

ENERGY MANAGEMENT,  
WATER CONSERVATION  
AND SUPPORT SERVICES



GSA FACILITIES MAINTENANCE AND MANAGEMENT:  
ENERGY MANAGEMENT, WATER CONSERVATION AND  
SUPPORT SERVICES

*Contract No. GS-21F-0204W*

**Contact Us:**

Malcolm Pirnie, Inc.  
Attention: David Lamoureux, PE  
Deputy Contracts Manager  
295 Bendix Road, Suite 240  
Virginia Beach, VA 23452  
Voice: (757) 419-3976  
Fax: (757) 419-3968  
Email: [dave.lamoureux@arcadis-us.com](mailto:dave.lamoureux@arcadis-us.com)  
Web Page: <http://www.arcadis-us.com>

**Table of Contents**

[Corporate Overview](#)  
[Energy Services Overview](#)  
[Energy Services Offerings](#)  
[GSA SIN 871-202, 871-202RC: Energy Management Planning and Strategies](#)  
[GSA SIN 871-205, 871-205RC: Energy Program Support Services](#)  
[GSA SIN 871-206, 871-206RC: Building Commissioning Services](#)  
[GSA SIN 871-207, 871-207RC: Energy Audit Services](#)  
[GSA SIN 871-209, 871-209RC: Innovations in Energy](#)  
[GSA SIN 871-210, 871-210RC: Water Conservation](#)  
[GSA SIN 871-100, 871-100RC: Ancillary Supplies and Services](#)  
[Rates & Labor Category Descriptions](#)  
[Terms & Conditions](#)



## **CORPORATE OVERVIEW**

For over a century Malcolm Pirnie, Inc. (Malcolm Pirnie) has been one of the nation's leading professional consulting and engineering organizations, providing services to over 3,000 public and private clients. Through our 2009 merger with ARCADIS US, Inc., Malcolm Pirnie, Inc. became a wholly owned subsidiary of ARCADIS and has since integrated most of its functions into ARCADIS. We continue to serve our customers with the same personnel who have provided dedicated services in the past but now with access to many more resources.

Malcolm Pirnie offers more than 100 years of experience in the utility and energy business executing federal, industrial and municipal projects involving the evaluation, design and construction oversight of complex facilities and systems throughout the country. Our staff has identified cost-efficient, reliable and sustainable power sources, as well as conservation and efficiency methodologies and technologies that meet the 24/7 operational needs of our clients - all while assuring the safety and preservation of the environment and human health, and our clients' compliance with executive orders, regulatory requirements and public law.

Client satisfaction, integrity and quality work - they're what Malcolm Pirnie is all about. It's the way we do business. It's why our clients keep coming back with a resounding 85% in repeat business.

Malcolm Pirnie offers the depth, breadth, and specific energy qualifications that can best respond to a client's energy program needs:

### **▯ WE BRING SPECIFIC EXPERTISE ACROSS THE ENERGY SPECTRUM - MATCHING A CLIENT'S RENEWABLE, EFFICIENCY AND ENERGY CONSERVATION NEEDS**

- § Nationwide Energy Auditing & Assessment Experts - Energy audits completed for municipal, federal and Fortune 500 clients
- § Extensive Renewable Energy & Technology Experience - We design and develop reliable, cost-effective renewable energy projects through our strong understanding of technology options to meet a client's specific needs in facility- and utility-scale projects with solar, wind, hydro, geothermal, biomass, and Waste-To-Energy.
- § Leader in Green Building and Integrated Control Systems - We have experienced, knowledgeable staff dedicated to sustainable design, and LEED Accredited Professionals™ to integrate energy conservation systems, energy data management, energy and utilities management, control systems, utility systems, and communication facilities.

### **▯ WE HAVE NO LEARNING CURVE SUPPORTING GOVERNMENT AGENCIES**

## ENERGY MANAGEMENT, WATER CONSERVATION AND SUPPORT SERVICES

- § We have provided successful project delivery for over 40 years through the successful completion of over 1000 assignments to government agencies.
- § We have worked with a wide array of federal agencies, from the DoD to the DoE to the DoJ, and from the USEPA to NASA to the DoI - We understand the government's organizations and their goals.

### **n WE HAVE EXTENSIVE FEDERAL AND DOD CONTRACT EXPERIENCE**

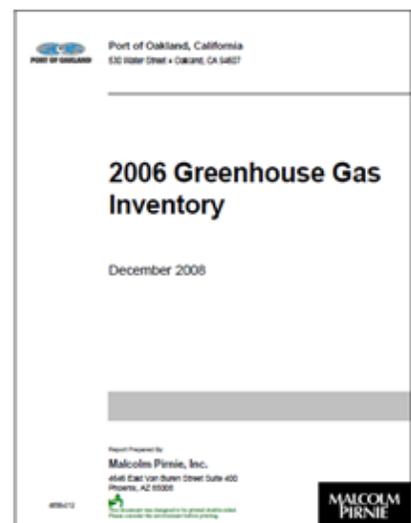
- § We have successfully managed and completed over a Billion dollars in contract capacity.
- § We routinely handle project tasks from the small to very large, from simple to the most complex by providing multi-disciplined support to all assignments.

### **ENERGY SERVICES OVERVIEW**

Malcolm Pirnie has been providing energy management services for more than 30 years. We have successfully completed energy audits and energy efficiency improvement projects at a wide range of facilities throughout the United States and overseas. Our clients typically have benefited from savings opportunities of 10 percent or more. In some cases, we have made recommendations that resulted in reduction of facility energy costs by 50 percent or more through a combination of energy efficiency measures and on-site power generation. Through these projects, Malcolm Pirnie has gained significant insight into the types of energy conservation measures that are most applicable to particular facilities. Furthermore, our energy savings recommendations are made with consideration for each client's long-term operations and capital needs.

