SD, Hughesville, PA	K-12	2002-13	\$18 M	M&V Specialist
DPW Selinsgrove Center, Selinsgrove, PA	Government	2010	\$12 M	M&V/Cx
DPW White Haven, White Haven, PA	Government	2010	\$9 M	M&V/Cx

4.2 Core Team Member Qualifications and Experience on LED/HVAC Projects

McClure’s core team members have the qualifications and experience necessary to perform the LED conversions and HVAC control projects. Below is a chart depicting the selected core team’s experience working together on previous successful project involving lighting conversion and HVAC control projects. The projects listed below were all completed on time, on budget and the projected energy savings met or exceeded the guarantee.

Core Team Member	DPW Selinsgrove Center	DPW White Haven Center	Northampton County	York County
Alyssa Wingenfield, <i>Acct Executive</i>				
Shayne Homan, <i>Department Director</i>				
Christopher Stultz, <i>Project Develop.</i>				
William Smith, <i>BAS Engineer</i>				
Brian Moore, <i>Engineering Manager</i>				
Matthew Tressler, <i>Senior Engineer</i>				
Dean Badorf, <i>Construction Manager</i>				
Richard Skinner, <i>M&V Manager</i>				
Andrew McKenna, <i>Commissioning</i>				

Below is a summary of McClure’s experience on the four (4) GESA projects referenced in the table above. The project scope items referring to lighting conversions or HVAC controls conversions are bolded for quick reference.

Department of Human Services – Selinsgrove Center

Date(s)	June 2010 – June 2011
Location	Selinsgrove Center Facility
Owner	Pennsylvania Department of Public Work
Contact Information	1000 Route 522, Selinsgrove, PA 17870 Roger Long, (570) 372-5602

Capital Cost, Proposal	\$ 11,903,563
Capital Cost, Contract	\$ 11,903,563
Proposed Energy & Operational Savings	\$ 537,445
Actual Year 1 Energy & Operational Savings	\$ 473,452
Project Scope: Boiler Controls, Steam Turbine, Steam Trap Retrofit, Valve Cover Jackets, Central Complex HVAC , Dietary Kitchen Hoods, Cond & Evap Fan Motors, DDC – Unoccupied Buildings, Vending Misers, Flash Steam Heat Recovery, Pool Cover, Leak Repair – Water Main, Boiler Feed Water Pumps, Summer Gas Boiler, Pool Solar Heating, Exterior Pipe Insulation, Steam Pipe Isolation, Floating Head Pressure Control, Lighting Upgrades , Roof Replacement	
Did the project meet the targeted energy savings? If not, explain why & any legal actions taken place.	Yes
Was the project completely on time and on budget? If project is incomplete, please declare status.	Yes

Department of Human Services – White Haven	
Date(s)	July 2010 – July 2011
Location	White Haven Center
Owner	Pennsylvania Department of Public Work
Contact Information	827 Oley Valley Road, White Haven, PA 18661 Aaron Floryshck, (570) 443-4244
Capital Cost, Proposal	\$ 8,494,911
Capital Cost, Contract	\$ 8,494,911
Proposed Energy & Operational Savings	\$ 570,863
Actual Year 1 Energy & Operational Savings	\$ 592,475
Project Scope: Dual Fuel Summer Boiler and Building Addition , South Side Steam and Condensate Line Replacement, Steam Trap Retrofits, Steam Insulation Jackets, Campus Wide Energy Management System, Residence Central Air Conditioning, Condensing Unit Replacements, Continuous Blowdown Heat Recovery, Water Tank Partial Refurbishment, Automatic Pool Cover, Boiler Controls, Boiler Feed Water Pump Replacement, Dining Room Central Air Conditioning, Central Refrigeration Upgrades, Lighting Upgrades , Building Envelope Enhancements, Adjustments – Controls in Unoccupied Buildings	
Did the project meet the targeted energy savings? If not, explain why & any legal actions taken place.	Yes
Was the project completely on time and on budget? If project is incomplete, please declare status.	Yes

County of Northampton, PA	
Date(s)	June 2010 – October 2012
Location	Easton, PA
Owner	County of Northampton
Contact Information	669 Washington Street, Easton, PA 18042 Steve DeSalva, (610) 217-7893
Capital Cost, Proposal	\$ 19,089,413
Capital Cost, Contract	\$ 19,089,413
Proposed Energy & Operational Savings	\$ 1,545,917
Actual Year 1 Energy & Operational Savings	\$ 1,802,502
Project Scope: County Wide Lighting Upgrades & Steam Trap Replacement, Prison RTU and Boiler Replacement, Automation System, Window and Plumbing Fixture Replacement, Building Envelope and Laundry System Upgrades Courthouse Boiler and Chiller Replacement , Nursing Home Roof and Boiler Replacement, Switchgear Replacement and Underground Sewer Line Installation, HVAC System Replacement	
Did the project meet the targeted energy savings? If not, explain why & any legal actions taken place.	Yes

Was the project completely on time and on budget? If project is incomplete, please declare status.	Yes
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County of York, PA	
Date(s)	May 2010 – June 2013 (3 Phases)
Location	County Facilities
Owner	York County Government
Contact Information	28 East Market Street, York, PA 17401 Scott Cassel, (717) 771-4388
Capital Cost, Proposal	\$ 9,539,807
Capital Cost, Contract	\$ 9,539,807
Proposed Energy & Operational Savings	\$ 592,007
Actual Year 1 Energy & Operational Savings	\$ 830,014
Project Scope: County Wide Lighting Upgrades, Prison HVAC System, Boiler and Chiller Replacement, Automatic Shower and Hand Sink Controls, Plumbing Fixture Replacement, Building Envelope and Laundry System Upgrades, Prison and Admin Building Automation System, Courthouse HVAC Re-Commissioning, Admin Building Heat Pump Replacement, Annex Building Boiler, Chiller and Window Replacement	
Did the project meet the targeted energy savings? If not, explain why & any legal actions taken place.	Yes
Was the project completely on time and on budget? If project is incomplete, please declare status.	Yes

4.3 Retained Professional’s Core Personnel & Abilities

McClure has selected two retained professionals, Lipten Company and Global Energy Services, which have extensive experience with LED conversions and HVAC controls. Below is a summary of each retained professional, their core team, and their ability to complete their portion of the energy project.

McClure’s *LED Conversion* retained professional is Global Energy Services (GES). GES is a national full service turn-key energy saving company that specializes in lighting retrofits, controls & design, water conservation and building envelope. Global Energy Services is a seasoned industry leader with over 100 years’ combined experience and expertise within our auditing/engineering staff and over 60 installers working in the field. GES has experience dealing with Fortune 500 companies, Federal & Local Government Agencies, Healthcare facilities, schools, Universities, Municipalities and Correctional Institutions.

Global Energy Services (GES) has identified core personnel to complete the LED conversion portion of the project. GES core team members include Ron Fox (VP, oversight), Matthew Saboy (Lighting Engineering), Roy Marshall (Energy Engineering), and Pat McKenzie (Operations). Refer to ‘Attachment 1 – Retained Professionals & Subcontractor Resumes’ for a full list of resumes. Global Energy Services has the ability to efficiently and effectively complete their portion of the energy project

McClure’s *HVAC Controls retained professional* is the Lipten Company. The Lipten Company is an engineering, procurement and construction firm that specializes in central energy plant general contracting. Lipten systems are custom designed to match the unique requirements converting or upgrading existing boiler central plant facilities, namely burners and controls. Lipten is an industry leader in the design and development of central energy plant control systems. Lipten has experience installation control systems with color touch screen interfaces complete with trending, data logging, intuitive controls, rugged NEMA enclosures and the use of non-proprietary, off-the-shelf PLC components. Lipten has experience with the following controls systems: burner management system, combustion control system, plant master control, feed water control, water treatment control, balance of plant monitor and control and SCADA systems.

Lipten Company has identified core personnel to complete the HVAC portion of the project. Lipten’s core team members include Jim Marshall (President & Chief Operations Officer), Randy Flanagan, PE (Sr. Mechanical Engineer), and Frank Hrlic, PE (Director of Procurement). Refer to ‘Attachment 1 – Retained Professionals & Subcontractor Resumes’ for a full list of resumes. Lipten has the ability to efficiently and effectively complete their portion of the energy project.

4.4 Retained Professional’s Readiness and Commitment of Personnel

McClure has selected two retained professionals, Lipten Company and Global Energy Services, that have demonstrated readiness and commitment of personnel to this project as described below.

Global Energy Services confirms the persons identified in this RFP are available and will be ready and committed to the Project for the time periods referenced in the Project Schedule.

Lipten Company confirms the persons identified in this RFP are available and will be ready and committed to the Project for the time periods referenced in the Project Schedule.

4.5 Subcontractors’ Core Personnel & Abilities

McClure has selected a design/build electrical subcontractor, G.R. Sponaugle, who has the ability to complete Small GESA projects since 2010 with the team identified in this proposal as described below.

Since 2010, Sponaugle has partnered with McClure Company in a design build arrangement to complete the electrical engineering and construction on numerous GESA projects, including the 2010 Selinsgrove Center project. Below is table summarizing the McClure GESA projects in which G.R. Sponaugle served as the design/build electrical subcontractor. All projects were completed on time, on budget, and the energy savings met or exceeded the guarantee.

