# Joint Working Paper on RESOURCE ADEQUACY

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***and***
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**STAFF PAPER**

**DISCLAIMER**

This paper was prepared as the result of work by the staff of the California Energy Commission and the California Municipal Utilities Association. Opinions, conclusions, and findings expressed in this report are those of the authors. This report does not represent the official position of the California Energy Commission until adopted at an Energy Commission Business Meeting.

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# I. INTRODUCTION

## a. Summary

Through a collaborative effort, the California Energy Commission Staff (CEC Staff) and the California Municipal Utilities Association (CMUA) have prepared this Working Paper (Paper) to address the topic of resource adequacy for municipal utilities. The Paper was prepared as a cooperative effort by representatives of municipal utilities, staff of California Municipal Utilities Association, and the CEC Staff. This Paper documents a review of existing municipal utility obligations to serve, and key features of activities that result in resource adequacy. This Paper also raises several issues relevant to any future effort to design a resource adequacy requirement.

While this Paper does not establish a resource adequacy requirement, it is intended to facilitate discussion of the issues. CMUA supports a resource adequacy requirement, established through regional reliability councils. CMUA members assert that for municipal utilities there exists an obligation to assure resource adequacy as directed by their local governing boards. The CEC Staff has previously supported establishment of a resource adequacy requirements for all LSEs.

This Paper will be the subject of a workshop scheduled for July 10, 2003 in the CEC Integrated Energy Policy Report (IEPR) proceeding. The discussions at that workshop may cause the team to consider additional efforts.

## b. Definition of Resource Adequacy[1]

For purposes of this Paper, resource adequacy is defined to mean a condition in which a utility or other load serving entity (LSE) has demonstrated that it has acquired sufficient resources to satisfy a forecast of future loads reliably. For purposes of this Paper, an LSE is any entity that undertakes to provide some or all of the electric load requirements of end users. This Paper is not intended to, in and of itself, create a formal resource adequacy requirement. A formal resource adequacy requirement might include a specific standard defining "sufficient," it would include guidelines for

[1] *See* State Role in Guiding Resource Adequacy Compilation of Responses to the Pre-Meeting Survey, Committee on Regional Electric Power Cooperation (CREPC), April 18, 2003. http://www.westgov.org/wieb/meetings/crepcsprg2003/briefing/ra-final.pdf.

counting resources toward this standard, and it would specify to whom reporting requirements would be submitted for evaluation. An acceptable procedure would also enable flexible compliance so that each entity could choose the degree of reliance upon types of resources, such as demand response capability, that it wished to pursue to minimize expected costs of compliance.

### c. Background

In early 2002, the California Independent System Operator (CAISO) released a draft proposal for a new requirement – known as Available Capacity (ACAP) – that would be included as part of the Market Design 2002 revisions. ACAP would require LSEs in the CAISO control area to plan for and procure capacity to a planning benchmark, to report forward commitments to the CAISO in the time period preceding Day Ahead scheduling, and to allow the resources which each LSE identified as satisfying its ACAP requirement to be controlled by the CAISO during times of system stress. ACAP had similarities and differences to the installed capacity (ICAP) requirements of the PJM and New York independent system operators.

Several entities opposed CAISO's ACAP proposal on several grounds, including jurisdiction, operational control of generation units, and likelihood of excessive cost. An interagency working group, including staff from California state agencies, was concerned that a FERC jurisdictional ACAP requirement would place the federal government in the resource planning and procurement function, which the State believed to be its sole jurisdiction. This working group was also concerned that several features of the ACAP proposal would lead to compliance costs that exceeded the benefits resulting from improved reliability. The interagency working group developed a conceptual alternative—known as Advisory Forward Energy Commitment (AFEC) — which focused attention more on the responsibilities of LSEs to undertake appropriate planning and resource commitments so that resource shortfalls stressing the system would be much less frequent.

The Federal Energy Regulatory Commission (FERC) Standard Market Design (SMD) Notice of Proposed Rule (NOPR) released in July 2002 popularized the term "resource adequacy," of which the CAISO ACAP proposal was one variant. The FERC resource adequacy proposal was much less detailed than the CAISO's. In some respects its features matched ACAP and in some respects they matched those of AFEC. The SMD proposal left unclear just how a resource adequacy requirement would differ from an integrated resource planning (IRP) process and resulting utility procurement activities.

In November 2002, at the urging of interagency working group, the CAISO Board agreed to defer ACAP for one year. Subsequently, the California Public Utilities Commission (CPUC) affirmatively included in the R.01-10-024 procurement rulemaking, the issue of resource adequacy for investor-owned utilities (IOU) and perhaps energy service providers (ESP).

In April 2003, FERC issued its long awaited SMD white paper. For resource adequacy, FERC determined that its original "one-size-fits-all" approach was inappropriate. FERC decided that states were the appropriate authority to develop resource adequacy requirements. ISOs and regional transmission organizations (RTO) were directed to assist states in the implementation of these requirements, and only where a state or states failed to act should the ISO or RTO develop its own requirements.