Malcolm Pirnie is continually investigating sustainable energy use and offers sustainability strategic planning services to its clients. Our staff includes over 250 U.S. Green Building Council (USGBC) Leadership in Energy and Environmental Design (LEED) Accredited Professionals™ who facilitate the sustainable design of projects and guide teams to create LEED™ certified buildings, which can help clients qualify for state and local government incentives.

Malcolm Pirnie is also a Founding Reporter of The Climate Registry, a non-profit organization established to measure and publicly report greenhouse gas emissions consistently across industry sectors and borders. We are studying numerous green or renewable energy sources that may be options to supplement traditional sources. Examples include micro hydro turbines in place of



## ENERGY MANAGEMENT, WATER CONSERVATION AND SUPPORT SERVICES

pressure-reducing valves, solar energy, photovoltaic cells, landfill gas, digester gas, biomass, geothermal energy, and wind energy.

An example of our current energy consulting work is an education and outreach program to improve energy efficiency within New York State's water and wastewater sector. Through this effort we are increasing energy efficiency awareness within the sector, both at the facility level and among elected officials, and are developing tools and resources to assist utilities in developing and implementing energy management programs at their facilities.

These diverse projects demonstrate our commitment to maintaining leading-edge knowledge of energy conservation and sustainable practices and leveraging that knowledge to the benefit of our clients and the global environment.

### **ENERGY SERVICE OFFERINGS**

**MALCOLM PIRNIE PROUDLY OFFERS COMPREHENSIVE ENERGY-RELATED SERVICES UNDER THE FOLLOWING SINS:**

**871-202, 871-202RC: ENERGY MANAGEMENT PLANNING AND STRATEGIES**

**871-205, 871-205RC: ENERGY PROGRAM SUPPORT SERVICES**

**871-206, 871-206RC: BUILDING COMMISSIONING SERVICES**

**871-207, 871-207RC: ENERGY AUDIT SERVICES**

**871-209, 871-209RC: INNOVATIONS IN ENERGY**

**871-210, 871-210RC: WATER CONSERVATION**

**871-100, 871-100RC: ANCILLARY SUPPLIES AND SERVICES**

**GSA SIN □871-202, 871-202RC: ENERGY MANAGEMENT AND PLANNING**

**STRATEGIES**

*Four-phase Comprehensive Energy Management Solution consisting of all four phases of an energy project and pertaining to a variety of energy projects that include, but are not limited to, renewable energy, sustainable energy, and energy efficient buildings certification programs such as LEED.*

- 1. Consulting/Auditing/Energy Management Solutions - The strategic planning, energy assessments e.g. feasibility, vulnerability and other detailed assessments, developing and executing of energy audits, audit plans and energy management solutions.*
- 2. Concept Development and Requirements Analysis - The analysis of the audit results and outlined requirements to design a detailed energy management project concept.*
- 3. Implementation and Change Management - The implementation and integration of more energy efficient practices and systems and training in using them effectively.*
- 4. Measurement and Verification - The performance assessment and measurement of the effectiveness and energy efficiency of the project and can include long term monitoring, verification of savings and benchmarking.*

**Malcolm Pirnie provides comprehensive energy management and planning strategy services that range from single buildings to multi-unit facilities and installations. We have assisted federal, state and commercial clients in developing strategic policies, rules and regulations governing buildings, processes, and procedures that have saved thousands of dollars.**

The Malcolm Pirnie Team has successfully completed energy audits and energy efficiency improvement projects at a wide range of facilities throughout the United States and overseas. Completing over 5,000 audits, our clients have benefited from savings opportunities of 10 to 20 percent on average. In some cases, we have made recommendations that resulted in reduction of facility energy costs by 50 percent or more through a combination of energy efficiency measures and on-site power generation.

**Arsenal-Wide Metering and Energy Efficiency Assessment - Watervliet Arsenal, NY**

The Watervliet Arsenal (WVA) includes approximately 60 buildings occupying a total of more than 2.1 million square feet. In FY2008, the WVA utilized 33,600,000 kilowatt hours (kWh) of electricity, 171,000 MBtu of natural gas, 545,000 gallons of fuel oil, and 39,700,000 gallons of water to meet mission requirements - resulting in more than \$7.4 million in annual energy costs.



In accordance with Executive Order (EO) 13423 and Energy Independence and Security Act of 2007 (EISA), the Watervliet Arsenal tasked Malcolm Pirnie with conducting a base-wide energy usage profile; a detailed assessment of energy usage in the 14 largest buildings; an inventory and audit of the energy-using systems in each building (including temporary installation of meters and logging equipment); development of recommended energy conservation measures (ECMs); and development of an energy use index on a per cannon basis to aid in the development of strategies for energy use reduction and

future assessment of energy performance.

**Results:**

- We identified an area where excessive energy was being used for HVAC in the chromium plating area. We recommended changes in operation that resulted in a substantial direct reduction in steam and electricity usage - resulting in a savings of approximately 280,000 kilowatt hours (kWh) of electricity savings, and 1,000,000 cubic feet of natural gas savings (from reduced steam production), annually. This equates to an annual emissions reduction of more than 1,000,000 pounds of greenhouse gases and an annual cost savings of approximately \$190,000 - **all at no capital cost to the WVA.**
- The WVA boilers run on both natural gas and No. 2 fuel oil. Natural gas is the preferred fuel due to lower cost and lower air emissions. However, the WVA's gas usage is curtailed during periods of high use (i.e., the winter months), at which time they are forced to switch to No. 2 fuel oil. Due to the reduction in steam usage from the changes in the HVAC system, the WVA was not forced to switch to No. 2 fuel oil. This saved approximately \$900 per day during the time when gas usage was curtailed and resulted in fewer air emissions during that period.