Project Name	Electrical Cost	Scope	Year
Selinsgrove Center	\$1,339,500	Installed two (2) 1MW, 1.25MVA, 2.4KV emergency generators, to allow the facility to operate in-case of catastrophic failure of both utility services or to supplement the utility. They are used for demand response program. To utilize steam to supplement the electric usage of the facility; a 360KW, 2.4KV, 3-phase steam turbine generator was installed. Upgrade the existing lighting from T12 fluorescent lamps to 25W T8 fluorescent lamps and LED lighting. Vacancy sensors were also installed which also added to the reduction in energy usage.	2010
Greencastle-Antrim SD	\$389,800	Boiler, RTU, and chiller upgrades	2015-17
Williams Valley School District	\$278,320	Boiler, RTU, and transformer upgrades	2015
West Branch School District	\$161,000	Provided electrical for new biomass boiler addition and wiring for boiler and control system.	2015
Minersville School District	\$234,500	Boiler, RTU, and AHU upgrades	2014
Susquehanna Township SD	\$279,000	Boiler, RTU, and transformer upgrades	2014
Southern Columbia SD	\$250,000	Boiler, RTU, and AHU upgrades	2014
Williamsport Area SD	\$391,780	Boiler, RTU, and AHU upgrades.	2014
Upper Dauphin School District	\$218,140	Boiler and RTU upgrades for geothermal system.	2013
Tamaqua Area School District	\$314,000	Boiler, RTU, and AHU upgrades for geothermal system.	2009-11
Wallenpaupack School District	\$636,500	Boiler, RTU, and transformer upgrades for geothermal system.	2012
Waynesboro School District	\$213,500	Boiler, RTU, and AHU upgrades at multiple schools.	2010-12

In addition, G.R. Sponaugle has the ability to complete Small GESA projects with the team identified in this proposal. G.R. Sponaugle has identified core personnel to complete the electrical portion of the project. G.R. Sponaugle core team members include Scot Carabini (electrical engineer), Tim Zimmerman (electrical superintendent), Ed Rhoades (electrical foreman), and Dave Mengle (electrical foreman). Refer to ‘Attachment 1 – Retained Professionals & Subcontractor Resumes’ for a full list of resumes. G.R. Sponaugle has the ability to efficiently and effectively complete their portion of the energy project.

4.6 Subcontractor’s Readiness and Commitment of Personnel

G.R. Sponaugle confirms the persons identified in this RFP are available and will be ready and committed to the Project for the time periods referenced in the Project Schedule.

4.7 Retro-burner Installation Firm’s Qualifications

McClure has selected the Lipten Company to complete the retro burner installation due to their qualifications and history of similar scope of work for the proposed project boilers. McClure has vetted out three separate firms and selected Lipten based on their qualifications, experience, readiness, commitment, approach, cost, project management and other important factors.

The Lipten Company is an engineering, procurement and construction firm that specializes in central energy plant general contracting. Lipten systems are custom designed to match the unique requirements converting or upgrading existing boiler central plant facilities, namely burners and controls.

Lipten had a long client list with similar projects similar to the scope being recommended at Selinsgrove Center. Lipten client list includes over one hundred fifty four (154) large-scale institutional, industrial and municipal boiler installations across the United States, with over 20% of projects including a coal fired boiler retrofit application. See Attachment 2 – Lipten Company Case Study & References.

McClure reached out to four references to ensure Lipten Company delivered. Below are the interview results for all four references:

Reference 1: General Motors (GM) Wentzville, Ron Jones, Site Utilities Manager, Wentzville, MO, 636-327-2326

Reference 2: Nexteer Automation (NA), Pat Ross, Asst. Site Utilities Mgr., Saginaw, MI , (989) 757-5349

Reference 3: Holy Cross Services – St. Mary’s College (SMC), Chris Cullsin, Facility Director, Indiana, 574-284-5778

Reference 4: BASF Corporation (BASF), John M Sirko, Project Manager, Wyandotte, MI, 734 324-2691

Reference Question	Reference Answer
1. What was your experience working with Lipten?	<p>GM: Fantastic job, very capable, worked well with owner, very good, highly recommended, controls worked well, got the boiler o2/CO/NOX outputs within range, beautiful system</p> <p>NA: Project went pretty good, pretty good experience working with Lipten, very timely, had an onsite construction engineer, 1.5 hours away so very supportive no big hiccups, Lipten had to do some serious tuning to meet EPA limits but it worked out</p> <p>SMC: Quick, professional, great documents provided at the end, high quality, didn’t cut corners</p> <p>BASF: Did a good job, system running well, committed team, hard working, very happy, was able to get boilers to operate according to spec after CO levels issues arose at start up, good engineering, took care of everything</p>
2. Did you research or price out other manufacturers?	<p>GM: Yes, 4 companies</p> <p>NA: Yes, 2 companies</p> <p>SMC: Yes, several</p> <p>BASF: Yes, several</p>
3. Why did you select Lipten?	<p>GM: GM had used Lipten before at another power house. 4 companies bid on the project. Lipten had the best plan, most cost effective bid, and best schedule.</p> <p>NA: Purely priced based. Lipten and Detroit were the only ones that submitted bids and Lipten was lowest by \$400k.</p> <p>SMC: Several companies’ proposed, other firms were cheaper; we selected Lipten due to schedule, quality of burners, design. The whole project was a plug and play and they had the capacities and staff we were looking for.</p> <p>BASF: Each of the contracts were bid out. Lipten was low cost and met other criterion such as scope and location.</p>

Attachments

Response to
Small GESA Request for Proposals

For A Guaranteed Energy Savings Contractor For:

Small GESA-3 Project for
Department of General Services at

Department of Human Services
Selinsgrove Center

Commonwealth of Pennsylvania
Department of General Services
Harrisburg, PA

ATTACHMENT 1 – RETAINED PROFESSIONALS & SUBCONTRACTOR RESUMES

G. R. Sponaugle

Experience on GESA Projects.

Selinsgrove Center

Date: 2011
 Owner: PA Dept of Human Services
 Contact:
 Amount: \$1.34 million
 Description: Replace Owner supplied 5KV switchgear, installed two (2) Owner supplied 1MW generators for demand response, provide electrical for new summer boiler, upgraded lighting throughout the complex.
 Status: Completed

Hughesville School District

Date: 2011
 Owner: Hughesville School District
 Amount: \$660,000.00
 Description: Electrical design and install for new Biomass Boiler addition and 500KW solar farm.
 Contact:
 Status: Completed

Northampton County

Date: 2012
 Owner: Northampton County
 Contact:
 Amount: \$1.2 million
 Description: Electrical design and installation to replace HVAC equipment at prison, courthouse, and nursing home. Included upgrade electrical distribution equipment at nursing home.
 Status: Completed

York County

Date: 2014
 Owner: York County
 Contact:
 Amount: \$488,000.00
 Description: Electrical design and installation to replace HVAC equipment at prison, courthouse, and nursing home. Included upgrade electrical distribution equipment at the prison and courthouse.
 Status: Completed

Lackawanna Prison

Date: 2015
 Owner: Lackawanna County
 Contact:
 Amount: \$880,000

Statement of Readiness and Commitment of Resources:

G.R. Sponaugle & Sons, Inc. is committed to providing required man-power, material, and all required resources to complete the Project in the time period(s) referenced in the RFP's Project Schedule.

Our goal is to ensure that all work is of the best quality from design to construction.

We are signed with IBEW Local 609 to draw any and all required additional man-power as the project requires.

Subcontractor EMR

Year:	Rating:
2015	.749
2014	.820
2013	.796
2012	.832

No Defaults or Debarment in the last five (5) years

Description: Electrical design and installation to upgrade generator to 600KW and wiring three (3) 75KVA CHPs to offset electrical usage. Also, electrical work to replace HVAC units and lighting fixtures.

Status: Completion

Diversity in the Workplace Policy:

It is the intent and resolve of G.R. Sponaugle to comply with the requirements and the spirit of the law in the implementation of all facets of equal opportunity / nondiscrimination. There will be no discrimination on the basis of race, color, religion /creed, gender, marital status, age, pregnancy, national origin, ancestry, non-job related disability, possession of a general education development certificate as compared to a high-school diploma, veteran, or any other legally protected status in the recruitment, selection, training utilization, promotion, termination, or any other personnel action. All matters relating to employment are based upon ability to perform the essential functions of the job, as well as dependability and reliability once hired.

G.R. Sponaugle seeks to provide its employees with fair and reasonable wages and benefits which fit the needs of its employees and which are comparable to other organizations that are in this same geographical area. In return for this compensation, the Company expects its employees to put in a full day's work for a full day's pay. The Company also expects its employees to be prompt and on time each day. As a professional employee, G.R. Sponaugle also expects that you will adhere to established guidelines and policies and that you will be courteous to your fellow employees.

G.R. Sponaugle does realize that circumstances may arise outside of the work environment that can cause conflict with scheduled hours. The Company understands the importance of providing and caring for one's family members and has attempted to establish a system for allowing adequate time to deal with such matters. Under these circumstances, G.R. Sponaugle does expect its employees to treat us with courtesy by keeping us (your supervisor) informed of any problems and how they affect your work.