Despite their critique of the CAISO's ACAP proposal, the interagency working group expressed strong support for a formal resource adequacy requirement that would be broadly applicable to all LSEs. In R.01-10-024, the IOUs have filed long-term procurement plans and intervenors have submitted their own testimony on the subject of resource adequacy and planning reserves. While not necessarily a parallel effort, the CEC Staff and CMUA entered into voluntary discussions on resource adequacy as a project within the IEPR proceeding. This Paper has been a collaborative effort with municipal utilities, including LSEs both within and outside the CAISO control area, although it should be noted that factual differences between entities that are inside the CAISO control area and those outside the CAISO control area may necessitate different treatment.

### d. Organization of this Working Paper

Following this Introduction, Section II explains the purpose of this Paper. Section III addresses current requirements, including obligation to serve, planning activities and load curtailment responsibilities. Section IV describes general and potential principles for resource adequacy, as well as a description of how municipal utilities use existing incentives and the legal structure to meet the objective of resource adequacy. Section V discusses further considerations as resource adequacy discussions continue. Finally, Section VI comprises a short conclusion.

## II. PURPOSE

The purpose of this Paper is to provide a contribution towards the development of a resource adequacy requirement for all LSEs, including municipal utilities. In the discussions among participants in this process, it has become clear that this Paper cannot provide a final statement of such requirements, since several factors influencing such requirements are still in flux. Among these are the unfinished market design of the CAISO, the scope and coverage of RTOs as promoted by FERC, and the creation of formal resource adequacy requirements for the IOUs by the CPUC.

This Paper undertakes to clarify the current obligation to serve for municipal utilities and implicit or explicit requirements to conduct planning and procurement activities to accomplish this objective in a satisfactory manner. Further, the prior relationships of municipal utilities and large IOUs stated in now-terminated interconnection agreements, and partial replacement of these arrangements by CAISO requirements specified in CAISO tariff language, reveal that municipals have been and continue to be reporting significant elements of their planning activities to other entities.

For those municipal utilities that are organized to be a control area, the concept of a resource adequacy requirement is embodied within their direct relationship with the North American Electric Reliability Council (NERC) and the Western Electricity Coordinating Council (WECC). At present, control areas are responsible to follow the WECC version of NERC requirements. WECC has both operating reserve requirements to satisfy various transmission and generation contingencies as well as a planning process. Through these mechanisms control areas are expected to operate their systems in a safe and reliable manner. Moreover, the municipal control area signatories to WECC's Reliability Management System (RMS) face sanctions when they fail to meet load obligations, including curtailment of firm load.

Thus, this Paper seeks to make a contribution on this issue by clarifying what municipal utilities are already required to do and reviewing how these requirements do, or do not, satisfy reasonable expectations for a formal resource adequacy requirement.

## III. EXISTING OBLIGATIONS AND PRACTICES FOR MUNICIPAL UTILITIES

### a. Legal Foundation Under Which Municipal Utilities Operate

Local publicly owned electric utilities (referred to herein as "municipal utilities"), as that term is defined in the California Public Utilities Code, come in different organizational forms.[2] While different corporate forms can result in slightly differing rights and obligations, the similarities override the differences. The purpose of this section is to set forth the legal authority and foundation for the operation of municipal utilities and the basis for their obligation to serve. It has been argued that without further regulatory or legislative action, any resource adequacy requirement would be meaningless as to municipal utilities. A review of existing law confirms that municipal utilities already possess the legal framework to adopt a resource adequacy requirement through extension of the obligation to serve.

The source of authority for a California municipal utility to own and operate a utility is founded in the California Constitution and legislature, and then flows to the municipal utility's local governing body. A brief look at relevant authorities may be helpful background to establish how municipal utility power procurement decisions are authorized.

#### i. Forms and Authorities of Municipal Utilities

There are two predominate forms of municipal utilities in California; (1) cities; and (2) special districts. Charter cities[3] and General Law[4] cities have various enumerated powers. A city is a municipal corporation formed primarily for the purpose of efficiently administering government and serving the general welfare of those inhabitants in the territory. Special purpose districts are also common in California. The

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[2] Section 9604(d) of the Public Utilities Code states as follows: "Local publicly owned electric utility" as used in this division means a municipality or municipal corporation operating as a "public utility" furnishing electric service as provided in Section 10001, a municipal utility district furnishing electric service formed pursuant to Division 6 (commencing with Section 11501), a public utility district furnishing electric services formed pursuant to the Public Utility District Act set forth in Division 7 (commencing with Section 15501), an irrigation district furnishing electric services formed pursuant to the Irrigation District Law set forth in Division 11 (commencing with Section 20500) of the Water Code, or a joint power authority that includes one or more of these agencies and that owns generation or transmission facilities, or furnishes electric services over its own or its member's electric distribution system."

[3] Examples of charter cities are numerous, including the Cities of Anaheim, Burbank, Roseville, and Los Angeles. This paper will use specific examples of municipal utilities to set forth principles of general applicability, but does not delve into the local ordinances of each and every municipal utility.

[4] The City of Redding is an example of a general law city.

most prominent of these are Municipal Utility Districts,[5] Public Utility Districts,[6] and Irrigation Districts.[7]

The California Constitution grants the legislature the power to authorize a municipal corporation to own and operate an electric utility.[8] Although, there is no uniform definition of a municipal corporation, the California courts have held that cities and both municipal and public utility districts fall within the definition of "municipal corporation" for the purposes of the California Constitution, Article XI, Section 9.[9] As such, both the Public Utilities Code and the Government Code provide that a municipal corporation may acquire, construct, own, operate, or lease an electric public utility.[10] Furthermore, irrigation districts, which are not municipal corporations under the Constitution, are nonetheless authorized by the legislature to acquire, operate, lease and control electric utilities. With respect to specific powers relevant to a resource adequacy requirement, all of these municipal utilities may make all contracts and engage in all undertakings as an incident to municipal ownership, which are necessary to render the system efficient and beneficial to the public.