**Comprehensive Energy Management - Puerto Rico Aqueduct & Sewer Authority**

The Puerto Rico Aqueduct and Sewer Authority (PRASA) embarked on a comprehensive energy management program as a "green agency." PRASA's goal is to reduce its energy use and energy costs, stabilize the rates for the energy they purchase, and achieve more sustainable energy use through "green" energy projects. PRASA's energy costs reached over \$145 million in 2008, but have diminished a little due to reductions in fuel oil pricing. PRASA wanted to obtain a more stable expenditure because its energy costs are about 10% of its overall budget, and swings of 75% in electric pricing have severe negative impacts on their business. PRASA is hoping to stabilize pricing and reduce costs by over 30% through demand-side performance contracts and power purchase agreements. By using a full-service development approach, PRASA expects to secure substantial benefits for its stakeholders. Malcolm Pirnie has been asked to be PRASA's client representative to ensure that the projects and contracts that PRASA develops will achieve their goals and obtain real cost reductions.



Malcolm Pirnie is using a stepped approach for implementing PRASA's comprehensive energy management program on both the demand and supply sides of the energy equation. Through the use of Energy Performance Contracting, it is believed PRASA can achieve significant savings in energy usage and costs, and minimize the impacts of world-wide fluctuations in the cost of raw energy - primarily fuel oil.

**Results:**

- Completion of a strategic planning exercise that has evaluated and then implemented strategies for the island wide energy performance based contracting approach.
- Completed the identification of 2 projects for evaluation and implementation under the energy savings performance contract strategy.

## ENERGY MANAGEMENT, WATER CONSERVATION AND SUPPORT SERVICES

- *Currently developing specifications, RFPs, and source selection materials for ESCOs to bid and perform work under the contract strategy.*
- *Conducting baseline energy consumption and use on multiple sites, facilities, and equipment for PRASA to be used for energy savings performance contracts.*

### **GSA SIN □871-205, 871-205RC: ENERGY PROGRAM SUPPORT SERVICES**

*Services include, but are not limited to, billing and management oversight and assistance in preparing energy services related agency statements of work. Energy efficient buildings certification programs such as LEED may be included.*

**Malcolm Pirnie is a leader in the planning, design and implementation of energy-related program support services. We have designed programs for a range of clients and their facilities that provide our engineers, scientists and consultants with a thorough understanding of all aspects of study, planning, design, optimization and construction associated with energy conservation, sustainability, and innovation.**

Our services cover a broad spectrum of systems analyses, operations, regulatory assistance, and organizational and business improvement services. We work closely with all staffing levels - from field, line and process employees to mid- and upper-management personnel - in the development of program-specific plans and activities for optimizing energy-related resources throughout an enterprise. Our program services include, but are not limited to:

- Analyzing Energy Trends and Assuring Data Quality
- Production of Metrics, Reports and Graphs
- Process Definition and Improvement
- Strategy Development and Legislative Review
- Using LEED Accredited Professionals™

### **Technical Review Services to Support Existing Facilities Program - New York State Energy Research & Development Authority**

Malcolm Pirnie has been providing energy program assistance and technical review services for over fifteen years to support implementation and administration of New York State Energy Research & Development Authority's (NYSERDA) Existing Facilities Program. Our work includes a variety of management and technical services with the goal of improving the energy efficiency of municipal and private-sector facilities within New York and, through collaborative projects, nationally. Hundreds of applications have been received for technical review, many for energy efficiency measures or performance contracts addressing multiple facilities.



#### **Results:**

*Over 500 applications have been reviewed to date. We are utilizing a variety of tools to evaluate proposed energy efficiency measures, assess potential energy savings, and establish recommended incentives, either prescriptive or performance-based, to support project implementation. We perform detailed energy analyses of proposed efficiency measures for building systems, treatment processes and manufacturing processes. We also perform pre- and post-installation inspections,*

*provide measurement and verification services, and provide review and guidance to applicants and ESCOs on program activities. When applicable, new construction is reviewed against LEED certification provisions.*

### **Technical Review Services to Support Water and Wastewater Efficiency Program - New York State Energy Research & Development Authority**

Malcolm Pirnie is program manager for a comprehensive outreach program to improve energy efficiency in New York State's water and wastewater sector. This ongoing project is focused on increasing the water and wastewater sector's interest in energy-efficient processes and products, and implementing a collaborative approach to improve the delivery of technical assistance in energy management across the state.



#### **Results:**

*Over a dozen projects have been initiated to date on behalf NYSERDA. We have assisted in development of the Program Framework, eligibility criteria, basis of evaluation, energy assessment methodology, reporting requirements, and incentive structure, and continues to assist in Program implementation. Specific tasks completed to date include:*

- Development and delivery of operator training*
- Development and delivery of training to elected officials*
- Development of self-audit checklists to assist small utilities*
- Development of case studies to assist utilities in implementing energy efficiency programs*
- One-on-one interviews and energy audits of larger utilities*

### **GSA SIN [§71-206, 871-206RC]: BUILDING COMMISSIONING SERVICES**

*Services include, but are not limited to, comprehensive building commissioning services on new construction, major modernization projects, and existing energy consuming buildings and facilities designed to ensure the building systems are designed and built to operate as efficiently as possible. This includes re-commissioning and retro-commissioning services. Energy efficient buildings certification programs such as LEED may be included.*

**Building commissioning services are necessary to assure that a new building, or new construction such as an addition to an existing structure, meet the design specifications as well as the operational parameters the designers and engineers originally envisioned.**

These services are provided by our commissioning experts, practiced teams of HVAC and power engineers, control specialists, LEED accredited professionals, and certified project managers who are dedicated to ensuring that our clients' facilities and operational systems perform at the highest level of functionality while seeking to maximize energy efficiency.