G.R. Sponaugle retains its rights as an organization to hire, fire, and discipline its employees, according to the established guidelines. The Company also reserves the right to change policies as necessary to keep up with current Company needs. All employees will be informed of these changes and any questions can be directed to your supervisor.

In order to accomplish its business goals, G.R. Sponaugle retains the right to assign, adjust, or amend the duties and responsibilities of individual positions or employees within the organization. The Company will be responsible for any such changes and will evaluate any impact such changes would have on the amount of adequate compensation.

Scot M. Carabini, PE, LC, LEED AP BD+C – Electrical Engineer

Scot Carabini brings over 25 years of experience to the G.R. Sponaugle & Sons, Inc. team. His background includes a broad range of technical capabilities related to engineering design, managing engineering services, project management, construction administration, and short-circuit/coordination/arc-hazard studies.

Scot obtained a BS in Electrical Engineering from Penn State University. He has professional registrations in Pennsylvania, and Maryland. In addition, he has an NCEES Certificate, NABCEP PV Entry Level Certificate, is lighting certified through NCQLP and is a LEED AP. Scot is affiliated with the Illuminating Engineering Society of North America (IESNA).

Some of Scot's most notable projects include: Dickinson College (New Central Energy Plant); Pinnacle Health Systems-CGOH (Central Energy Plant); PA Credit Union Association (Emergency Generator Study and Design); TYCO Electronics (15-KV Primary Electric Service for Manufacturing and Office Campus); Butler County (911 Center); New Cumberland Army Depot (Project Management); Hershey Medical Center (Design/Build Project); American Cancer Society (Design/Build Project); Campus Square (Design/Build with Project Management), ELSD-Solar Project (Project Management).

Tim Zimmerman – Electrical Superintendent

Tim Zimmerman has been part of G. R. Sponaugle & Sons, Inc. since 1983. Prior to becoming a superintendent, Tim held several other positions within the Company including foreman, electrician and project manager.

Having a broad range of skills and experience, Tim has been responsible for the installation of a wide array of electrical systems including high-voltage distribution and interior electrical systems, lighting systems, sound systems, fire alarm systems, security systems, CCTV systems, and telephone and data wiring.

In addition, Tim's experience includes servicing manpower requirements and distribution on numerous projects such as schools (including various colleges and universities), hospitals, warehouses (basic and refrigerated), manufacturing structures, telephone buildings, and residential and commercial properties.

Some of Tim's notable projects as Foreman include: York Hospital, Harrisburg University, Chambersburg Hospital, Lutheran Social Services, various jobs at Hershey Medical Center and The Pennsylvania State University.

Tim has had the opportunity to develop his skills through the International Brotherhood of Electrical Workers (IBEW) apprentice training, as well as through on-the-job experience. Currently, Tim is an active member of IBEW Local 143.

Ed Rhoades – Electrical Foreman

Ed has been with G.R. Sponaugle & Sons, Inc. since 1996. He started as an apprentice and has worked his way to foreman during that time.

Ed has worked on numerous projects. Most recent are the East Juniata High School, the Harrisburg University, The Osteopathic Hospital renovations, and numerous projects at the Hershey Medical Center. He was also the assistant project manager at the Harrisburg Hospital.

As a graduate of East Pennsboro High School, Ed entered the International Brotherhood of Electrical Workers' Apprenticeship Training Course through Local Union #143. His ethic of working hard and getting the job done right makes Ed a valued member of the G.R. Sponaugle & Sons, Inc. team.

Dave Mengle – Electrical Foreman

Dave has been with G.R. Sponaugle & Sons, Inc. since March of 2000. He started as a journeyman and worked his way to foreman by 2002. Prior to starting with G.R. Sponaugle & Sons, Inc., Dave worked for General Electrical service Company and spent seven years working at Hershey Food plants.

While at G.R. Sponaugle, Dave worked as a foreman on numerous projects including Messiah College Natural History Museum, Hershey Cancer Center, Harrisburg State Hospital, Selinsgrove State School Project, HACC Blocker Hall Remodel, WHTM Channel 27 Transmitter and Penn State University's East Plant Service Upgrade.

Dave completed his Apprenticeship with IBEW Local #143 in 1994 and has continued to further his education by participating additional training throughout the years. Notably, he has completed OSHA 10-hour, OSHA 30-hour, Built Rite, 3M Fire Sealant and Confined Space training.

Global Energy Services

Experience on GESA Projects.

State Corrections Institute Dallas

Date: 2015
 Owner: State of Pennsylvania
 Contact: Marcel Tassin, Director, (717) 728-0375
 Amount: \$1,100,000
 Description: LED Lighting Retrofit
 Status: Completed as Scheduled

Town of Ocean City, MD

Date: 2016
 Owner: City of Ocean City
 Contact: Terry McGean, City Engineer, (410) 289-8845
 Amount: \$1,684,994
 Description: 18 Buildings & Boardwalk LED Lighting Retrofit
 Status: Currently being installed

Strawberry Square

Date: 2015
 Owner: Harristown Development Corporation
 Contact: Bradley Jones, President and CEO, (717) 255-1025
 Amount: \$3,128,179
 Description: Custom Design LED Lighting Retrofit
 Status: Completed as Scheduled

Diversity in the Workplace Policy:

The purpose of this policy is to provide diversity and equality to all in employment, respective of their gender, race, ethnic origin, disability, age, nationality, national origin, sexuality, religion or belief, marital status and social class. We oppose all forms of unlawful and unfair discrimination.

All employees, whether part time, full time or temporary, will be treated fairly and equally and with respect.

Selection for employment, promotion, training or any other benefit will be on the basis of aptitude and ability.

All employees will be helped and encouraged to develop their full potential and the talents and resources of the workforce will be fully utilized to maximize the efficiency of the organization.

Statement of Readiness and Commitment of Resources:

GES is committed to provide the services for this project. GES has over 80 employees including installers, engineers and project managers. We have the capacity and ability to complete the IGA audit, design and installation process needed to complete this project efficiently from start to finish.

Subcontractor EMR

Year:	Rating:
2015	.85
2014	.98
2013	.98
2012	1.0

No Defaults or Debarment in the last five (5) years

Global Energy Services is a national full service turn-key energy saving company that specializes in Lighting Retrofits, Controls & Design, Water Conservation and Building Envelope. Global Energy Services is a seasoned industry leader with over 100 years' combined experience and expertise within our auditing/engineering staff and over 60 installers working in the field. We are currently serving customers throughout North America. We have experience dealing with Fortune 500 companies, Federal & Local Government Agencies, Healthcare facilities, schools, Universities, Municipalities and Correctional Institutions.

Global Energy Services Key Employees

Ron Fox - Vice President, Building Envelope Division

- Employed by Global Energy Services for the past 2 years
- Responsibilities: Supervision of the Audit & Design Phase for the Building Envelope Division.
- Over 25 years of experience in the auditing, design and implementation of over \$125 million in energy efficient building envelope projects.
- Bachelor's Degree Loyola College in Business Degree.
- Forensic Sciences Building Scientist
- Themographer, Energy Auditor, Senior Building Inspector

Matthew Saboy – Vice President of Engineering

- Responsibilities: Supervision of the audit and design phase for Lighting Division.
- Over 13 years of experience in the auditing, design and implementation of over \$100 million in energy efficient lighting projects. (Employed by Global Energy Services for the past 7 years)
- Recognized by the Environmental Protection Agency as a: Surveyor Ally
- Audited, Designed the Lighting portion of GESA – SCI Dallas Project
- Member of AEE - Association of Energy Engineers
- Member of NAESCO – National Association of Energy Service Companies.
- Manufactures Design Training Certification: Lutron, Sensor Switch, GE, Sylvania, Phillips,
- Acuity and Cooper Lighting
- Currently Studying for CLEP & LC certification exams

Roy Marshall – Vice President, Master Plumber

- Responsibilities: Supervision of the audit / design / installation in the Water Division (construction) phase including but not limited to labor, safety, quality control, scheduling, logistics, and material/equipment procurement.
- Over 20 years of experience in the plumbing/mechanical industry auditing, designing and installing water efficiency ECM's (Employed by Global Energy Services for the past 3 years)
- Consulted and helped on the installation of Mock-ups on the Water portion of the GESA – SCI Dallas
- Association of Energy Engineers: Certified Water Efficiency Professional

Pat McKenzie – Vice President of Operations

- Responsibilities: Supervision of the installation (construction) phase including but not limited to labor, safety, quality control, scheduling, logistics, and material/equipment procurement.
- Over 25 years of experience in the electrical/lighting industry. (Employed by Global Energy Services for the past 5 years)
- Project managed over \$100 million in electrical/lighting projects.
- Over 60 full time project managers, project coordinators and installers directly under his management.
- Licensed journeyman for over 20 years.

