



1624 Dell Avenue
Campbell, CA 95008
(408) 871-9600
mccalmont.net

McCalmont Engineering Statement of Qualifications



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www.mccalmont.net

Excellence in Solar Engineering



Company Description

McCalmont Engineering provides design, engineering, and professional services for the solar PV and energy storage (ES) industries. We specialize in utility and large-scale solar PV and ES projects. Our team of solar energy veterans provides full solar design services and solves complex electrical engineering challenges for developers, EPC's, and integrators. We design all aspects of each system, from modules and the DC side through the AC side up to medium voltage (MV) interconnections. Our professional engineers are licensed in over 25 states, enabling us to seal and stamp plans in virtually all high-sun locations throughout the U.S.



Our Unique Value Propositions

McCalmont Engineering differs from traditional electrical engineering firms in four key ways:

❖ Renewables is What We Do

Our company was founded by solar industry experts, and we focus exclusively on solar and energy storage projects. Renewables are not an afterthought or “side” business for us. We design solar every day of the week, and we have been doing it since the early days of the solar industry.

❖ Years of Experience

Our staff has decades of experience in the solar industry, and that experience translates into better designs built at lower cost. Our principal engineers are involved in every project, and you will not be delegated to associate engineers with little experience like you will with general engineering firms whose expertise is primarily in fossil fuel plants. We'll work closely with you through every step of your project to get your systems online and generating power faster.



❖ **Construction Know-How**

All our principals come from a background of solar construction and have years of prior field experience building solar power plants. That hands-on experience means we know how solar plants are built in the real world, and our designs will reduce your construction costs. Solar engineering isn't a theoretic design exercise that we picked up from a training course. We've been there and built systems just like the systems we design.

❖ **Power Guarantee**

With our decades of experience with solar's unique generation characteristics and our familiarity with all types of solar equipment, our designs are optimized for maximum energy yield over the power plant life. We're so confident our designs will produce more energy that we guarantee it. You can expect maximum performance and higher capacity at lower cost from McCalmont designs.





Company History & Background

After a decade designing and building solar power plants, Tom and Darlene McCalmont set out to create a solar engineering company that incorporated everything they knew about designing with the highest standards and building systems at the lowest cost. McCalmont Engineering has been providing knowledgeable and experienced solar design and engineering services since our founding in 2009. We were one of the first engineering firms to enter the energy storage (ES) market, and began designing ES projects as far back as 2011.

To date, we have designed **hundreds of megawatts** of solar and energy storage projects (and hundreds of projects). We are **licensed in over half the U.S. states**, enabling us to seal and stamp plans in virtually all high-sun locations. We design all parts of the systems in-house, including medium voltage interconnections at up to 34.5 kV.

We create complete renewable energy solutions including integrated storage plus solar systems for PV+ES utility “peaker” plants, micro-grid applications, demand charge mitigation, and back-up power.

McCalmont Engineering is a registered Woman-Owned Small Business (WOSB) by the U.S. Small Business Administration and an equal opportunity employer.





❖ **Scope of Services**

McCalmont Engineering design and professional services include:

- **Solar Engineering**
 - Preliminary designs for interconnection applications
 - Optimal plant design including shade and solar resource analysis
 - PVsyst energy yield estimates and 8760 analysis
 - Design analysis of optimal energy delivery through PV+ES systems
- **PV Plant Designs**
 - Detailed site plans
 - AC interconnection designs at low or medium voltage (MV)
 - Substation and utility line design
 - DC analysis of optimal string sizing and layout
 - Single-line diagrams and detailed schematics
 - Conductor, conduit, and voltage drop calculations
 - Coordination and short circuit studies
 - Arc flash and thermal cable ampacity studies
 - SCADA system engineering and design
 - Stamped and sealed electrical drawings and calculations
- **Energy Storage**
 - Site evaluations and BESS (battery energy storage system) sizing
 - Interconnection designs combining ES with PV, including metering design
 - Micro-grid and “peaker” plant designs blending PV and ES as well as gen-sets
 - Code expertise and consulting to AHJ’s regarding changing NEC requirements
 - Stamped permit plans and construction package preparation
- **Other Services**
 - Engineer-Of-Record (EOR) service
 - Structural, civil, and geotechnical engineering through dedicated partners
 - Estimated project Return On Investment (ROI)
 - Consulting to solar manufacturers on “downstream” costs and challenges
 - Expert testimony in solar litigation cases



❖ **Professional Licenses and Credentials**

Our credentials and certifications include:

- Professional Engineers licensed in virtually all high-sun U.S. states
- NABCEP Certified PV Professionals
- Certified Woman Owned Small Business
- DUNS (Data Universal Numbering System) Number 963036269
- NAICS (North American Industry Classification System) Code 541330
- California Licensed Contractor (C-10 electrical, C-46 solar, and B general)



Our Quality Control Process

McCalmont Engineering provides engineering services in accordance with generally accepted professional engineering practices and to meet contract documents using reasonable care and skill consistent with those ordinarily exercised by members of the profession under similar circumstances.

