Classification: Senior Electrical Engineer	**Position No.** 430-3600-001
CBID: R09	**Office:** Building Standards
Date Prepared: September 1, 2016	**Division:** Efficiency
KEY: (E) IS ESSENTIAL, (M) IS MARGINAL	

The Senior Electrical Engineer is under the general direction of the Energy Resources Specialist III (Managerial) in the Building Standards Office of the Efficiency Division. The incumbent conducts the most difficult work related to electrical engineering analysis and reviews and guides the work of electrical engineers, including those employed and under contract to the Commission and provides expert electrical engineering consultation to Management, Commissioners and technical staff working on electrical engineering related issues. The incumbent provides electrical engineering leadership, review of electrical engineering work, and collaboration with electrical engineering experts that are responsible for testing, designing and specifying electrical systems and equipment to implement the Commission's Building Energy Efficiency Standards, Green Building Standards and other reach standards for high performance buildings.

WORKING CONDITIONS: The work is performed primarily in an office, conference room and hearing room environment. It may require standing and walking, as well as sitting for long periods of time. Some travel is required to attend off-site meetings or participate in meetings, workshops and hearings. Additional hours beyond an eight hour workday or 40-hour workweek may be required. While performing the duties described below, the incumbent will be required to work alone and/or in a team environment, using a personal computer and appropriate Energy Commission software such as word processing, electronic mail, WebEx and Internet browsers.

DUTIES AND RESPONSIBILITIES:

30% Plan, organize, and provide high level engineering technical leadership, direction and coordination for electrical engineering analysis for testing, designing, specifying and completing high quality installation of photovoltaic and other solar electric systems. Inform and advise the policy makers and the management about the new developments related to PVs, invertors, communication protocols, storage technologies, demand responsive technologies, and other devices or techniques that impact generation, storage, and usage of renewable resources. Maintain expert knowledge and oversight related to U.S. model standards for electrical safety and International Electro-technical Commission Standards for qualification and performance for all solar electric generation technologies so that Commission eligibility criteria and guidelines incorporate testing that insures California provides public incentives only for high performing photovoltaic and electrical equipment. Maintain expert knowledge and oversight related to the use of state-of-the-art, public domain computer simulation of the performance of photovoltaic and other solar electric systems as installed to meet the electrical needs of California buildings, including modeling of solar radiation incident on solar electric equipment and the effect of ambient temperature and wind in the variety of geographical and climatological areas of California, and modeling of the electrical configuration, design and electrical component and circuitry interaction that effects the electrical generation output dependent on the localized solar radiation and

climate conditions. Maintain expert knowledge and oversight related to the consequences to solar electric system generation of installation practices, including azimuth, tilt, shading obstructions, and maintenance, and develop installation protocols and field testing procedures to insure high quality installations of solar electric systems that are awarded public incentives. Maintain active contact with and provide guidance to electrical engineers at international firms designing and manufacturing solar components and equipment for sale in California, electrical engineers at international and U.S. test laboratories testing solar electric equipment as required by California guidelines, electrical engineers involved in advancing the state-of-the-art in development of simulation algorithms for modeling the performance of solar electric systems to account for design, component integration and installation characteristics in optimizing system performance, and electrical engineers and contractors engaged in installation of solar electric systems including the use of onsite measurement tools to insure proper installation in conformance with Commission installation protocols. (E)

25% Plan, organize, and provide high level engineering technical leadership, direction and coordination for electrical engineering analysis conducted to develop and implement Building Energy Efficiency Standards (both mandatory and reach standards) for indoor and outdoor lighting equipment and systems to serve California residential and nonresidential buildings and outdoor areas requiring illumination. Maintain expert knowledge and oversight related to the design and installation standards of the International Illuminating Engineering Society, safety and performance requirements of national codes and standards, including the National Electrical Code and Underwriters Laboratory and other industry standards and norms, and model code provisions related to energy efficient lighting in buildings, including those in the International Energy Conservation Code and the American Society of Heating, Refrigerating and Air Conditioning Engineers Standards 90.1 and 189. Maintain active contact with and provide guidance to electrical engineers and lighting designers regarding the design and installation of lighting systems to insure compliance with California's mandatory and reach standards for buildings. Coordinate with the IOUs and the regulatory agencies to understand and plan for the upgrades to the distribution system necessary to handle the increased onsite renewable generation. Coordinate with the Smart Invertors Working Group to ensure that these invertors can harmonize the output of onsite renewable generation with the grid to avoid destabilizing the grid. Coordinate with the Appliance Efficiency Program to achieve the lighting savings required by AB 1109 (Statutes of 2007). (E)

25% Perform the most difficult and complex work related to the electrical engineering analysis described above to advance the Commission's mandatory and reach standards for buildings, achieving high levels of energy efficiency and demand response and high performance solar electric systems. (E)

10% Plan, organize, and provide technical leadership, direction and coordination for electrical engineering analysis conducted to develop and implement Building Energy Efficiency Standards (both mandatory and reach standards) for electrical and electronic equipment and controls for refrigeration and air conditioning and other permanently installed and portable electrical equipment to increase efficiency, reduce hours of operation or provide demand response for all electrical loads in buildings. Coordinate with the Appliance Efficiency Program to insure maximum effectiveness of appliance standards in helping to achieve the CEC/CPUC/ARB goals for zero net energy buildings in California. Work with

the CPUC and other agencies to track new regulations that impact cost effectiveness and deployment of renewable resources within the state, including Net Energy Metering (NEM) policies and IOU tariffs impacting renewables. Work with the CPUC on the grid distribution planning and upgrades that are need to the distribution system to accommodate the 50% RPS required by SB 350. (E)

5% Prepare and testify at Energy Commission workshops and hearings or on behalf of the Energy Commission before legislative bodies, governmental entities, and agencies on electrical engineering issues related to high performance buildings (energy efficiency and solar electric generation). Inform and advise the policy makers and the management about the new developments related to PVs, invertors, communication protocols, storage technologies, demand responsive technologies, and other devices or techniques that impact generation, storage, and usage of renewable resources (E)

5% Perform other duties as required consistent with the specifications of this classification. (M)

SIGNATURES	
I Certify That I Am Able To Perform, With Or Without The Assistance Of A Reasonable Accommodation, The Essential Job Duties Of This Position	
Vacant Date Senior Electrical Engineer	**Christopher Meyer** Date Energy Resources Specialist III (Managerial)