Lipten Company

Experience on boiler fuel conversion and rehabilitation projects:

GM Assembly Plant, Wentzville, MO

Date: 2012 & 2013
 Owner: General Motors
 Contact: Ron Jones, Site Utilities Manager
 (636) 327-2326
 Amount: \$3.9M
 Description: Complete conversion of three 210,000 lb/hr steam boilers from coal to natural gas including burners and controls
 Status: Completed as Scheduled

Nexteer World Headquarters, Saginaw, MI

Date: 2014
 Owner: Nexteer Automotive
 Contact: Pat Ross, Asst. Site Utilities Mgr. (989) 757-5349
 Amount: \$2.6M
 Description: Complete conversion of two 150,000 lb/hr steam boilers from coal to natural gas including burners and controls
 Status: Completed as Scheduled

BASF, Wyandotte, MI

Date: 2016
 Owner: BASF Corporation
 Contact: John M Sirko, Project Manager (734) 324-6121
 Amount: \$2.2M
 Description: Restoration of four 40,000lb/hr water tube boilers including new natural gas burners and controls
 Status: Completed as Scheduled

Lipten is an Engineering, Procurement and Construction (EPC) Company specializing in Energy Centers. Lipten has been providing Energy Center engineering, procurement and construction services since 1969. Lipten services encompass all aspects related to the generation of Power- steam, hot water, electricity, cogeneration and compressed air systems as well as ancillary equipment required of these major systems.

The Boiler conversion experts:

- Lipten pioneered the boiler conversion concept more than 30 years ago.
- Lipten has completed more stoker boiler conversions than any company in North America.
- Lipten is the authority for such boiler conversions. Having presented at boiler owners conferences, provided press interviews on the subject of boiler conversion and authoring the following article for POWER magazine.
<http://www.powermag.com/practical-considerations-for-converting-industrial-coal-boilers-to-natural-gas/>

Statement of Readiness and Commitment of Resources:

Lipten is committed to provide the services for this project. Lipten has engineers, technicians and project managers as well as contract employees typically totaling 17-32 people depending on project requirements. We have the capacity and ability to complete the IGA audit, design and installation process needed to complete this project efficiently from start to finish.

Subcontractor EMR

Year:	Rating:
2016	.89
2015	.95
2014	.95
2013	.94
2012	.95

No Defaults or Debarment in the last five (5) years

Lipten Company Key Employees

James M. Spencer, CEO and General Manager

Expertise

- Corporate Management
- Project Management
- Project Estimating
- Facilities Design
- Instrumentation Design
- Fuel Conversions
- Energy Center Design
- Powerhouse Analysis
- Powerhouse Design

Education/Training

- Bachelor of Industrial Engineering
Northern Michigan University
- Senior Management Training
Community College of the Air Force
- Associates in Electronic Technology
Community College of the Air Force
- Missile Systems Training
Community College of the Air Force

Jim Marshall, President & Chief Operations Officer

Expertise

- Company Management
- Project Management
- Project Estimating
- Project Scheduling
- Technical Specifications
- Project Specifications
- Energy Center Design
- Biomass/Nat Gas/Oil/Biogas
- Instrumentation/Application

Education/Training

- Bachelor of Electronic Engineering
University of Dayton
- FlowServe/Valtek
Control Valves 101 & 301 Training
- Moore Industries
University of Product Knowledge
- Dale Carnegie & Gerry Weinberg
Sales & Development Training

Randy Flanagan, P.E., Senior Mechanical Engineer / Project Manger

Expertise

- Mechanical Engineering
- Steam Systems Design
- Piping System Design & Stress Analysis
- Manage Capital Project work for
Design, Demolition and Installation
- Manage & Coordinate Outage Projects
and Major Component Maintenance
- Generation of Bid Specifications
- Natural Gas, Coal, and Oil Fired
Systems
- Combined Heat and Power Applications
- Coal Fired Boilers
- Generate plans for and perform Utility
Boiler Inspections
- Generate plans for Utility
Turbine/Generator Inspections
- Predictive Maintenance Leader

Frank F. Hrlic, P.E., Director of Procurement & Contract Manager

Expertise

- Project Management
- Project Scheduling
- Technical Specifications
- Estimating
- Control Systems
- Material Handling Systems
- Equipment Installation
- Electrical Engineering

Education/Training

- Master of Science in Business
Administration
Lawrence Technological University
- Associate Degree in Engineering
Lawrence Technological University
- Bachelor of Science in Electrical
Engineering
Lawrence Technological University
- Safe-to-Work safety training series

ATTACHMENT 2 – LIPTEN COMPANY CASE STUDY & REFERENCES

Lipten had a long client list with similar projects similar to the scope being recommended at Selinsgrove Center. Lipten client list includes over one hundred fifty four (154) large-scale institutional, industrial and municipal boiler installations across the United States, with over 20% of projects including a coal fired boiler retrofit application.



Headquarters:

28054 Center Oaks

Wixom, MI 48393

P: 800-860-0790

www.lipten.com

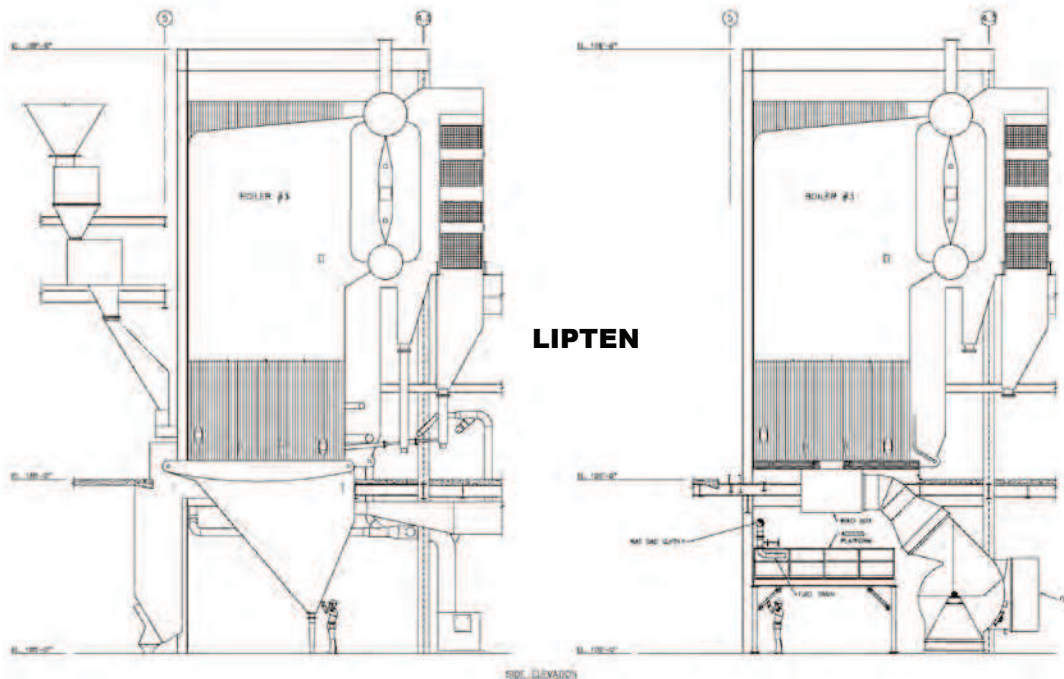
Client: General
Motors

In Progress: 2013

General Motors – Wentzville, MS

Lipten is converting two coal-fired boilers to fire natural gas at the GM Wentzville assembly facility in Missouri. Lipten has converted many boilers from coal to natural gas firing; several of them at GM facilities.

The project includes installation of new vertical-firing natural gas burners. Vertical burners were chosen instead of horizontal burners for this application to provide: optimum flame geometry for the specific furnace configuration, improved water circulation patterns, improved thermal efficiency, better overall boiler performance, avoidance of flame impingement and simplified operation. The project also includes new forced draft fans, natural gas supply systems, electrical modifications, custom Programmable Logic Controller (PLC) control systems from Lipten's Controls Division and additional system modifications required to convert coal boilers to fire natural gas. This project will be completed by the end of 2013.





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28054 Center Oaks

Wixom, MI 48393

P: 800-860-0790

www.lipten.com

Client: Nexteer

Completed: 2015

Nexteer Boiler Conversion – Saginaw, MI

Lipten provided a design-build coal to natural gas conversion of two 150,000 lb/hr coal fired Riley Boilers. Lipten was also responsible for all engineering, design, equipment, materials, demolition, construction and startup.



The stoker was removed and replaced with a floor built of plate steel and refractory. This image shows the vertically mounted burner and new floor.



New fan for a converted boiler.

The project included new fuel trains, burners, forced draft fans, induced draft fans, VFD's, instruments and controls. Lipten also provided significant exhaust ducting modifications to bypass the coal exhaust gas emissions treatment equipment that was no longer needed when burner natural gas. Prior to Lipten converting these two boilers, another firm attempted to convert a third boiler. The boiler was unable to achieve capacity and exceeded the emissions limitations. The boiler had to be derated and significant costs were incurred as a result of excess NOx. The boilers converted by Lipten met full capacity and strict NOx limitations upon startup. Lipten's experience in boiler conversions provided a superior design at a lower cost.