McCalmont Engineering deploys a management chain of command to maintain the highest quality control of deliverables for each project. Our methods ensure that open communication lines are in place throughout the project among our team, our customers, and our subcontractors, and that the project remains on budget and on schedule.

During project bidding, our business staff takes direction from the President through the marketing and sales process before contracts are signed. During the delivery phase of each project, our solar engineers and designers take direction from the CEO, who also functions as our Operations Director managing all schedules and deliverables.

For each project, the Operations Director appoints a Lead Engineer and Project Manager who is responsible for quality control and review of all project deliverables as they are produced. A team of engineers and designers is assigned to the Project Manager as dictated by the needs of each project. Customer requirements are communicated clearly to the appointed project team at the start of each project.

The Project Manager is responsible for keeping the project on schedule. If issues arise during the course of a project, team members will identify those first to the Project Manager who will then involve the Operations Director as necessary. All completed designs, including drawings, calculations, performance requirements, and code compliance, are reviewed first by the Project Manager, with a second review by a Professional Engineer, and a final review by the Operations Director prior to delivery of each project to the customer.

All McCalmont Engineering employees attend regular project meetings to review progress on current projects and status. Weekly meetings and progress reports are submitted so that all personnel understand current and upcoming commitments for every project. Priorities are adjusted as needed based on client needs and contractual commitments.

To streamline the delivery process, our designers and engineers have developed templates, libraries, and calculation tools that enable us to deliver a large volume of projects quickly, simultaneously, and seamlessly. Our team of designers meets routinely to review and continuously improve these processes and tools. We always strive to provide our customers efficiently produced and cost effective designs.

McCalmont Engineering has many years of experience managing many projects simultaneously for multiple customers and delivering superlative results to all.



Resumes of Key Personnel

Darlene McCalmont, BSChE
Chief Executive Officer & Cofounder
darlene.mccalmont@mccalmont.net

Professional Biography

Darlene McCalmont is CEO and cofounder of McCalmont Engineering. Ms. McCalmont cofounded McCalmont Engineering to focus on the emerging opportunity and need for premier design services for large and utility-scale solar power plants. As the CEO, Ms. McCalmont manages all aspects of project delivery including design, engineering, drafting, and master scheduling.

Ms. McCalmont has over 35 years of experience managing operations for businesses with complex production processes. Prior to founding McCalmont Engineering, Ms. McCalmont was cofounder and Vice President of Operations for Regrid Power, one of California's largest and most respected solar companies before its sale in 2008 to RGS Energy (a public company). Her earlier experience includes serving as Operations Manager for Clean Harbors, a company that disposes of hazardous chemicals through environmentally-sound methods, and Operations Manager for Celanese Corporation, where she had many years of experience managing large, complex commercial chemical production lines.

Ms. McCalmont has written two feature articles for Solar Pro magazine, sharing her operations expertise. The first woman in California to become a NABCEP Certified PV Installation Professional, Ms. McCalmont holds an MBA from the University of Houston and a BS degree in Chemical Engineering from Ohio State University.

Relevant Professional Experience

McCalmont Engineering 2009 – present
Campbell, CA

Chief Executive Officer & Cofounder

Ms. McCalmont cofounded McCalmont Engineering in 2009 to provide design and engineering services for large-scale solar power plants. McCalmont Engineering has designed and delivered hundreds of megawatts of solar power plants including fixed-tilt, single and double-axis trackers, and concentrating PV plants. The company provides complete solar and energy storage engineering, project management, and professional consulting services to the solar and energy storage industry.

RGS Energy (formerly Regrid Power) 2002 – 2009
Campbell, CA

VP of Operations and Cofounder

Ms. McCalmont served as VP of Operations for all of the company's locations. Following the merger with RGS Energy, Ms. McCalmont worked to integrate the companies so that all offices procured the same equipment and worked on the same IT systems. She implemented a Vendor Managed Inventory (VMI) system to lower costs and reduce the number of suppliers. She moved all locations



to a common software platform through which all day-to-day business and revenue forecasting were conducted. Under Ms. McCalmont's leadership, the company had significant increases in profitability.

Prior to the merger, Ms. McCalmont built Regrid Power into a leading solar system integrator in Northern California. In just seven years, she helped grow the company from a 2-person startup to over 85 employees in 3 locations with annual revenues of \$20 million. As the company grew, Ms. McCalmont managed all aspects of delivery of systems to customers following each sale, directly or indirectly managing the operations crews, permitting, inspection, and interconnecting personnel, and was closely tied with customer invoicing, customer care, and vendor selection.