Thus, municipal utilities have all necessary legal authorities to undertake their obligations to serve.

### ii. Municipal Utility Regulatory Structure

A chief difference between municipal utilities and private corporations providing utility functions is the manner in which that the functions are regulated. While private corporations are regulated by state agencies led by appointed commissioners, municipal utilities are regulated by an elected local governing body. Municipal utilities

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[5] The Municipal Utility District Act (MUD Act) reads as follows: "A district may acquire, construct, own, operate, control, or use, within or without, or partly within or partly without, the district, works or parts of works for supplying the inhabitants of the district and public agencies therein, or some of them, with light, water, power, heat, . . . , and may do all things necessary or convenient to the full exercise of the powers herein." CAL. PUB. UTIL. CODE §§ 11500, *et seq.*

[6] *See* CAL. PUB. UTIL. CODE §§ 15501, *et seq*. "A district may acquire, construct, own, operate, control, or use, . . . , works for supplying its inhabitants with light, water, power, . . . , and may do all things necessary or convenient to the full exercise of the powers granted in this article. *Id.* at § 16461.

[7] Under the Irrigation District Law (Water Code Section 20500 *et seq.*), an irrigation district may purchase or lease electric power from any public or private entity and may acquire, operate, lease and control plants for the generation, transmission, distribution, sale and lease of electric power. CAL. WATER CODE § 22115.

[8] CAL. CONST., art. XI, § 9. "A municipal corporation may establish, purchase, and operate public works to furnish its inhabitants with light, water, power, heat, transportation, or means of communication. It may furnish those services outside its boundaries, except within another municipal corporation which furnishes the same service and does not consent." *Id.* §9(a).

[9] Glenbrook Development Co. v. City of Brea, 253 Cal.App.2d 267, 275 (1967).

[10] CAL. PUB. UTIL. CODE §10003 (stating that the power to acquire and operate a public utility includes the power to complete, reconstruct, extend, change, enlarge, and repair a public utility acquired, constructed, owned, or operated by a municipality).

are not included as a public utility within Public Utilities Code Section 216 or California Constitution, Article XII, Section 3, and are generally exempt from CPUC regulation.[11] Each type of municipal utility has a statutory designation of the delegated power to own and operate a utility and the decision making power is within the purview of an elected governing body. Within this structure, considerable discretion is given to the governing body on matters of policy. Each governing body of a municipal utility has the powers to regulate rates and practices relevant thereto.

It is not accurate to assume that because municipal utilities are regulated by their local governing boards, rather than some outside authority, that they operate without legal guidelines. In fact, the ordinances and regulations adopted by a municipal utility governing board are enforceable, and have been enforced by the courts. Relevantly, a municipal utility may be compelled to serve when it fails or refuses to exercise its duties or supply services that it is obligated to provide.[12] Actions of a municipal utility's governing board are subject to judicial review and the courts will remedy decisions that are unreasonable.[13] Further, certain activities of municipal utilities are subject to the jurisdiction of state and federal regulators.

### iii. Legal Basis for the Municipal Utility Obligation to Serve

Given that they are locally regulated, a municipal utility's obligations are established by ordinances, tariffs, and regulations. Municipal utilities bind themselves through their own municipal codes, ordinances, resolutions, rules, and regulations. These rules define strategic goals, risk management, rates, and a host of other policies relevant to resource adequacy. Two examples are set forth here.

*The City of Anaheim*. "The objectives of the Electric Utility organization are to plan and carry out the development of the power resources of the City for the greatest benefit to the area and to the citizens of Anaheim. This includes providing dependable service without discrimination for the residents of the City of Anaheim to the fullest extent possible, consistent with overall sound business principles in planning, in financing, in

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[11] *See* County of Inyo v. PUC, 26 Cal.3d 154 (1980). "Established doctrine declares that, 'In the absence of legislation otherwise providing, the Commission's jurisdiction to regulate public utilities extends only to the regulation of privately owned utilities.'" *Id.* at 166 *quoting* Los Angeles Met. Transit Authority v. Public Utilities Com., 52 Cal.2d 655, 661 (1959).

[12] "Under its charter the city has assumed the duty of operating a water system for the purpose of supplying water to its inhabitants. In the performance of this duty it acts, not in its sovereign capacity, but in the capacity of a private corporation engaged in like business. Like a private corporation, it is the duty of the city to furnish without discrimination to all its inhabitants who apply therefor a supply of water upon such applicants complying with such reasonable rules and regulations as it may lawfully establish for the conduct of the business." Nourse v. City of Los Angeles, 25 Cal. App. 384, 385-386 (1914).

[13] Upon review, courts will determine whether or not decisions related to rates and practices of a municipal utility governing body are unreasonable, unfair, or fraudulently or arbitrarily established. American Microsystems, Inc. v. City of Santa Clara, 137 Cal. App. 3d 1037, 1042 (1982).

construction of developments and in the operation and maintenance of the City's utility facilities. The accomplishments of these objectives will make the maximum benefits to the public realized."