Headquarters:

28054 Center Oaks

Wixom, MI 48393

P: 800-860-0790

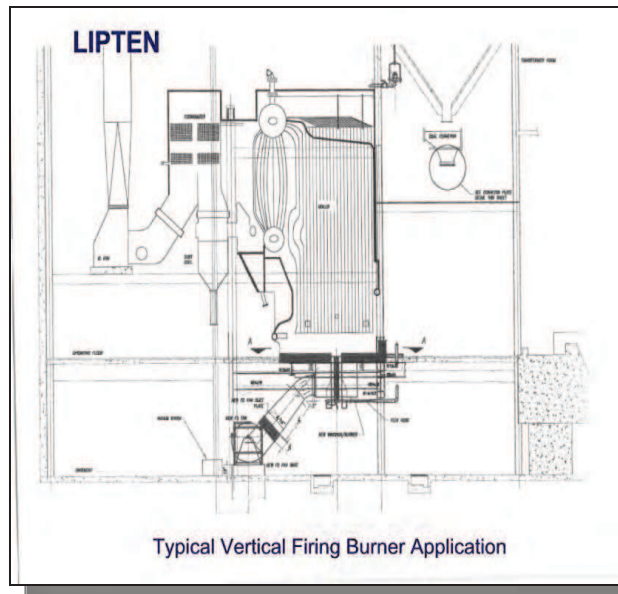
www.lipten.com

Client: Ford Motor

Completed: 2007

FORD MOTOR COMPANY:

Lipten was contracted by Ford to furnish complete EPC (Engineering, Procurement and Construction) services for a boiler coal-to-gas conversion. The project consisted of converting two 100,000 pph stoker coal fired boilers to natural gas using vertically up-fired natural gas burners. The scope of work included the demolition of the existing grates, stokers, coal & ash hoppers and combustion air fans.



The new installation items included furnace floors, support plates and a structural steel systems required to support the new vertically fired burners. Lipten installed a low NO_x gas burner, wind box, fuel train, forced draft fans for each boiler and new VFD's plus two new PLC based control systems via Lipten's CombustionPacTM series control products.

Lipten also provided rental boiler connections necessary for future boilers. The project was completed on time and performance guarantees were achieved.



General Motors Corporation - Swartz Creek, MI

Lipten Company was contracted to Design & Build a Turnkey Coal-to-Gas Conversion and complete powerhouse renovation. Within this scope, Lipten converted three 45,000-pph Field Erected Coal fired Boilers to Front Wall fired Low NO_x Natural Gas Fired, with new FD Fans, VFD's, Fuel Trains, Extensive Tube Repairs & Modifications, Spray-Tray Deaerator System w/Feedwater Pumps, Duplex Softener System, Chemical Feed Systems and a Blowdown Heat Recovery System. Three new Burner Management & Combustion Control Systems, a Boiler Plant Master Control System, complete controls & instrumentation package and a PC based Plant Monitoring System were also provided and installed allowing for a complete replacement of the powerhouse control & monitoring systems.



New Burner, Windbox and FD Fan along with a new Deaerator



New Instruments



New Controls



Installed Rental Boilers and Feedwater Trailer

Lipten also provided full Design, Engineering, Project Management, Site Management, Startup and Commissioning services for the systems as well as operator training. Local skilled trades were utilized for Demolition, Asbestos Abatement, Cement Work, Boilermakers, Pipe Fitters, Mechanical Rigging & Installation, Electrical Installation, Painting and Insulation. Two Rental Boilers, a Feedwater Trailer and tie-ins were included to allow for complete powerplant shutdown during the conversion.

Headquarters:

28054 Center Oaks

Wixom, MI 48393

P: 800-860-0790

www.lipten.com

Client: GM

Completed: 2006



Holy Cross Services- St. Mary's College:

Lipten was contracted to provide full Design & Build Turn-key Coal-to-Gas Conversion, and powerhouse renovations. Lipten converted two 50,000 pph field erected coal boilers to vertically up-fired natural gas with fuel oil backup. In addition, a new 30,000 gallon fuel oil storage system, a new diesel generator backup system and a new deaerator system were installed.



Lipten's scope also included a re-furbished triplex softener system, a new power distribution system, three new burner management & combustion control systems, a plant master system and a dual PLC based plant monitoring system. An entirely new instrumentation control valve and control device package was also included. Lipten provided engineering, project management, start-up, training and commissioning.

Headquarters:

28054 Center Oaks

Wixom, MI 48393

P: 800-860-0790

www.lipten.com

Client: Holy Cross

Completed: 2004

LIPTEN COMPANY

SELECTED POWER GENERATION EXPERIENCE

Project Name & Location	Client	Scope	Description	Fuel Type	Equip. Capacity
Asphalt Facility Detroit, MI	Asphalt Facility	EPC, I	One (1) Thermal Oxidizer Rebuild and Combustion Control and BMS Upgrade	Gas	
Asphalt Facility Minneapolis, MN	Asphalt Facility	EPC, I	One (1) Thermal Oxidizer Performance Evaluation and Enhancements	Gas	
Asphalt Facility Denver, CO	Asphalt Facility	EPC, I	One (1) Thermal Oxidizer Inspection	Gas	
Asphalt Facility Denver, CO	Asphalt Facility	EPC, I	One (1) Thermal Oxidizer Rebuild and Combustion Control and BMS Upgrade	Gas	
Asphalt Facility Jacksonville, FL	Asphalt Facility	EPC, I	One (1) Thermal Oxidizer Rebuild and Combustion Control and BMS Upgrade	Gas	
Asphalt Facility Oklahoma City, OK	Asphalt Facility	EPC, I	One (1) Thermal Oxidizer Inspection	Gas	
Asphalt Facility Summit, IL	Asphalt Facility	EPC, I	Two (2) Thermal Oxidizer Rebuild and Combustion Control and BMS Upgrade	Gas	
Asphalt Facility Detroit, MI	Asphalt Facility	EPC, I	One (1) New Thermal Oxidizer, Asphalt Preheater and Combustion Control and BMS Systems	Gas	
Asphalt Facility Summit, IL	Asphalt Facility	EPC, I	One (1) Thermal Oxidizer Performance Evaluation and Enhancements	Gas	
Asphalt Facility Jacksonville, FL	Asphalt Facility	EPC, I	One (1) Thermal Oxidizer Inspection	Gas	
Asphalt Facility Kearny, NJ	Asphalt Facility	EPC, I	One (1) New Thermal Oxidizer, WHRSG and Combustion Control and BMS Systems	Gas	
Asphalt Facility Oklahoma City, OK	Asphalt Facility	EPC, I	One (1) Thermal Oxidizer Rebuild and Combustion Control and BMS Upgrade	Gas	
Asphalt Facility Jacksonville, FL	Asphalt Facility	EPC, I	One (1) Thermal Oxidizer Rebuild and Combustion Control and BMS Upgrade	Gas	
Battle Creek Waste Water Treatment Plant Creek, MI	Battle City of Battle Creek	EPC,I	CEMS and DAS for two (2) Incinerators. (40 CFR Part 503)	SLUDGE/ GAS	
Blue Moon/Rose Acre Farms Francesville, IN	Rose Acre Farms	EPC,I	Wood Combustor and Air Preheater Control System, Instrumentation and all auxiliaries.	WOOD	
Bowling Green State University Bowling Green, OH	Bowling Green University	EPC,I	CEMS and DAS for three (3) Boilers. (40 CFR Part 60)	GAS/NO.2 OIL	
Bowling Green State University Bowling Green, OH	Bowling Green University	EPC,I	Three (3) Boilers, Low Nox Burners, Combustion and BMS Control System, Feedwater Equipment and Facilities Controls, Instrumentation, complete CEMS Package and all auxiliaries.	GAS/NO.2 OIL	85,000 lb/hr
Cargill Beardstown, IL	Cargill Beardstown,IL	EPC	Engineering, Procurement and Construction of a new boiler and control systems.	Gas	51,750 lb/hr

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SELECTED POWER GENERATION EXPERIENCE