### **National Geospatial-Intelligence Agency, New Campus East, Ft Belvoir, VA**

The firm completed master planning and design for the new east coast headquarters of the National Geospatial-Intelligence Agency (NGA). The new headquarters will include a 90,000 square foot data center.



Functional performance verification tests were developed that are being used to commission the facility's integrated building controls and energy-related infrastructures (HVAC, lighting, domestic hot water and building façade). The LEED certification process is being facilitated by an energy model used for evaluating and tracking evolving energy initiatives and operational conditions. The project includes full Commissioning of the mechanical, electrical and plumbing infrastructure and of the building facade, in accordance with ASHRAE Guideline 0-2005.

**Results:**

*The facility is expected to achieve operations with energy costs that are 30% lower than the minimum standards prescribed by ASHRAE 90.1.*

**Satellite Earth Terminal Station (SETS) at Fort Detrick, MD**

This project is for a new 33,700 SF Satellite Earth Terminal Station (SETS) at Fort Detrick that is seeking LEED® Silver Certification. The project is currently in the construction phase. The firm's commissioning staff is serving as the Design Agency Representative for commissioning-related services.



Services include design reviews, development of commissioning specifications (including Installation Checklists and Functional Performance Tests), commissioning process oversight and development of a systems manual for the facility. The project is also subject to standards as prescribed by ASHRAE Guideline 0-2005, and as mandated by the 2005 National Energy Act and Executive Order 13327. LEED certification will be sought under LEED NC v. 2.2.

**Results:**

*This project provided comprehensive commissioning and engineering services to a new, LEED Silver Certified, mission-critical facility.*

**GSA SIN □871-207, 871-207RC: ENERGY AUDIT SERVICES**

*Services include, but are not limited to, developing, executing, and reporting on audit plans and/or perform energy and water audit services. Energy audits may range from cursory to comprehensive. Including, but not limited to data collection, data analysis, benchmarking with tools such as Energy Star, and written recommendations of suggested upgrades of electrical and mechanical infrastructure, including their impact on energy consumption and pollution can include recommendations for using alternative Energy Sources. Energy efficient buildings certification programs such as LEED may be included.*

**Whether conducting energy audits of individual buildings or multi-unit facilities, Malcolm Pirnie employs proven methodologies, procedures and technologies to ensure all energy-related aspects of a facility are accounted for, measured and evaluated.**

## ENERGY MANAGEMENT, WATER CONSERVATION AND SUPPORT SERVICES

In general, the main systems to be evaluated during a facility's audit are the HVAC systems, lighting systems, building envelope, plug loads, water usage, and renewable energy opportunities. Malcolm Pirnie identifies energy savings opportunities ranging from no-cost/low-cost measures to high-capital measures. Malcolm Pirnie also conducts easily-implemented retro-commissioning activities that are possible and appropriate within the contractual parameters of the audit.

Based on the findings of the audit, we identify possible energy conservation measures (ECMs) and complete a technical and financial feasibility analysis of these ECMs. If a whole-building analysis is not necessary, individual ECMs will be evaluated directly to estimate energy savings. We then submit the building energy simulation results and life cycle cost analysis results to the client prior to completion of the draft reports. Findings are then assembled into a comprehensive report and submitted to the client for review. Upon receipt of comments, the report is finalized and issued.

### Energy Audits - Watervliet Arsenal, NY

As part of a base-wide energy usage profile of the Watervliet Arsenal (WVA), Malcolm Pirnie conducted a detailed assessment of energy usage in the 14 largest buildings. This assessment included auditing of the major energy-using systems in each building and development of recommended energy conservation measure (ECM) project lists on a per building basis. As part of the evaluation, Malcolm Pirnie assessed the energy expenditures required to manufacture assigned materiel (i.e., cannons and mortar tubes) and to develop strategies for energy reduction.



Upon completion of the audit, a report was prepared that included:

1. A summary of energy use and schedule.
2. Recommendations for energy improvements.
3. A feasibility evaluation that included System Controls, Estimate of Life Cycle Costs, and Energy Conservation Measure Summaries of all major systems and processes.

#### **Results:**

- A direct reduction in steam usage of more than 8 million pounds of steam per year - resulting in approximately \$150,000 of annual cost savings in steam production and approximately \$40,000 to \$50,000 in annual savings from the reduction of electricity use by the HVAC air handlers.
- Due to the reduction in steam usage from the changes in the HVAC system, the WVA was not forced to switch to No. 2 fuel oil, a more costly fuel usually used in winter. This saved approximately \$900 per day during the time when gas usage was curtailed and resulted in fewer air emissions during that period.

### Energy Audit and Management Evaluation, Delphi Automotive Systems, Dayton, OH

Delphi Automotive Systems operates a number of manufacturing facilities in the Dayton area. Malcolm Pirnie's energy conservation team conducted an energy audit at two of Delphi's large automotive component manufacturing facilities in Dayton

and nearby Vandalia. The goal of the audits was to identify opportunities to reduce energy usage and costs.

To begin the audit process, Malcolm Pirnie asked each department at the two facilities to provide historical energy and equipment utilization data at each plant and powerhouse. Based on the profiles and other assessments made by Malcolm Pirnie, several energy conservation measure (ECM) projects with significant cost saving opportunities were identified.