"It is recognized that the City Council is the governing body of the City and that it provides the utility services to the citizens of Anaheim. Through the City Council's direction and guidance, the City's management and supervisory personnel are continually anticipating the electrical service and related needs of all the customers in the community and expect to be responsive to their needs and requirements." *City Anaheim, Resolution No.: 71R-478 (Adopted: 10-26-71).*

*The City of Los Angeles, Department of Water & Power*. "The Department will exercise reasonable diligence and care to furnish and deliver a continuous and sufficient supply of water or electric energy to the customer, and to avoid any shortage or interruption of delivery." *City of Los Angeles, Department of Water and Power Rules and Regulations, Rule 14.*

"The Board of Water and Power Commissioners shall have the possession, management and control of all the electric energy rights, land, rights-of-way, sites, facilities and property used for generation, transportation, distribution and delivery of power for the benefit of the City, its inhabitances and its customers." *Los Angeles City Charter Section 672.*

"The board shall have the power and duty to make and enforce all necessary rules and regulations governing the construction, maintenance, operation, connection to and use of the Water and Power Assets for Departmental Purposes." *Los Angeles City Charter Section 675.*

Typically, the local governing body, through the adoption of ordinances or resolutions, leads the municipal utility to develop an integrated resource plan or similar planning process. As an example, we have attached a resolution of the Sacramento Municipal Utility District (Attachment A) showing the history of district procurement policies since restructuring, recent changes, and duly established guidelines.

The examples set forth above are generally illustrative of commitments found in the municipal utility regulatory scheme at the local level. The authority for municipal utilities to be established and operate stems from the California Constitution and code, and has been confirmed by court cases. Municipal utilities individually adopt rates and procurement policies through their locally elected boards. Hence, those policies are enforceable in law, and provide a mechanism for ensuring resource adequacy.

### b. Current Practices

Above we enumerated the legal obligations to serve as generally applicable to utilities subject to jurisdiction at the local level. In this section, we briefly describe the current practices of these same utilities at the state and regional levels, including planning activities, load and resource reporting, and load curtailment responsibilities.

#### i. Reliability Councils

The goal of the NERC, a voluntary organization, is to ensure that the bulk electric system is reliable, adequate, and secure. It was formed in recognition of the mutual benefit that could be gained by its members as systems or control areas in the same interconnected grid. NERC established certain operating policies[14] and planning standards under which "each control area is required to plan its future operations in coordination with other affected control areas so that normal interconnection operation will proceed in an orderly and consistent manner."[15] Together, these policies and standards are called reliability standards and NERC established a program to assess and enforce compliance.[16] But since NERC is composed of many regional electric reliability councils, all of these have implemented their own Regional Compliance Enforcement Programs[17] to enforce the standards with sanctions and penalties. Under this regional compliance structure, the responsibility for reliability rests primarily with the control area operators, and they are not subject to additional compliance reviews, enforcement sanctions, or penalties from NERC.

#### ii. Reliability Standards

The WECC, which is the western regional council of NERC, prescribes the primary reliability standards for California. The WECC was the first regional council to implement a voluntary RMS with sanctions for non-compliance.[18] The RMS and the

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[14] "Each CONTROL AREA shall have access to and/or operate resources to provide for a level of OPERATING RESERVE sufficient to account for frequency support, errors in load forecasting, generation loss, transmission unavailability, and regulating requirements." NERC Policy 1 - Generation Control and Performance.

[15] *See* NERC Policy 6 - Operations Planning, General Criteria.

[16] These have been called the NERC reliability "rules of the road." *See* NERC Reliability Standards Process Manual. Actually, a combined set of reliability standards have been proposed but not approved. Until that time, the operating policies and planning standards will remain as separate documents.

[17] http://www.wecc.biz/committees/JGC/CPTF/index.html.

[18] *See* RMS Section 4.1 - Compliance with Reliability Criteria. The member agrees to comply with the criteria, but in the event it is noncompliant, it also has agreed to be subject to the applicable sanctions. A Reliability Compliance Committee was established to ensure compliance. A compliance flow chart is viewable at: http://www.wecc.biz/documents/publications/WECC_Compliance_Process_Diagram.pdf.

accompanying RMS Criteria Agreement, however, deal almost exclusively with operating reserves and do not establish formal criteria for planning reserves.[19] In principle, the operating reserves (OR)[20] criteria require that adequate generating capacity be available at all times to maintain scheduled frequency and avoid loss of firm load following transmission or generation contingencies. The minimum OR for each control area includes the sum of: (1) regulating reserve;[21] (2) contingency reserve;[22] (3) reserve for interruptible imports; and (4) reserve for on-demand obligations.

### iii. Planning Reporting under WECC and NERC

In regard to resource adequacy, NERC/WECC has established certain standards for analyzing the system's capability of meeting the aggregate electrical demand and energy requirements notwithstanding scheduled and unscheduled outages as well as sudden or unanticipated loss of system elements.[23]

WECC has established a reporting process to collect the loads and resources information needed for the *Summary of Estimated Loads and Resources* report, *Existing Generation and Significant Additions and Changes to System Facilities* report.[24] Some of the information is used to fulfill WECC's reporting requirements under NERC's Standards and Guides compliance templates.[25] The required information includes existing and planned generation units, energy load data, peak demands, resources, resource outages, transfers, and minimum margin requirements.