Project Name & Location	Client	Scope	Description	Fuel Type	Equip. Capacity
Cargill Fresno, CA	Cargill Fresno, California	SA	Site audit	Gas	
Cargill Friona, TX	Cargill Fresno, California	SA	Site audit	Gas	
Cargill Plainview, TX	Cargill Plainview, TX	EPC	Site Audit	TBD	
Central Michigan University Mt. Pleasant, MI	Central Michigan University	EPC,I	One (1) Plant Master Feedwater, Deaerator, and Condensate System Controls Package	Gas	
Central Soya Kankakee, IL	Central Soya	EPC,I	One (1) Boiler, Low Nox Burner, Combustion and BMS Control System, Feedwater Equipment and Facilities Controls, Instrumentation and all auxiliaries.	GAS/NO.2 OIL	50,000 lb/hr
Cincinnati Waster Water Treatment Plant Cincinnati, OH	City of Cincinnati	EPC,I	CEMS and DAS for Eight (8) Incinerators. (40 CFR Part 503)	SLUDGE/ GAS	
Consumers Power Company Jackson, MI	Consumers Power Company	EPC,I	Opacity and Flow for Twenty-One (21) Boilers (40 CFR Part 75)	COAL	
Cornhusker Energy Center	Cornhusker Nebraska	SA	Site Audit	Gas	
Daimler Chrysler Corporation Belvidere, IL	Daimler Chrysler Corporation	EPC,I	Three (3) Boilers, Combustion Controls Systems, Instrumentation, and Auxiliaries	Gas	85,000 lb/hr
Daimler Chrysler Corporation Detroit Axle Detroit, MI	Daimler Chrysler Corporation	EPC, I	Eight (8) Coil tube Steam Generator Control Upgrades and Balance of Plant	Gas	10,000 lb/hr
Daimler Chrysler Corporation Kokomo, IN	Daimler Chrysler Corporation	EPC,I	Three (3) Boilers, Combustion and BMS Control System, Instrumentation, and all auxiliaries.	GAS/NO.2 OIL	85,000 lb/hr
Daimler Chrysler Corporation Kokomo, IN	Daimler Chrysler Corporation	EPC,I	One (1) Feedwater Control System, Instrumentation and all auxiliaries.		
Daimler Chrysler Corporation McGraw Glass Detroit, MI	Daimler Chrysler Corporation	EPC	Two (2) Boiler Control Upgrades, Two (2) Deaerators and Feedwater Pumps	GAS	80,000 LB/HR
Daimler Chrysler Corporation New Castle, IN	Daimler Chrysler Corporation	EPC,I	Three (3) Boilers, Low Nox Gas/Oil Burners, Combustion and BMS Control System, Feedwater Equipment and Controls, Instrumentation and all auxiliaries.	GAS/NO.2 OIL	30,000 lb/hr

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SELECTED POWER GENERATION EXPERIENCE

Project Name & Location	Client	Scope	Description	Fuel Type	Equip. Capacity
Daimler Chrysler Corporation Newark, NJ	Daimler Chrysler Corporation	EPC,I	Five (5) Coal to Low Nox Gas Burner Conversions, Combustion and BMS Control Systems, Instrumentation and all auxiliaries.	GAS	50,000 lb/hr
Daimler Chrysler Corporation Perrysburg, OH	Daimler Chrysler Corporation	EPC,I	One (1) Boiler Low Nox Burner, Combustion and BMS Control System, Instrumentation and all auxiliaries.	GAS	100,000 lb/hr
Daimler Chrysler Corporation Windsor, Ontario	Daimler Chrysler Corporation	EPC	Eight (8) 100' Dual Wall Stainless Steel Exhaust Stacks		
Daimler Chrysler Tech Center Auburn Hills, MI	Daimler Chrysler Corporation	EPC,I	Two (2) Hot Water Generators, Low Nox Burners, Combustion and BMS Control System	GAS/NO.2 OIL	45,000 mmbtu
DCP Midstream Heat Recovery Turbine Okarche, OK	DCP Midstream	E,C	New Heat recovery Steam Generator and Turbine	Flue gas Stream	15,100 lbs/hr, 2,000 HP Turbine
Detroit Metropolitan Airport Detroit, MI	Wayne County	EPC,I	Four (4) Boilers, Low Nox Burners, Combustion and BMS Control System	GAS/NO.2 OIL	40,000 lb/hr
Detroit Midfield Terminal Detroit, MI	DQE	EPC, I	Three (3) High Temperature Hot Water Generators, Low Nox Burners, Combustion and BMS Control System, Instrumentation.	GAS/NO.2 OIL	45,000 mmbtu
DTE Energy Services Ann Arbor, MI	Ann Ford - Cleveland	SA	Site audit - De-Centralization of Steam and Air Systems	Oil	
DTE Energy Services Ann Arbor, MI	Ann GM Lordstown	SA	Site audit - Controls Upgrades	Oil	
Durr Environmental Wixom, MI	Durr Environmental	EPC,I	CEMS and DAS for Ten (10) Diesel Engines (40 CFR Part 60)	DIESEL	
Eastern Michigan University Ypsilanti, MI	Eastern Michigan University	I	One (1) Boiler, Burner Oil Firing System Modifications	Gas/No. 2 Oil	80,000 lb/hr
Ethanol Facility Engineering	Ethanol Facility	E	Engineering for new Ethanol facility	Natural Gas/Biogas	525,000 lb/hr
Ethanol Facility Engineering	Ethonal Facility	E	Engineering for new Ethanol facility Energy Center	TBD	
Ethanol Facility Madison, Illinois	Ethanol Facility	EPC	Design and build new Energy Center including water treatment, chillers (6,000 Ton), air compressors (3,382 SCFM) and boilers.	Gas	300,000 lb/hr
Ethanol Facility West Franklin, Illinois	Ethanol Facility	EPC	Design and build new Energy Center including water treatment, chillers (6,000 Ton), air compressors (3,382 SCFM) and boilers.	Gas	300,000 lb/hr

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SELECTED POWER GENERATION EXPERIENCE

Project Name & Location	Client	Scope	Description	Fuel Type	Equip. Capacity
Euclid Waste Water Treatment Plant Euclid, OH	City of Euclid	EPC,I	CEMS and DAS for Two (2) Incinerators (40 CFR Part 503)	SLUDGE/ GAS	
Ferris State University Big Rapids, MI	Ferris State University	EPC,I	One (1) Boiler, Low Nox Burners, Combustion and BMS Control System, Feedwater Equipment and Controls, Instrumentation and all auxiliaries.	GAS/NO.2 OIL	75,000 lb/hr
Flint Waste Water Treatment Plant Flint, MI	City of Flint	EPC,I	CEMS and DAS for four (4) Incinerators. (40 CFR Part 503)	SLUDGE/ GAS	
Ford Motor Company Wayne, MI	Ford Motor Company	EPC,I	One (1) Boiler, Combustion and BMS Control System, Instrumentation and all auxiliaries.	GAS/LFG	45,000 lb/hr
Ford Motor Company Ypsilanti, MI	Ford Motor Company	EPC,I	One (1) Boiler, Combustion and BMS Control System, Instrumentation and all auxiliaries.	GAS	50,000 lb/hr
Ford Motor Company Ypsilanti, MI	Ford Motor Company	EPC,I	Three (3) Boiler Combustion and BMS Control System, Feedwater Control System, Instrumentation and all auxiliaries	GAS/NO.2 OIL	40,000 lb/hr
Ford Motor Company Livonia, MI	Ford Motor Company	EPC, I	Boiler Feedwater Equipment and all Auxiliaries		
Ford Motor Company Livonia, MI	Ford Motor Company	EPC,I	Two (2) Boilers Coal to Gas Low Nox Burner Conversions, Combustion and BMS Control Systems, Instrumentation and all auxiliaries.	GAS	90,000 lb/hr
Ford Motor Company Livonia, MI	Ford Motor Company	EPC,I	One (1) Boiler Gas Low Nox Burner Conversion, Combustion and BMS Control System, Instrumentation and all auxiliaries.	GAS	120,000 lb/hr
Ford Motor Company Monroe, MI	Ford Motor Company	EPC,I	Remove two (2) Coal Fired Boilers, furnish and install two (2) Boilers, Gas Burners, Combustion and BMS Control Systems, Instrumentation and all auxiliaries	GAS	70,000 lb/hr
Ford Motor Company Rawsonville, MI	Ford Motor Company	EPC,I	One (1) Waste Heat Recovery Boiler for One (1) GE Gas Turbine, Combustion and BMS Control System, Instrumentation and all auxiliaries	GAS	80,000 lb/hr
Ford Motor Company Rawsonville, MI	Ford Motor Company	EPC,I	Six (6) Boiler Combustion and BMS Control Systems, Feedwater Control System, Instrumentation and all auxiliaries.	GAS	80,000 lb/hr
Ford Motor Company Wayne, MI	Ford Motor Company	EPC,I	Two (2) Boilers, Combustion and BMS Control System, Instrumentation and all auxiliaries.	GAS/LFG	70,000 lb/hr
Ford Motor Company Dyke	Van Ford Motor Company	EPC	One (1) Boiler, Combustion and BMS Control System, Instrumentation and all auxiliaries.	GAS	
Ford Motor Company Cleveland, OH	Ford Motor Company	EPC	Two (2) Boilers Coal to Gas Low Nox Burner Conversions, Combustion and BMS Control Systems.	Gas	100,000 lb/hr

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SELECTED POWER GENERATION EXPERIENCE