Concurrent with these energy audits, Malcolm Pirnie investigated and prepared reports that outlined opportunities that would enable Delphi to reduce operational costs by optimizing the powerhouse activities. The reports outlined a combination of energy and manpower savings.

**Results:**

*The savings estimated by Malcolm Pirnie, if all recommendations were followed, would be as follows:*

- *\$370,000 savings through electricity demand reduction from optimized operations and increased lighting system efficiencies*
- *\$245,000 savings through heating load reductions and compressed air leak reduction*
- *\$115,000 saving at the Dayton facility's molding presses*
- *\$350,000 saving by switching to smaller, localized steam generators, and staff reductions*

**GSA SIN □871-209, 871-209RC: INNOVATIONS IN ENERGY**

*Innovative approaches to renewable and/or sustainable energy, sustainability services, and energy management technology and services may include, but are not limited to, new developments or improvements in providing renewable energy and managing energy through biomass conversion, solar energy, fuel cells, geothermal energy, hydropower (tidal power, wave power, tidal stream power, waterwheels, and hydro electricity), wind power or other sources. These approaches should be capable of providing renewable and/or sustainable energy and sustainability services that are more "carbon-neutral," thereby lessening dependence on traditional non-renewable, "fossil fuel" sources of energy such as coal, oil, natural gas and propane. This could include sustainability and carbon management solutions such as analysis, foot printing, measuring, mitigation, verification and management, training on new energy technologies and systems, life-cycle costing, and maintenance and operational support of renewable energy systems; and the implementation, testing and evaluation of networked energy management systems and services that utilize Internet Protocol - Next Generation (IPv6) enabled systems that are configured using open standards architecture that can include Power over Ethernet (POE) implementation, wireless configurations, data security using IPSEC or 128 DES Encryption standards, high reliability, NIST compliant, and demonstrated energy efficiencies or cost savings, and are capable of integrating with existing information systems data infrastructure and backbone.*

**Malcolm Pirnie, as a leader in environmental services for over a century, has always promoted innovation, energy efficiencies, and sustainability in the design and development of environmental facilities such as water and wastewater treatment plants and associated infrastructure. We have advocated and assisted clients in the development of organizational structures and management strategies that promote the**

conservation of energy and strategic resources, while empowering staff to implement innovative measures and efficiencies in their daily activities.

Malcolm Pirnie supports the development of renewable energy projects involving photovoltaic, concentrated solar, wind, geothermal, biomass, gas-recovery and waste-to-energy technologies. This work is often the result of our sustainability and environmental management activities on behalf of private and public clients and includes some of the earliest resource recovery and environmental initiatives in this country. Our range of projects involve small-scale, single facility or system energy projects to larger projects and programs involving multiple facilities or utility-scale efforts.

To effectively assess renewable energy opportunities, we strike a balance across a range of factors including business or installation mission, availability and quality of site-related renewable energy resources, suitable site availability, capital costs, recurring O&M costs, energy demand, energy costs, other market demands, Renewable Portfolio Standards, transmission and interconnection availability, wheeling costs, financial markets, technologies, and numerous other data points.

### Upgrade and Improvements of Anaerobic Digesters and Digester Gas-to-Electricity Cogeneration System, Gloversville-Johnstown Joint Sewer Board

Malcolm Pirnie provided system evaluations and design services to maximize the use of waste treatment biogas for conversion to an energy source for facility operations. Work included the evaluation of anaerobic digester operations, including mixing, heating, and cover systems; evaluation of gas recovery, storage, and conversion systems; and the evaluation of alternatives for receiving, storing and processing high strength wastes from the food industry by anaerobic digestion to maximize digester gas production.



Malcolm Pirnie performed a study that recommended several upgrades and improvements so that the facility could more effectively receive high-strength wastes. In addition, the upgrades enabled GJJWTF to more effectively control the production and recovery of biogas, minimizing the amount of gas being wasted. The findings from this study were used as a basis for a subsequent project to increase the existing anaerobic digester capacity and to expand the facility's on-site electrical generating capabilities. Additional services included the preparation of detail designs for the recommended improvements.

#### Results:

- In 2008 a detailed design was completed for anaerobic digester facility improvements including upgrade of the existing 2-150KW biogas-to-electricity engine generator to 2-350KW engine generators.
- Through acceptance and treatment of additional high-strength dairy waste in addition to sludge digestion, the facility is generating 100% of its electricity on-site using biogas-fired engine generators.
- Waste heat from the engines is used to heat the digesters to optimize their performance.
- Construction of the upgrades began in 2009 and the facility was put into

service in 2010.

### Geothermal Groundwater Cooling System, Albany Molecular Research, Inc., Albany, NY

Malcolm Pirnie performed an energy evaluation for a geothermal groundwater cooling system at the client's new research facility in Albany - a two-story, 128,000-sq-ft organic chemistry laboratory with more than 200 fume hoods. The air-conditioning load for the building is high (up to 1,000 tons) because operation of the fume hoods decreases the recirculation of cool air throughout the building as the hoods vent directly to the outside. To lower the energy demand for the cooling system and avoid environmental impacts, the client proposed employing a groundwater cooling system in place of a conventional cooling tower system.



Malcolm Pirnie performed a groundwater resource assessment to evaluate the feasibility of such a system and to determine the most effective configuration of groundwater extraction wells and infiltration trenches for the noncontact cooling water. The modeling results indicated that a groundwater cooling system would be approximately 40 percent more efficient than the conventional system.

Malcolm Pirnie provided design and oversight services for the installation and development of the water supply wells and the construction of the infiltration trenches..