The primary use for this data is in the preparation of an "adequacy of power supply assessment" for each of the four WECC reporting areas. Each control area operator is

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[19] *See* RMS Criteria Agreement, Annex A, Sections III and IV. These set out certain reliability criteria, data reporting requirements, compliance standards, and sanctions for non-compliance that are applicable to control areas.

[20] "Operating Reserve" is defined as the capability above firm system demand required to provide for regulation, load-forecasting error, equipment forced and scheduled outages, and local area protection. One hundred percent of OR must be maintained at all times except during the first hour following an event requiring OR activation.

[21] This is defined as sufficient spinning reserve to provide sufficient regulating margin to allow the control area to meet NERC's Control Performance Criteria.

[22] This includes spinning and nonspinning reserve available within ten minutes that is equal to the greater of: (a) the loss of generation or transmission equipment that would result from the most severe single contingency; or (b) the sum of 5% of the hydro generation load and 7% of the thermal generation load.

[23] NERC/WECC Planning Standards, Section II.D: Actual and Demand Forecasts, Apr. 2003. *See also* WECC Power Supply Assessment Policy, revised Apr. 2002.

[24] WECC Reporting Process for the Collection of Loads and Resources Data, Nov. 2001.

[25] This includes the mandatory EIA-860 and the voluntary EIA-411 filings. The EIA-411 provides the U.S. DOE with a comprehensive source of information about regional electricity supply and demand projections for a five-year advance period. Each of the NERC Regional Councils is asked to submit data compiled from data furnished by utilities and other electricity suppliers within their Council areas.

responsible for submitting to WECC annually, the loads and resources data for its entire control area/zone. It must include information from its own organization as well as from all other entities within the control area/zone. Accordingly, the control area operator is responsible for instituting the necessary mechanisms for collecting the following data: (1) Peak Demands – firm and non-firm; (2) Resources data – installed capability of all generation, including wholly-owned, jointly-owned, and independent power producer facilities; (3) Unavailable Capability – maintenance and outage data; (4) Transfer data – imports, exports, capacity purchases, and sales; and (5) Margin data – minimum planning reserve requirements data which should not include operating reserve requirements.[26]

By virtue of their membership in WECC, control areas agree to submit this data according to WECC's "Minimum Reserve Requirements" methodology. This methodology specifies that individual utilities or planning groups submit their "required" reserve margins (in megawatts), as determined by the utilities from their own internal supply design criteria, at the time of their sub region's summer and winter peaks.[27] The methodology further specifies that the control area operators are responsible for developing appropriate data collection procedures to ensure that updated "loads and resources data" (which includes minimum reserves requirements), is obtained from the appropriate non-control area operator entities and that non-control area operator entities are responsible for responding to control area requests for this information.[28] WECC has not resolved whether, and if so how, to create an explicit planning reserve requirement. Through its technical committees it is undertaking new types of assessments that illustrate the consequences of different approaches.

#### iv. CAISO Tariffs

Pursuant to the CAISO tariff, the CAISO is charged with the operational control of the CAISO Controlled Grid. This entails meeting the WECC/NERC planning and operating reserve criteria or local reliability criteria that is no less stringent than those standards.[29] Since the ISO is a control area, the criteria and reporting requirements listed above are applicable.

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[26] WECC Reporting Process for the Collection of Loads and Resources Data. *See* Attachment B: Existing and Planned Generation Reporting Instructions and Attachment C - Peak Demands, Resources, Resource Outages, Firm Transfers, and Minimum Margin Requirements Instructions and Energy Loads Instructions, Nov. 2001.

[27] *See id.* at Attachment C, pg. 28.

[28] *See id.*

[29] CAISO Tariff Section 2.3.1.3.

As far as it pertains to resource planning issues, the CAISO tariff has provisions for the purpose of assuring that there is "adequate generation and transmission to meet applicable operating and planning reserve."[30] The process involves an annually prepared forecast of weekly generation capacity and peak demand using the applicable WSCC/NERC Reliability Criteria. If the forecast shows that the criteria cannot be met during peak load periods, then the CAISO will utilize market mechanisms to achieve compliance. In some cases, these may include replacement reserves, short-term generation supply contracts, or even curtailment contracts. Regardless, in fulfilling this requirement to ensure adequate planning reserve criteria, "the ISO shall rely to the maximum extent possible on market forces."[31]

The relationship between the CAISO and Utility Distribution Companies (UDC) is defined by the tariff, a UDC Operating Agreement, and the UDC Protocol.[32] The protocol obligates the UDC/CAISO to comply with the relevant sections of the CAISO tariff, CAISO operational procedures, and CAISO specifications. In recognition of the CAISO's responsibility to maintain grid reliability, the UDC has commensurate responsibilities to "operate and maintain its facilities, in accordance with applicable safety and reliability standards, regulatory requirements, applicable operating guidelines, applicable rates, tariffs, statutes and regulations governing their provision of service to their End-Use Customers and Good Utility Practice so as to avoid any material adverse impact on the ISO Controlled Grid."[33]

One such responsibility is prescribed by the Demand Forecasting Protocol (DFP), which applies to scheduling coordinators, UDCs, and the CAISO. The DFP outlines a monthly reporting process that is used by the CAISO to collect information for, among other things, projecting future demand requirements and assessing system reliability. The report lists the weekly total non-coincident peak demand forecasts that the UDC plans to schedule for the following 52 weeks, although the CAISO prepares its own coincident peak load forecasts. Scheduling coordinators are also responsible for forecasting and reporting their maximum generation capacity for the same time period. In making its spring 2002 ACAP proposal, the CAISO explicitly proposed more stringent planning and forward procurement commitment requirements for application within the CAISO control area.[34]

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[30] CAISO Tariff Section 2.3.5.