Project Name & Location	Client	Scope	Description	Fuel Type	Equip. Capacity
Ford Motor Company Chicago, IL	Ford Motor Company	EPC,I	Three (3) Boiler Combustion and BMS Control System, Feedwater Control System, Instrumentation and all auxiliaries	GAS/NO.2 OIL	50,000 lb/hr
Ford Motor Company Dearborn, MI	Ford Motor Company	EPC,I	Three (3) Burner Conversions, Combustion and BMS Control Systems, Instrumentation and all auxiliaries	GAS/NO.2 OIL	
Ford Motor Company Cleveland, OH	Ford Motor Company	EPC	Three (3) Boiler Combustion and BMS Control System, Feedwater Control System, Instrumentation and all auxiliaries		
Ford Motor Company Sharonville, OH	Ford Motor Company	EPC,I	Two (2) Boilers, Combustion and BMS Control System, Instrumentation and all auxiliaries.	GAS	30,000 lb/hr
General Mills	General Mills C	E	Engineering for a new wood chip central energy plant	Wood	
General Motors Canada Oshawa, Ontario	General Motors Limited Canada	EPC,I	One (1) Coal Boiler Firing Modifications Four (4) Coal Boiler Combustion Control Upgrades	Coal	150,000 lb/hr
General Motors Corporation Lake Orion, MI	General Motors Corporation	EPC, I	Three (3) Boilers, Combustion Control Systems, Instrumentation and all auxiliaries.	COAL/ GAS	150,000 lb/hr
General Motors Corporation Lake Orion, MI	General Motors Corporation	EPC, I	One (1) Boiler, Combustion Control Systems, Instrumentation and all auxiliaries.	COAL/ GAS	40,000 lb/hr
General Motors Corporation Livonia, MI	General Motors Corporation	EPC, I	One (1) Boiler, Combustion Control Systems, Instrumentation and all auxiliaries.	GAS	80,000 lb/hr
General Motors Corporation Lordstown, OH	General Motors Corporation	EPC, I	Three (3) Shop Assembled Boilers, Combustion and BMS Control Systems, Instrumentation and all auxiliaries	GAS	60,000 lb/hr
General Motors Corporation Massena, NY	General Motors Corporation	EPC, I	One (1) Boiler, Combustion Control Systems, Instrumentation and all auxiliaries.	GAS	40,000 lb/hr
General Motors Corporation Oklahoma City, OK	Cinergy	EPC, I	Three (3) Boiler Combustion and BMS Control Systems, Instrumentation and all auxiliaries	GAS	100,000 lb/hr
General Motors Corporation Pittsburgh, PA	General Motors Corporation	EPC, I	Two (2) Boiler Combustion Control Systems, Instrumentation and all auxiliaries.	GAS	25,000 lb/hr
General Motors Corporation Pontiac, MI	General Motors Corporation	EPC, I	One (1) CFB Boiler, Combustion Control Systems, Instrumentation and all auxiliaries.	COAL/ GAS	300,000 lb/hr

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SELECTED POWER GENERATION EXPERIENCE

Project Name & Location	Client	Scope	Description	Fuel Type	Equip. Capacity
General Motors Corporation Saginaw, MI	General Motors Corporation	EPC, I	Two (2) Boilers, Combustion and BMS Control Systems, Instrumentation and all auxiliaries.	GAS	90,000 lb/hr
General Motors Corporation Tarrytown, NY	General Motors Corporation	EPC, I	Two (2) Boilers, Combustion and BMS Control Systems, Instrumentation and all auxiliaries.	GAS	80,000 lb/hr
General Motors Corporation Warren, MI	General Motors Corporation	EPC, I	One (1) Boiler, Combustion and BMS Control System, Instrumentation and all auxiliaries.	GAS	90,000 lb/hr
General Motors Corporation Warren, MI	General Motors Corporation	EPC, I	One (1) Boiler, Combustion and BMS Control System, Instrumentation and all auxiliaries.	GAS	120,000 lb/hr
General Motors Corporation Wentzville, MS	General Motors Corporation	EPC, I	Three (3) Boilers, Combustion and BMS Control Systems, Instrumentation and all auxiliaries.	COAL/ GAS	150,000 lb/hr
General Motors Corporation Wentzville, MS	General Motors Corporation	EPC, I	One (1) Boiler, Combustion and BMS Control System, Instrumentation and all auxiliaries.	COAL/ GAS	40,000 lb/hr
General Motors Corporation Willow Run, MI	General Motors Corporation	EPC, I	Opacity for six (6) Boilers (40 CFR PART 60)		
General Motors Corporation Willow Run, MI	General Motors Corporation	EPC, I	Six (6) Boilers, Combustion and BMS Control Systems, Feedwater Control System, Instrumentation and all auxiliaries.	COAL/ GAS	80,000 lb/hr
General Motors Corporation Willow Run, MI	General Motors Corporation	EPC, I	Four (4) Combustion and BMS Control Systems, Feedwater Control System, Instrumentation and all auxiliaries.	COAL/ GAS	80,000 lb/hr
General Motors Corporation Ypsilanti, MI	General Motors Corporation	EPC, I	Three (3) Boilers, Combustion and BMS Control Systems, Feedwater Control System, Instrumentation and all auxiliaries.	GAS	60,000 lb/hr
General Motors Corporation Ypsilanti, MI	General Motors Corporation	EPC, I	One (1) Boiler, Combustion and BMS Control System, Feedwater Control System, Instrumentation and all auxiliaries.	GAS	150,000 lb/hr
General Motors Corporation Ypsilanti, MI	General Motors Corporation	EPC, I	Opacity for three (3) Boilers (40 CFR PART 60)	COAL	
General Motors Corporation Arlington, TX	GM	EPC	Three (3) Field Erect Boiler Gas/Oil Fired Combustion and BMS Control Systems, Instrumentation and all auxiliaries.	GAS/NO.2 OIL	60,000/hr

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SELECTED POWER GENERATION EXPERIENCE

Project Name & Location	Client	Scope	Description	Fuel Type	Equip. Capacity
General Motors Corporation Janesville, WI	General Motors Corporation	P	Two (2) Boilers, Combustion and BMS Control Systems, Instrumentation and all auxiliaries.	GAS	80,000 lb/hr
General Motors Corporation Anderson, IN	GM	EPC,I	One (1) Boiler Coal to Gas Low Nox Burner conversion, Combustion and BMS Control System, Instrumentation & aux	GAS	250,000 lb/hr
General Motors Corporation Brussels, Belgium	GM	EPC	One (1) Boiler, Combustion and BMS Control System, Instrumentation and all auxiliaries.	NO.2 OIL	90,000 lb/hr
General Motors Corporation Cincinnati, OH	General Motors Corporation	EPC,I	Three (3) Boilers, Combustion and BMS Control System, Instrumentation and all auxiliaries.	GAS/NO.2 OIL	90,000 lb/hr
General Motors Corporation Detroit, MI	General Motors Corporation	EPC,I	One (1) Boiler, Combustion and BMS Control System, Instrumentation and all auxiliaries.	GAS/NO.2 OIL	90,000 lb/hr
General Motors Corporation Flint, MI	General Motors Corporation	EPC,I	Three (3) Boilers, Combustion Control Systems, Instrumentation and all auxiliaries.	GAS	100,000 lb/hr
General Motors Corporation Flint, MI	General Motors Corporation	EPC, I	Four (4) PLC Based Combustion/BMS and Plant Master Control Systems, Instrumentation and all auxiliaries	GAS	100,000 lb/hr
General Motors Corporation Indianapolis, IN	General Motors Corporation	EPC,I	One (1) Boiler, BMS Control System, Fuel Train and all auxiliaries	GAS/NO.2 OIL	70,000 lb/hr
General Motors Corporation Delphi Flint, MI	General Motors Corporation	EPC,I	Six (6) Boiler, Combustion and BMS Control System, Instrumentation and all auxiliaries.	GAS	150,000 lb/hr
General Motors Corporation Delphi Flint, MI	General Motors Corporation	EPC	One (1) Boiler Coal to Gas Low Nox Burner Conversions, Combustion and BMS Control Systems, Feedwater Equipment, Instrumentation and all auxiliaries.	GAS	150,000 lb/hr
General Motors Corporation Delphi Hamtramck, MI	General Motors Corporation	EPC	Opacity for four (4) Boilers. (40 CFR Part 60)	COAL	
General Motors Corporation Delphi Hamtramck, MI	General Motors Corporation	EPC	Three (3) Boilers, Combustion Control Systems, Instrumentation and all auxiliaries.	COAL/ GAS	150,000 lb/hr
General Motors Corporation Delphi Hamtramck, MI	General Motors Corporation	EPC	One (1) Boilers, Combustion Control Systems, Instrumentation and all auxiliaries.	COAL/ GAS	40,000 lb/hr

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SELECTED POWER GENERATION EXPERIENCE