#### **Results:**

- § 40% increase in cooling efficiency over conventional cooling towers
- § \$28,000 in annual electric savings by reducing electricity used for cooling by 280,000 kWh
- § A two year payback period of entire cost of design, equipment and installation (with grant funding)
- § Saves 1.0M gallons of water a year by reducing the need for cooling tower make-up water.

### GSA SIN □871-210, 871-210RC: WATER CONSERVATION

Services and consulting related to the reduction of water usage, reduction of potable water consumption intensity, reduction of industrial, landscaping and agricultural water consumption, promoting, and implementing water reuse strategies, recycling of water for multiple purposes, retention of water, improvement of water quality and water flow. Also includes consulting on storm water run-off and property hydrology maintenance and restoration. These services can include, but are not limited to, consultation, facility water audits, water balance, and water system analysis.

Water is not only the life-blood of the human body, but also the historic Raison d'être for Malcolm Pirnie. Our 100+ year existence started with water engineering.

From testing to treatment, from conveyance to collection, Malcolm Pirnie's engineers, scientists and consultants have touched on virtually every aspect of the water

environment. Today, however, water is an ever-more strategic commodity with naturally-occurring fresh water becoming a diminishing resource. As such, its protection and conservation has become paramount.

Water loss management and conservation increasingly play very important roles in water supply planning. Water management on both the supply and demand side of a utility's ever-changing water balance can lead to successful deferment of capital expenditures as well as satisfied customers. Malcolm Pirnie, an active participant on the American Water Works Association (AWWA) Customer Water Metering Services Committee and the Water Loss Control Committee, is a leader in assisting utilities and water authorities to identify the optimal mixture of affordable Best Management Practices (BMPs) and integrating successful water loss management and conservation efforts into master planning.

Malcolm Pirnie's water management expertise plus our master planning experience involves consideration of water supply and water demand management measures. Our experience in addressing the major components of a water conservation management plan include water conservation strategies, water supply systems, surface water and groundwater monitoring and safe yield analyses, and development of groundwater recharge strategies.

### 20-year Water Conservation Plan, Miami-Dade Water & Sewer Department

Malcolm Pirnie developed a 20-year water conservation plan for the 350-mgd operation of the Miami-Dade Water and Sewer Department (MDWASD), using techniques of the Conserve Florida GUIDE as well as Malcolm Pirnie's Best Management Practices (BMP) Optimizer tool. The plan was developed in support of the department's 20-year water use permit and involved developing an action plan for implementing water conservation measures in the Miami-Dade County Water & Sewer Department service area. The analysis identified the most effective mixture of water conservation measures for the region, and calculated expected water savings over the 20-year period.



The water conservation plan was based on savings rates established for each type of water conservation best practice and made use of Malcolm Pirnie's analytical capabilities, planning and organizational skills, experience with water use regulations, and use of computer models.

#### **Results**

*The water conservation plan developed by the project became an attachment to the MDWASD water use permit application with the South Florida Water Management District. The plan and the water use permit were both approved by the water management district.*

### Water Conservation and Reuse Study, New York

Malcolm Pirnie conducted a comprehensive water conservation and reuse study for a pharmaceutical manufacturer at a facility with approximately 40 buildings that is involved in a wide range of research and pharmaceutical production activities. The water systems at the site are:

- Municipal water supply and distribution system.

## ENERGY MANAGEMENT, WATER CONSERVATION AND SUPPORT SERVICES

- Well water supply and distribution system.
- A cooling tower water distribution system consisting of 7 cooling towers that receive a total heat load of 14,000 tons from the facility's chiller plants.
- An on-site pure-oxygen activated sludge plant which discharges to a municipal wastewater treatment plant.
- Multiple high-purity water systems.
- Boiler plant.

Malcolm Pirnie conducted the study to understand where and how water was being used at the facility and to identify ways in which water and money could be saved. Through the development of a water balance, water usage was evaluated in the facility's production buildings and cooling towers. The water balance gave the facility an overview of water use and the ability to prioritize efforts to optimize water use. We prepared an engineering report that summarized our findings, results, and recommendations.

### **Results:**

- *Water usage could be reduced by 10% resulting in savings of approximately \$100,000 per year*
- *Correcting hydraulic imbalances and increasing cycles of concentration could result in savings of \$175,000 annually*

## **GSA SIN 871-100, 871-100RC ANCILLARY SUPPLIES AND SERVICES**

*Ancillary supplies and/or services are support supplies and/or services which are not within the scope of any other SIN on this schedule. These supplies and/or services are necessary to compliment a contractor's offerings to provide a solution to a customer requirement. This SIN may be used for orders and blanket purchase agreements that involve work or a project that is solely associated with the supplies and/or services purchased under this schedule.*

From rain gauges to flow meters to thermal sensors, Malcolm Pirnie can provide the proper state-of-the-art meters, instruments and devices to successfully execute an energy-related project. Additionally, as one of the country's foremost environmental engineering firms, we also have the resources, expertise and experience in a range of services that can directly support almost any energy-related activity or project from auditing one building to developing energy management and planning strategies for an entire, multi-facility installation or industrial complex.