[31] CAISO Tariff Section 2.3.5.1.7.

[32] CAISO Tariff Section 4.1.1.

[33] CAISO Tariff Section 4.3.1.

[34] By a motion of its Governing Board in November 2002, the CAISO set aside implementation activities for its ACAP proposal to allow time for state agencies to develop their alternative.

### v. MSS Agreement

The Metered Subsystem Agreement (MSS) is a contractual relationship between the CAISO and a publicly owned utility that will remain fully integrated yet "schedule transactions using the ISO controlled grid and participate in the ISO's market as a buyer and seller."[35] There are three basic MSS components that deal with supply sufficiency.

The first is a function of the CAISO's statutory obligation to ensure reliability of the CAISO controlled grid and its NERC/WECC obligations to ensure reliability of the grid within its control area. The CAISO is responsible for achieving planning and operational criteria no less stringent than those of NERC and WECC and the CAISO tariff.[36] Since the CAISO has an RMS agreement with WECC, this defines the reliability criteria as mentioned above. In turn, the MSS utility is required to comply with these same criteria and may be penalized for non-compliance.[37]

Secondly, the MSS utility can insulate itself from curtailments and load shedding requirements that result from resource deficiencies in the CAISO control area. If a rotating outage is called due to a resource deficiency, the utility will not be curtailed if it has fulfilled its obligation to obtain adequate resources to meet its forecasted demand and exports.[38] Furthermore, this condition of supply sufficiency will prevent the MSS utility from being curtailed or having to offer generation to the CAISO in a system emergency caused by the resource inadequacies of other load-serving entities.[39]

The third MSS component dealing with supply sufficiency is found in the section describing summer reliability charges which are the costs associated with summer demand reduction and generation procurement programs.[40] In order to avoid these summer reliability charges, which would normally be charged pro rata to all utilities using the CAISO controlled grid, the MSS utility must document on an annual basis that its own capacity reserves exceed its annual peak demand by 15%. The resources

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[35] MSS Agreement Recital E.

[36] MSS Agreement Section 3.2.

[37] "[The] scheduling coordinator is responsible for the supply of the energy and ancillary services required to reliably provide electric service to the loads connected to [utility's] system within the ISO control area in accordance with applicable reliability criteria, including WECC and NERC criteria." *Id.* at Section 4.3.

[38] MSS Agreement Section 7.1. During system emergencies *due to operating contingencies* the utility may be curtailed. *See also* CAISO Tariff Section 4.5.3.

[39] MSS Agreement Section 7.1.5.

[40] MSS Agreement Section 13.9.

may include on-demand rights to energy, peaking capacity, and demand reduction programs.

### vi. Examples of Reporting Templates

As noted above, through reliability councils as well as agreements with the CAISO, municipal utilities report information useful to assess the supply adequacy situation for individual utilities. Attached (Attachment B) to this document is an example of such a template. As indicated in Section V below, this Paper contemplates that these templates would be made available to the CEC to facilitate its assessment of overall supply sufficiency.

## IV. PRINCIPLES OF A RESOURCE ADEQUACY PROGRAM

This section suggests some general principles that could guide development of resource adequacy proposals and assesses whether existing municipal utility arrangements satisfy such principles.

### a. General Principles for all Load Serving Entities

This Paper proposes the following general principles to further the goal of ensuring that LSEs are resource adequate:

1. A public demonstration by LSEs of a performance-based resource adequacy plan, approved by the LSE's applicable regulatory authority;

2. Appropriate application of a resource adequacy program by each LSE so that free riding on the resource adequacy provided by others is minimized;

3. Periodic reporting by LSEs to their control area operator or RTO (if established) to demonstrate that planned resource commitments are matched to load forecasts. Periodic reporting by generators of commitments to LSEs and remaining available capacity, reported by generators to their control area operator or other RTO;

4. A demonstration that each LSE has the necessary authority to implement its resource adequacy obligations;

5. LSE discretion within the framework of its regulatory authority in planning, procurement, and operation of its power portfolio is maintained;

6. Arrangements, perhaps formalized, through tariff provisions or protocols that describe the actions the LSE and its control area operator will take when LSE resources do not fully cover its loads and appropriate reserves.

**b. The Existing Municipal Framework Supports Resource Adequacy**

The CEC Staff and CMUA agree that a resource adequacy requirement is a desirable feature of overall market design. CMUA believes that, for municipal utilities, the existing framework provides the incentives necessary to ensure resource adequacy. That framework includes:

1. The obligation to serve, of which resource adequacy is part;

2. The economic incentive to properly plan to ensure that exposure to short term and spot markets is minimized and rate stability for customers is furthered;

3. A planning process at the local level, followed by reporting requirements to control area operators and regional reliability councils;

4. For municipal utilities within the CAISO control area, CAISO Tariff provisions to curtail LSEs that are short;

5. For signatories to the MSS Agreements, translation of resource decisions to the scheduling level, with penalties assessed on the MSS Operator if performance is not within a 3% deviation band, if the MSS operator elects, pursuant to the Agreement, to follow load; and

6. For applicable entities, compliance with WECC's RMS agreements, including sanctions.

This framework provides municipal utilities with the necessary and sufficient incentive for proper resource planning and procurement. Economic incentives and disincentives are in place to provide guidance for municipal utilities, thus prompting adequate planning and timely procurement of reasonably sufficient resources. Municipal utilities believe that the framework largely satisfies the principles described above, and are supportive of a resource adequacy requirement embodying these principles for all LSEs.