Project Name & Location	Client	Scope	Description	Fuel Type	Equip. Capacity
General Motors Corporation Harrison Radiator Lockford, NY	General Motors Corporation	EPC, I	One (1) Boiler, Combustion Control Systems, Instrumentation and all auxiliaries.	GAS/NO.2 OIL	200,000 lb/hr
General Motors Corporation Service Parts Operation Flint, MI	General Motors Corporation	EPC	Three (3) Boilers Coal to Gas Low Nox Burner Conversions, Combustion and BMS Control Systems, Feedwater Equipment, Instrumentation and all auxiliaries.	GAS	45,000 lb/hr
General Motors Corporation Service Parts Operation Flint, MI	General Motors Corporation	EPC	Three (3) Feedwater Pump systems, Instrumentation and all auxiliaries.	GAS	45,000 lb/hr
Gerber Food Products Freemont, MI	Gerber Foods	EPC, I	One (1) Boiler, Combustion and BMS Control System, Feedwater Control System, Instrumentation and all auxiliaries.	COAL/ GAS	60,000 lb/hr
Grayling Generating Station Grayling, MI	City of Grayling	EPC, I	One (1) Boiler, 950 deg. Steam, Wood Fired	WOOD	315,000 lb/hr
Holland Power Holland, MI	City of Holland	EPC, I	CEMS and DAS for two (2) Boilers (40 CFR PART 75)	COAL/ GAS	
Holland Power Holland, MI	City of Holland	EPC, I	CEMS and DAS for two (2) Gas Turbines (40 CFR PART 75)	GAS/NO.2 OIL	
IBM Corporation Fishkill, NY	Whiting Turner	JV, EPC, I	Opacity for One (1) Boiler (40 CFR Part 60)	GAS/NO.2 OIL	
IBM Corporation Fishkill, NY	Whiting Turner	JV, EPC, I	Seven (7) Low NOx Burner Upgrades, PLC Based Combustion Controls and Burner Management System	GAS/NO.2 OIL	60,000 mmbtu
IBM Corporation Fishkill, NY	Whiting Turner	JV, EPC, I	One (1) Hot Water Generator, Low Nox Burner	GAS/NO.2 OIL	60,000 mmbtu
IBM Corporation Fishkill, NY	Whiting Turner	JV, EPC, I	One (1) PLC based Combustion Control and Burner Management Panel	GAS/NO.2 OIL	60,000 mmbtu
IBM Corporation Fishkill, NY	Whiting Turner	JV, EPC, I	Opacity for seven (7) Boilers (40 CFR Part 60)	GAS/NO.2 OIL	
LaFarge Cement Alpena, MI	LaFarge Cement	EPC, I	Opacity for Two (2) Cement Kilns (40 CFR Part 60)	COAL	
LaFarge Cement Paulding, OH	LaFarge Cement	EPC, I	Opacity for Two (2) Cement Kilns (40 CFR Part 60)	COAL	
Lansing Board of Power and Light MI	Lansing, City of Lansing	EPC, I	Opacity and Flow for five (5) Boilers (40 CFR Part 75)	Coal	
Lansing Waste Water Treatment Plant MI	Lansing, City of Lansing	EPC, I	CEMS and DAS for two (2) Incinerators (40 CFR Part 503)	SLUDGE/ GAS	

JV = Joint Venture

E/P/C = Engineer/Procure/Construct

I = Instrumentation

SA= Site Audits

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SELECTED POWER GENERATION EXPERIENCE

Project Name & Location	Client	Scope	Description	Fuel Type	Equip. Capacity
Lincoln Generating Station Lincoln, MI	City of Lincoln	EPC, I	One (1) Boiler 950 deg Steam, Wood Fired	WOOD	315,000 lb/hr
MacSteel Jackson, MI	MacSteel Jackson, MI	E, I	Engineering and Instrumentation		
MacSteel Monroe, MI	MacSteel Monroe, MI	E, I	Engineering and Instrumentation		
McBain Generating Station McBain, MI	City of McBain	EPC, I	One (1) Boiler 950 deg Steam, Wood Fired	WOOD	315,000 lb/hr
Medusa Cement Charlevois, MI	Medusa Cement	EPC, I	Opacity for Two (2) Cement Kilns (40 CFR Part 60)	COAL	
Michigan South Central Litchfield, MI	Michigan South Central	EPC, I	CEMS and DAS for one (1) Boiler (40 CFR Part 75)	COAL/ GAS	
Milton Power Hamilton, OH	Milton Power	EPC, I	CEMS and DAS for two (2) Boilers (40 CFR Part 75)	COAL/ GAS	
National Steel Corporation Ecorse, MI	National Steel Corporation	EPC, I	Two (2) Boilers SLC based Combustion Controls and Burner Management Panels	GAS/BFG	90,000 lb/hr
Noresco Rockview, IL	Noresco Rockview	E	Engineering for new Central Energy Plant		
Oakwood Annapolis Hospital Wayne, MI	Crothell Asset Management	EPC, I	Feedwater Deaerator and Controls		
Oakwood Annapolis Hospital Wayne, MI	Crothell Asset Management	EPC, I	One (1) Boiler, Combustion and BMS Control System	GAS/NO.2 OIL	25,000 lb/hr
OC Chester, SC	Asphalt Facility	EPC, I	Three (3) post core Oven Performance Evaluations and Enhancements	Gas	
OHM Corporation Owosso, MI	OHM Corporation	EPC, I	CEMS for three (3) De-Noxing Systems (40 CFR PART 60)		
Pennsylvania, State of	Hamburg Center Hospital	EPC	Controls Provided and Installed, 20,000/lb/hr coal fired/ two (2) field erected boiler, One (1) 50,000 lb/hr package oil fired	Coal Oil	20,000 and 50,000
Pennsylvania, State of	Allentown State Hospital	EPC	750 Lp package boiler Lox Burner, new combustion controls		
Pfizer, Inc. Kalamazoo, MI	Pfizer, Inc.	EPC, I	One (1) Boiler, Low Nox Burner, Combustion and BMS Control System, Feedwater Equipment and Facilities Controls, Instrumentation and all auxiliaries.	GAS/NO.2 OIL	90,000 lb/hr
Pfizer, Inc. Kalamazoo, MI	Pfizer, Inc.	EPC	Low Nox Burner Modifications and Engineering Report	GAS/NO.2 OIL	90,000 lb/hr
Proctor & Gamble	Proctor & Gamble	E, I	De-Superheater		

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SELECTED POWER GENERATION EXPERIENCE

Project Name & Location	Client	Scope	Description	Fuel Type	Equip. Capacity
Providence Hospital Southfield, MI	Providence Hospital	EPC, I	One (1) Boiler, Combustion and BMS Control System	GAS/NO.2 OIL	25,000 lb/hr
Raytheon Corporation River Rouge, MI	Raytheon Corporation	EPC, I	Utility Feedwater Sampling System with Analyzers		
Renova Digester	Renova	E, I	Burner Management System Controls for Digester Facility	TBD	
Rose Acre Farms Francesville, IN	Rose Acre Farms	EPC,I	Wood Combustor / Air Preheater System, Instrumentation and all auxiliaries.	WOOD	
Sisters, Servants of the Immaculate Heart Monroe, MI	Sisters, Servnats of the Immaculate Heart	EPC, I	Two (2) Boilers, Combustion and BMS Control Systems, Feedwater Control System, Instrumentation and all auxiliaries.	GAS/NO.2 OIL	50,000 lb/hr
Sisters, Servants of the Immaculate Heart Monroe, MI	Sisters, Servnats of the Immaculate Heart	EPC, I	Two (2) SLC based Combustion Control and Burner Management Panels	GAS/NO.2 OIL	50,000 lb/hr
St. Mary's College Notre Dame, IN	Holy Cross Services	EPC, I	Two (2) Boilers Coal to Gas Low Nox Burner Conversions, Combustion and BMS Control Systems.	GAS/NO.2 OIL	50,000 lb/hr
St. Mary's College Notre Dame, IN	Holy Cross Services	EPC, I	One (1) Boiler Gas Low Nox Burner Conversion, Combustion and BMS Control System, Feedwater Equipment, Instrumentation and all auxiliares.	GAS/NO.2 OIL	25,000 lb/hr
Toyota Corporation Springhill, Kentucky	Toyota Corporation	EPC, I	CEMS and DAS for six (6) Boilers (40 CFR Part 60)	GAS/NO.2 OIL	
Trenton Waste Water Treatment Trenton, MI	City of Trenton	EPC, I	CEMS and DAS for two (2) Incinerators (40 CFR Part 503)	SLUDGE/ GAS	
Tri-Mer Corporation Owosso, MI	Tri-Mer Corporation	EPC,I	Cems for three (3) De-Noxing Systems (40 CFR Part 60)		
Unilever Kilbourn New Energy Center Chicago, IL	Unilever	E	Detailed design for new steam and chilled water plant	Gas	62,100 lbs/hr, 600 Ton Chiller
United States Gypsum Galena Park, TX	United States Gypsum	EPC, I	One (1) Boiler, Ultra Low NOx Burner, Controls, Building	Gas	75,000 lb/hr
University of Louisville Louisville, Kentucky	University of Louisville	EPC, I	One (1) Boiler, Combustion Control System, Instrumentation and all Auxiliaries	COAL	50,000 lb/hr

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SELECTED POWER GENERATION EXPERIENCE

Project Name & Location	Client	Scope	Description	Fuel Type	Equip. Capacity
University of Michigan Ann Arbor, MI	University of Michigan	EPC, I	Two (2) Waste Heat Recovery Boilers for Two (2) Solar Taurus Gas Turbines, Burners, Combustion, and BMS Control System	GAS	75,000 lb/hr
Warren Waste Water Treatment Plant Warren, MI	City of Warren	EPC, I	CEMS and DAS for two (2) Incinerators (40 CFR Part 503)	SLUDGE/ GAS	
Wheeling Pittsburgh Steel Corporation Wheeling, West Virginia	Wheeling Pittsburgh Steel Corporation	EP, I	Two (2) Boilers, Low NOx Burners, Forced Draft Fans, BMS Control Systems, and Deaerator	Coke Oven Gas/Gas	75,000 Lb/hr
Wyandotte Waste Water Treatment Plant Wyandotte, MI	City of Wyandotte	EPC, I	CEMS for eight (8) Incinerators (40 CFR Part 503)	SLUDGE/ GAS	