Education

University of Houston

Houston, Texas

MBA

Ohio State University

Columbus, Ohio

BS, Chemical Engineering

Certifications & Publications

NABCEP Certified PV Installation Professional

SolarPro Magazine Articles:

"Growing Beyond the Start-Up Stage" (Dec /Jan 2011)

"Operations Management for Solar Integrators" (Oct /Nov 2010)



Tom McCalmont, P.E.
President & Cofounder
tom.mccalmont@mccalmont.net

Professional Biography

Tom McCalmont is President and cofounder of McCalmont Engineering. A serial entrepreneur and inventor with numerous U.S. patents, Mr. McCalmont has a successful track record of applying new technology to solving real world problems. As an experienced business executive with many years of experience in solar design, engineering, and applications, Mr. McCalmont has cofounded or contributed to the successful startup and job creation of many solar businesses.

Prior to founding McCalmont Engineering, Mr. McCalmont was cofounder and CEO of Regrid Power, a leading California solar integrator that he helped grow into a \$20 million company prior to its sale in 2008.

Mr. McCalmont's passion for creating new markets for technology solutions also drives his interest in helping to grow the solar industry. In 2006, Mr. McCalmont cofounded a solar non-profit dedicated to streamlining permitting and utility interconnections to help increase adoption rates of solar power. Mr. McCalmont serves on the Board of Directors Joint Venture Silicon Valley and has been a formative contributor to its Climate Prosperity Council and SEEDZ (Smart Energy Enterprise Development Zone) initiatives. He also serves on the Board of Trustees of Muskingum University in Ohio.

Mr. McCalmont is a licensed Professional Engineer, a NABCEP Certified PV Installation Professional, and holds an MS degree in Electrical Engineering from Stanford University and a BS degree in Physics from Muskingum University. Mr. McCalmont also completed an executive MBA program at Stanford and was awarded an honorary Doctor of Science degree from Muskingum University in 2013.

Relevant Professional Experience

McCalmont Engineering 2009 – present
Campbell, CA
President & Cofounder

Mr. McCalmont cofounded McCalmont Engineering in 2009 to provide design and engineering services for large-scale solar power plants. McCalmont Engineering has designed and delivered hundreds of megawatts of solar power plants including fixed-tilt, single and double-axis trackers, and concentrating PV plants. The company provides complete solar and energy storage engineering, project management, and professional consulting services to the solar and energy storage industry.



RGS Energy (formerly Regrid Power)
Campbell, CA

2002 – 2009

Chief Executive Officer & Co-founder

Mr. McCalmont cofounded and served as CEO of Regrid Power, a leading solar integrator that designed and constructed thousands of solar power systems for residential and commercial customers throughout Northern California. Prior to the merger with RGS Energy and in just seven years, Mr. McCalmont helped grow the company from a 2-person startup to over 85 employees in 3 locations with annual revenues of \$20 million. The company became widely respected throughout the solar industry for its outstanding customer service, high quality installations, and ethical treatment of employees and customers.

Education

Stanford University

Stanford, California

MS, Electrical Engineering

Muskingum College

New Concord, Ohio

Sc.D. (Doctor of Science)

BS, Physics, Summa Cum Laude, Salutatorian

Completed the Stanford Executive MBA Program

Certifications & Publications

Professional Engineer, Electrical Engineering (*License # 20489*)

15 U.S. Patents

C-10 Electrical, C-46 Solar, and B-General Contractor (*License #941211*)

Magazine Articles:

“Solar Energy Storage” (*Solar Pro*, Apr/May 2014)

“Optimal DC Cable Selection in PV Designs” (*SolarPro*, Aug./Sep 2012)



Charlie Dearie
Energy Systems Engineer

Professional Biography

Mr. Dearie joined McCalmont Engineering in 2010 as an Energy Systems Engineer focused on the growing need for engineering services for large-scale solar power plants. Mr. Dearie designs PV systems that deliver energy reliability and performance while reducing costs. Mr. Dearie has designed utility solar projects, medium voltage (MV) interconnections, SCADA curtailment systems, and energy storage projects. Mr. Dearie has an extensive knowledge of electrical engineering safety standards and is McCalmont's resident expert on the National Electrical Code. He has extensive experience with solar manufacturer products, technology, and modeling tools, including PVsyst and System Advisor Model (SAM). In 2013, Mr. Dearie was invited to participate in a National Renewable Energy Laboratory (NREL) SAM Technical Review Committee to provide improved solar modeling to the solar industry.

Mr. Dearie's solar experience began in 2005 at Regrid Power where he served as a PV Systems Engineer. While there, Mr. Dearie's responsibilities included assuring the quality of designs and installations, code compliance, diagnosing PV system problems, CAD designs, and field project management. Mr. Dearie holds a BS in Applied Physics from the University of California, Santa Cruz and is a NABCEP Certified PV Installation Professional.