ENERGY MANAGEMENT,  
WATER CONSERVATION  
AND SUPPORT SERVICES

**LABOR RATES & LABOR CATEGORY DESCRIPTIONS**

Below are Malcolm Pirnie's Rates (07/20/2015 – 07/29/2010):

Labor Category	Hourly Rate				
	7/20/2015	7/30/2016	7/30/2017	7/30/2018	7/30/2019
	To	To	To	To	To
	7/29/2016	7/29/2017	7/29/2018		7/29/2020
Principal	\$280.00	\$288.40	\$297.05	\$305.96	\$315.14
Sr. Associate (Energy Expert)	\$209.15	\$215.42	\$221.89	\$228.54	\$235.40
Sr. Associate (Transactional Expert)	\$209.15	\$215.42	\$221.89	\$228.54	\$235.40
Sr. Mgmt Associate (Financial Expert)	\$209.15	\$215.42	\$221.89	\$228.54	\$235.40
Senior Project Manager	\$175.00	\$180.25	\$185.66	\$191.23	\$196.96
Junior Project Manager	\$136.56	\$140.66	\$144.88	\$149.22	\$153.70
Sr. Project Engineer / Sr. Scientist	\$138.43	\$142.58	146.86	\$151.27	\$155.80
Project Engineer / Scientist	\$110.42	\$113.73	\$117.14	\$120.66	\$124.28
Jr. Project Engineer / Jr. Scientist	\$70.35	\$72.46	\$74.63	\$76.87	\$79.18
Staff Administrative Assistant	\$74.80	\$77.04	\$79.36	\$81.74	\$84.19

JOB TITLES, REQUIRED AND GENERAL EXPERIENCE, FUNCTIONAL RESPONSIBILITY, AND EDUCATION			
Job Title	Revised General Experience Description	Functional Responsibility	Minimum Education
<i>* Labor categories with an "*" have been determined to be non-professional and may only be used in support of the aforementioned professional services and shall not be purchased separately.</i>			
Principal	10 years experience	Manages the overall, firm-wide energy-related program and contract support operations, often involving multiple projects and groups of personnel at multiple locations. Directs and coordinates the planning and production of all programmatic contract activities. Has authority and responsibility to identify and commit corporate resources to support effort. Provides senior corporate-level oversight to ensure enforcement of quality control and safety program objectives.	MS/MBA Degree in Engineering, Management or Environmental Science
Senior Energy Expert	8 years experience	Provides expert technical and managerial guidance on programs and projects dealing with energy management, energy and water conservation, energy auditing and consulting. Provides direction for problem definition, analysis, specification development, and implementation on complex energy and energy-related business issues. Makes recommendations and advises on firm-wide system improvements, optimization, and training in energy-related areas.	MS/MBA Degree in Engineering, Environmental Science, or appropriate related field
Senior Transactional Expert	8 years experience	Applies subject matter expertise regarding complex real estate and transactional matters related to development of renewable and sustainable energy and other energy related projects. Manages Complex Transactional Assignments and coordinates with senior staff experts in related fields as appropriate to achieve clients' end objectives. Gathers and analyzes management information, cost information, and business data. Determines trends and provides recommendations. Prepares business case analysis. Functions as expert advisor on existing and newly-developed, innovative energy technologies.	MS/MBA Degree in Engineering, Environmental Science, or appropriate related field

ENERGY MANAGEMENT,  
WATER CONSERVATION  
AND SUPPORT SERVICES

JOB TITLES, REQUIRED AND GENERAL EXPERIENCE, FUNCTIONAL RESPONSIBILITY, AND EDUCATION			
Job Title	Revised General Experience Description	Functional Responsibility	Minimum Education
Senior Financial Consultant	8 years experience	Manages complex financial assignments related to development of energy projects and programs and coordinates with senior staff experts in related fields as appropriate to achieve clients' energy objectives. Gathers and analyzes energy-related financial and business data. Determines trends and provides recommendations to senior project staff and clients. Prepares financial case analyses. Functions as expert financial advisor.	MS/MBA Degree in Finance
Senior Project Manager	8 years experience	Day-to-day management of overall operations on larger, more complex energy projects and client energy programs such as multiple site/facility audits or energy management planning. Directs and coordinates the planning and production of all project activities. Responsible for identifying resources required to support project. Enforces quality control and safety on assigned project. Serves as primary point of contact with Client.	MS/MBA Degree in Engineering, Management or Environmental Science or Related Field
Junior Project Manager	6 years experience	Responsible for the day-to-day management of less complex energy projects such as a building energy audit as well as supports Senior Project Manager on more complex energy project operations. Directs and coordinates the planning and production of all project activities on assigned projects. Responsible for identifying and recommending resources required to support project. Enforces quality control and safety on assigned project.	BS/BA Degree in Engineering, Management or Environmental Science or Related Field
Senior Engineer/Scientist	6 years experience	Responsible for supervising/performing more complex engineering and science related work on energy-related projects such as facility-wide equipment upgrades. Provides technical support and direction for problem definition, analysis, specification development, and implementation for complex energy and business issues. Makes recommendations and advises on system improvements, optimization, or maintenance efforts for energy and energy-related issues.	MS/ME Degree in Engineering/Science
Staff Engineer/Scientist	2 years experience	Responsible for performing energy-related engineering and science projects such as an energy audit and data analysis, with minimal supervision. Provides technical and administrative support and direction for problem definition and resolution, and implementation on energy and business issues. Makes recommendations on system improvements, optimization, or maintenance efforts for energy and energy-related issues.	BA/BS Degree in Engineering/Science
Junior Engineer/Scientist	0-6 years experience	Responsible for performing routine project work on energy-related engineering/science projects such as directing equipment installation, with supervision and guidance of senior personnel. Provides technical and administrative support and implementation on energy and business issues. Works with senior personnel to draft recommendations on system improvements, optimization, or maintenance efforts for energy and energy-related issues.	BA/BS Degree in Engineering/Science
Administrative Assistant*	0-5 years experience	Provides administrative support to the project staff. Manages documentation control, office coordination, reproduction support, invoice support and other office administration functions. Inputs data into charts, tables. Documents, reports and spreadsheets are created, edited and produced using existing programs, such as, Word and Excel.	High School or AAS