## V. FURTHER CONSIDERATIONS

This Paper has established the scope and extent of current requirements for municipal utilities that are components of a resource adequacy requirement. These requirements largely restate planning and reporting obligations, which most municipal utilities already satisfy as part of other requirements. However, both the CEC Staff and CMUA contemplate that this Paper is part of a more comprehensive examination of resource adequacy. Below is set forth a survey of ongoing efforts relevant to resource adequacy.

### a. CPUC Activities for IOUs and ESPs

In R.01-10-024, the CPUC is undertaking to develop resource adequacy requirements for IOUs and energy service providers. By an oral ruling of ALJ Walwyn dated March 7, 2003, UDCs were directed to address resource adequacy in their long-term resource filings to be filed April 15, 2003. Parties were offered an opportunity to file legal briefs addressing the issue of whether the CPUC has the authority to impose resource adequacy requirements on ESPs and several entities offered their evaluations. In an ALJ ruling dated May 30, 2003, parties were offered the opportunity to address in their intervener testimony their preference for one of several options for satisfying a requirement for ESP loads. Interveners filed testimony on June 23, 2003, and numerous parties supported some form of a resource adequacy requirement broadly applicable to all LSEs, although there was little agreement about the details.

The CEC strongly emphasized resource adequacy in its testimony, and suggested a supplemental workshop process to refine the CEC suggestions into a complete resource adequacy proposal. The CEC position suggested that ESPs and IOUs have common resource adequacy requirements with only the nature of the load curtailment mechanism being different for an ESP falling short as compared with an IOU in the same circumstance.

### b. Regional Activities

The CPUC is not the only state regulatory body to have expressed jurisdictional concerns about resource adequacy proposals. The regulatory agencies of other western states have voiced complaints stating that FERC's SMD resource adequacy proposal infringes upon state jurisdiction. The Committee on Regional Electric Power Cooperation (CREPC), a subsidiary unit of the Western Interstate Energy Board, has been a forum in which western regulators have discussed these concerns and formulated policy positions. Anticipating that FERC might accede to state views, CREPC members formed a Western Regional Assessment Team (WRAT) comprising

volunteers from various state energy agencies to develop an understanding of existing assessment efforts as well as to review resource adequacy issues.[41]

WRAT developed and fielded a survey on resource adequacy among CREPC member agencies to identify activities and opinions about this regional concern. The results of this effort and a supplemental paper comparing a resource adequacy requirement with integrated resource planning and procurement are posted on the CREPC website.[42] One set of questions addressed the extent to which various planning requirements had been imposed on municipal utilities in that particular state, and if so, under what authority. Virtually all state energy agencies indicated that neither they nor any other entity below the legislature had authority over municipal utilities. Few other states have made the sort of commitment to develop formal resource adequacy requirements that the California energy agencies have made, but then the RTOs covering much of the west remain conceptual entities. These have not yet been formally approved and set into motion, thus a tension does not currently exist between these RTOs (with a multi-state footprint under FERC jurisdiction) interacting with several state regulatory agencies pursuing their authority over participating utilities.

Shortly after this effort was completed, FERC issued its April 28 White Paper on SMD, revising its position on resource adequacy and proposing to establish the state as the primary entity responsible for defining such requirements. This has increased the attention states are paying to these issues, since their responsibility has been recognized by FERC.

WRAT is actively participating in SSG-WI[43] and WECC forums to ensure that the assessment efforts these organizations undertake are coordinated with resource adequacy determinations the state agencies themselves are conducting for their jurisdictional utilities. The recent WECC report assessing a variety of load and resource scenarios reveals that the Western Interconnection and its constituent subregions may not be satisfying some interpretations of the evolving term resource adequacy.[44]

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[41] WRAT began its activities in November 2002 and has issued two reports, as well as providing a forum for information exchange among interested state agency staffers.

[42] The results of the CREPC survey as a tabulation of responses, as a compilation of actual state agency responses to the questions, and as a supplemental paper comparing resource adequacy requirements with integrated resource planning/procurement processes are posted on the CREPC website at: http://www.westgov.org/wieb/meetings/crepcsprg2003/briefing/ra-final.pdf.

[43] This is the Seams Steering Group – Western Interconnection, which serves as the discussion forum for facilitating the creation of a Seamless Western Market and for proposing resolutions for issues associated with differences in RTO practices and procedures. *See* http://www.ssg-wi.com.

[44] WECC 2003 Spring Adequacy of Supply Assessment, June 5 2003.

## VI. CONCLUSION

The CEC Staff and CMUA recognize that the issue of resource adequacy is evolving. We affirmatively solicit comments on this Joint Working Paper. Any "next steps" depend upon these comments, developments at the state, regional, and federal levels, and subsequent concrete actions.