Relevant Professional Experience

McCalmont Engineering 2010 – present
Campbell, CA
Energy Systems Engineer

Mr. Dearie focuses on the emerging need and opportunity for engineering design services for large-scale solar power plants. He currently designs and engineers the electrical portions of these solar plants. Mr. Dearie has an extensive knowledge of the National Electrical Code (NEC) and standards for grounding systems, the understanding of which is crucial to PV designs and electrical engineering safety.

RGS Energy (formerly Regrid Power) 2005 – 2010
Campbell, CA
PV Systems Engineer

Mr. Dearie's PV experience began with his employment at Regrid Power, a leading solar integrator that subsequently merged with RGS Energy and is now a major part of that public corporation. While at Regrid Power, Mr. Dearie's responsibilities involved quality assurance of design and installations, code compliance, diagnosis and repair of defective PV systems, CAD designs, and field project management. Mr. Dearie regularly consulted with AHJ's regarding NEC compliant practices and installations. Mr. Dearie also has experience with CAD designs, and led and managed fleet maintenance and installation crews.



University of California, Santa

2003 – 2005

Santa Cruz, CA

R&D Technician

While studying applied physics at UC Santa Cruz, Mr. Dearie performed research and fabrication of novel PV cells. Mr. Dearie provided solutions to a variety of technical challenges in the lab, initiated safer standard operating procedures, and improved the reliability of electrical test equipment. Mr. Dearie maintained and optimized the function of a vacuum deposition chamber and redesigned high amperage quick connections. Mr. Dearie produced atomic force microscopy images of polymer films and assisted in the design and calibration of a solar simulator. As an undergraduate student, Mr. Dearie trained graduate students in the fabrication of photovoltaic devices.

Education

University of California, Santa Cruz

Santa Cruz, California

BS, Applied Physics

Certifications

NABCEP Certified PV Installation Professional



**Aaron McCalmont, P.E.
Energy Systems Engineer**

Professional Biography

Aaron McCalmont joined McCalmont Engineering in 2012 as an Energy Systems Engineer to focus on energy engineering and design on a national level. Mr. McCalmont has over 12 years of experience in the solar industry on a wide range of solar products and technology, including CPV, fixed-tilt, and single- and dual-axis tracking systems. Mr. McCalmont's direct project management and engineering expertise has contributed to hundreds of megawatts of completed PV projects. Prior to McCalmont Engineering, Mr. McCalmont was a senior project manager for two CPV companies—GreenVolts and Skyline Solar—designing and integrating PV into the U.S. market in high DNI (direct normal irradiance) areas. Prior to GreenVolts and Skyline Solar, Mr. McCalmont held several key positions at Regrid Power, an EPC focused on integration of photovoltaic systems into the U.S. market.

Mr. McCalmont is a licensed Professional Engineer, a NABCEP Certified PV Installation Professional, and holds a BS in Mechanical Engineering from San Diego State University.

Relevant Professional Experience

McCalmont Engineering 2012 – present
Campbell, CA
Energy Systems Engineer

Mr. McCalmont joined McCalmont Engineering in 2012 as an Energy Systems Engineer to focus on energy engineering and design. Mr. McCalmont has years of experience leading project engineering and management teams in deployment of CPV and tracking systems in the southwestern United States. At McCalmont Engineering, Mr. McCalmont contributes his solar experience and project management expertise to both energy storage and PV projects.

GreenVolts 2010 – 2012
Fremont, CA
Senior Project Manager

During his time with GreenVolts, Mr. McCalmont led project execution of turnkey concentrating PV projects. He was the primary point of contact for customer contractual commitments, project planning, project implementation, and technical concerns. Mr. McCalmont supported technical sales and management teams to ensure the lifecycle of project development and implementation was met with a high level of satisfaction by the customer, EPC firms, and professional engineering contractors.

Skyline Solar 2008 – 2010
Mountain View, CA
Applications Engineer/Project Manager

Skyline Solar was a startup company developing a low concentration PV system to the solar industry using traditional cells and concentrating mirrors. Mr. McCalmont's responsibilities at Skyline included design, engineering, installation processes, marketing support, and project management.



RGS Energy (formerly Regrid Power)

2002 – 2008

Campbell, CA

Solar Energy Installer

While at Regrid Power, Mr. McCalmont managed the installation of over 150 PV solar systems across the Bay Area. Mr. McCalmont's responsibilities involved crew supervision and management during solar installations, permit inspections, generating wiring schematics, and administrative project support.

Education

San Diego State University

San Diego, CA

BS, Mechanical Engineering

Certifications

Professional Engineer, Electrical Engineering (*License # 20442*)

NABCEP Certified PV Installation Professional