ENERGY MANAGEMENT,  
WATER CONSERVATION  
AND SUPPORT SERVICES

**TERMS & CONDITIONS**

GENERAL SERVICES ADMINISTRATION

Federal Supply Service  
Authorized Federal Supply Schedule Price List

Schedule for - ENERGY MANAGEMENT, WATER CONSERVATION AND SUPPORT SERVICES

Standard Industry Group: 8744 Class: 871

Contract Number: GS-21F-0204W

For more information on ordering from Federal Supply Schedules go to:

<http://www.gsa.gov/portal/co5tent/10445>

Contract Period: 30 July 2015 through 29 July 2020

Pricelist Effective: 20 July 2015

Contractor: Malcolm Pirnie, Inc.  
44 S. Broadway, 15th Floor  
White Plains, NY 10602

Business Size: Large Business  
Telephone: (914) 694-2100  
FAX Number: (914) 694-9286  
Web Site: [www.arcadis-us.com](http://www.arcadis-us.com)  
E-mail: [dave.lamoureux@arcadis-us.com](mailto:dave.lamoureux@arcadis-us.com)  
Contract Administration: Dave Lamoureux / Susan Molnar

**CUSTOMER INFORMATION**

- 1a. Table of Awarded Special Item Number(s) with appropriate cross-reference to page numbers: 871-202, 871-202RC; 871-205, 871-205RC; 871-206, 871-206RC; 871-207, 871-207RC; 871-209, 871-209RC; 871-210, 871-210RC; 871-100, 871-100RC
- 1b. Identification of the lowest priced model number and lowest unit price for that model for each special item number awarded in the contract. This price is the Government price based on a unit of one, exclusive of any quantity/dollar volume, prompt payment, or any other concession affecting price. Those contracts that have unit prices based on the geographic location of the customer, should show the range of the lowest price, and cite the areas to which the prices apply.
- 1c. If the Contractor is proposing hourly rates a description of all corresponding commercial job titles, experience, functional responsibility and education for those types of employees or subcontractors who will perform services shall be provided. If hourly rates are not applicable, indicate Not applicable for this item.
2. Maximum order: 1000000
3. Minimum order: 300
4. Geographic coverage (delivery area): FOB Worldwide
5. Point(s) of production (city, county, and State or foreign country): Same as company address
6. Discount from list prices or statement of net price: Government Net Prices (discounts already deducted). See prices attached
7. Quantity discounts: None
8. Prompt payment terms: Net 30 days
- 9a. Notification that Government purchase cards are accepted up to the micro-purchase threshold: Yes

ENERGY MANAGEMENT,  
WATER CONSERVATION  
AND SUPPORT SERVICES

- 9b. Notification whether Government purchase cards are accepted or not accepted above the micro-purchase threshold: Contact Contractor
- 10. Foreign items (list items by country of origin): None
- 11a. Time of delivery (Contractor insert number of days): Specified on the Task Order
- 11b. Expedited Delivery. The Contractor will insert the sentence "Items available for expedited delivery are noted in this price list". under this heading. The Contractor may use a symbol of its choosing to highlight items in its price lists that have expedited delivery: Contact Contractor
- 11c. Overnight and 2-day delivery. The Contractor will indicate whether overnight and 2-day delivery are available. Also, the Contractor will indicate that the schedule customer may contact the Contractor for rates for overnight and 2-day delivery. Contact Contractor
- 11d. Urgent Requirements. The Contractor will note in its price list the Urgent Requirements clause of its contract and advise agencies that they can also contact the Contractor's representative to effect a faster delivery. Contact Contractor
- 12. F.O.B. point(s): Destination
- 13a. Ordering address: Malcolm Pirnie, Inc., 44 S. Broadway, 15th Floor, White Plains, NY 10602
- 13b. Ordering procedures: For supplies and services, the ordering procedures, information on Blanket Purchase Agreements (BPAs) are found in Federal Acquisition Regulation (FAR) 8.405-3  
([https://www.acquisition.gov/far/html/Subpart%208\\_4.html](https://www.acquisition.gov/far/html/Subpart%208_4.html))
- 14. Payment address: ARCADIS US, Inc. 62638 Collections Center Drive, Chicago, IL 60693-0626
- 15. Warranty provision. Contractors Standard Commercial Warranty
- 16. Export packing charges, (if applicable): N/A
- 17. Terms and conditions of Government purchase card acceptance (any thresholds above the micro-purchase level) Contact Contractor
- 18. Terms and conditions of rental, maintenance, and repair (if applicable) N/A
- 19. Terms and conditions of installation (if applicable): N/A
- 20. Terms and conditions of repair parts indicating date of parts price lists and any discounts from list prices (if applicable) N/A
- 20a. Terms and conditions for any other services (if applicable): N/A
- 21. List of service and distribution points (if applicable): N/A
- 22. List of participating dealers (if applicable): N/A
- 23. Preventive maintenance (if applicable): N/A
- 24a. Special attributes such as environmental attributes (e.g., recycled content, energy efficiency, and/or reduced pollutants): N/A
- 24b. If applicable, indicate that Section 508 compliance information is available on Electronic and Information Technology (EIT) supplies and services and show where full details can be found (e.g. contractor s website or other location.) The EIT standards can be found at: [www.Section508.gov/](http://www.Section508.gov/)
- 25. Data Universal Number System (DUNS) number: 05-634-6539
- 26. Notification regarding registration in Central Contractor Registration (CCR) database: Registered

**Solutions for Life!**

Please contact Dave Lamoureux, P.E. (ME)

Voice: (757) 419-3976 Fax: (757) 419-3968