**ACKNOWLEDGEMENTS**

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**DISCLAIMER**

This report was prepared by California Energy Commission staff and the California Municipal Utilities Association (CMUA). Opinions, conclusions, and findings expressed in this report are those of the authors. This report does not represent the official position of utility members of CMUA until it is adopted by a utility governing board at a public hearing.

# Attachment A
# SMUD Resolution No. 01-10-03
# Renewable Portfolio and Energy Efficiency Targets

**WHEREAS,** on August 15, 2001, the General Manager published a recommended Resource Plan designed to improve local reliability, reduce exposure to volatile markets, diversify the District's fuel mix and maintain District leadership in renewable resources and energy conservation; and

**WHEREAS,** since the District's last business plan update, developed in 1999, the utility industry has experienced dramatic change, resulting in, among other things, significant increases in price and volatility of both the electricity and natural gas markets; and

**WHEREAS,** in response to some of these changes, by Resolution No. 01-04-03, adopted April 5, 2001, this Board authorized changes to the District's former energy supply policy (superseding Resolution No. 97-02-04, adopted February 6, 1997 and Resolution No. 99-10-03, adopted October 7, 1997, to the extent that those policies were inconsistent with the change) and, instead, declared the following:

> "The goal of the District is to provide a competitively priced energy supply to its retail load and to minimize the impact of market price fluctuations, unless the customer has contracted for different terms and conditions. New long-term supplies of energy will not be developed that are in excess of anticipated retail or committed wholesale obligations. New long-term resource obligations will be evaluated on both cost and their ability to reduce the District's overall risk to market prices;" and

**WHEREAS,** consistent with the revised energy supply policy, by Resolution No. 01-06-08, adopted June 7, 2001, this Board authorized the General Manager to proceed with the design, procurement and construction of the first 500 MW of a new gas-fired generation plant (The Cosumnes Power Plant), together with common site and infrastructure work for an additional 500 MW at the Rancho Seco site; and

**WHEREAS,** by Resolution No. 01-06-02, also adopted June 7, 2001, this Board directed the General Manager to develop and implement strategies for the District's power supply such that the District's overall net income will meet a debt service coverage ratio (as defined in the District's master bond resolution) of at least 1.50 times with a 95 percent confidence level; and

**WHEREAS,** due in large part to the current market price volatility and price levels that make it unattractive for marketers to provide direct access service, by Resolution No. 01-04-02, adopted April 5, 2001, this Board authorized the General Manager to suspend the direct access program for a minimum of two years; and

**WHEREAS,** by Resolution No. 97-02-02, adopted February 7, 1997, this Board established a Fiscal Policy which continues to endure, which states that the District will maintain rates at least 5 percent below its competition and improve net operating revenue by reducing discretionary costs; and

**WHEREAS,** the District's current energy supply portfolio consists of approximately thirty-five percent (35%) natural gas-fired generation, and the first phase of the proposed 500 megawatt Cosumnes Power Plant will further increase the District's exposure to natural gas price fluctuations; and

**WHEREAS,** in order to reduce the risk of exposure to the short term market for electricity and natural gas, it is necessary for the District to develop additional resources whose costs are not correlated with the price of natural gas; and

**WHEREAS,** one means to accomplish this goal is to further diversify the District's resource portfolio by increasing the amount of energy that can be supplied through renewable resource alternatives, from the current seven percent (7%) to twenty percent (20%) in 2011; and

**WHEREAS,** the increased energy supplied from renewable resources also will provide quantifiable air quality benefits to the Sacramento community and the environment in general; and

**WHEREAS,** the District can further reduce its customers' exposure to electricity and natural gas prices by increasing its investment in energy efficiency measures that provide incremental load reductions through targeted incentive programs that do not require expansion of existing infrastructure; and

**WHEREAS,** the District has conducted numerous public workshops to both disseminate information to the public regarding the General Manager's Proposed Resource Plan and to receive public input about the plan and to discuss its various components directly with the public, District staff and Board members; **NOW, THEREFORE, BE IT RESOLVED BY THE BOARD OF DIRECTORS OF THE SACRAMENTO MUNICIPAL UTILITY DISTRICT**

**Section 1.** After holding numerous public workshops concerning the General Manager's Proposed Resource Plan, receipt and consideration of public input, debate, and after due deliberation, this Board adopts the Resource Policy set forth in Section 2 below.

**Section 2.** That, in order to provide a diversified energy portfolio which will reduce District exposure to price volatility associated with electricity and natural gas, and to contribute to the continued improvement of air quality in the Sacramento air basin, the District will do the following:

- In Phase 1, by 2006, meet ten percent (10%) of all retail load obligation with non-hydro renewable energy, and set a Phase 2 target to increase that percentage to twenty percent (20%) by 2011; and
- Through new energy efficiency measures, reduce new capacity and energy requirements by the equivalent of 50 MWs between 2002 and 2006. Staff will develop Phase II (2011) targets prior to 2005.

**Section 3.** This Board finds that it is not reasonably foreseeable that approval of the Policy set forth herein will result in either a direct or indirect physical change in the environment. Moreover, specific future activities developed to implement the policy will, to the extent required by CEQA, be subject to environmental review by SMUD's Board of Directors. The Board further finds that this policy does not constitute a project within the meaning of the California Environmental Quality Act. Therefore, no further analysis or preparation of an environmental document under CEQA is required.

Adopted: October 4, 2001