CITY OF SANTA BARBARA WATERFRONT DEPARTMENT

MEMORANDUM

Date: March 21, 2019

To: Harbor Commission

From: Scott Riedman, Waterfront Director

Subject: **Proposed Marina Electric Submetering Program**

RECOMMENDATION: That Harbor Commission:

A. Receive a staff report on a proposed plan to submeter electrical use in Santa Barbara Harbor's marinas; and

B. Review and recommend to City Council approval of a Resolution, giving the Waterfront Department authority to submeter slip permittees for electrical use and charge monthly fees.

BACKGROUND:

Santa Barbara Harbor has four marinas. Electrical use in these marinas is the third highest of all City facilities, behind the El Estero Wastewater Treatment Plant and the airport terminal. Starting in the mid-1980s, staff has considered installing submeters at each slip to charge slip permittees for the electricity they use and provide an incentive to conserve energy. Two programs designed to replace or upgrade the four marinas were recently completed. These programs included installation of submeters which now allows the Waterfront to bill each of the 1,141 slip permittees separately for electricity they use.

DISCUSSION:

The proposed marina electricity submetering program includes four components: 1) authority to submeter, 2) meter installation, 3) electricity use patterns, and 4) budget considerations.

Authority to Submeter

Paying for any resource such as electricity, water, or natural gas provides an economic incentive to conserve. Many marinas that implemented programs to submeter for electricity and charge individual slipholders have experienced significant reductions in electrical use, as much as 50% in some cases. The Waterfront Department has been aware of this potential energy conservation strategy for years, with initial efforts to submeter dating back to the mid-1980s in Marina 4, plus another effort in 1998 associated with expansion of Marina 1 that added Q, R, and S fingers. Neither project was expanded to include all 1141 slips in the harbor.

Submetering for electricity with the potential for significant reduction in energy consumption is consistent with other Waterfront sustainability programs, such as the recently completed Green Business Certification and the long-standing Clean Marina Program. Furthermore, this program has the potential to help the City achieve its recently adopted goal of 100% renewable energy by 2030, by reducing the amount of electricity used in the marinas.

Many marinas have a single electric meter regardless of the number of slips in the marina. It is fairly common for modern marinas to charge each boat separately for electricity. According to the Waterfront's annual survey of southern California marinas, 8 out of 17 of surveyed marinas submeter their slipholders for electricity, and one has a surcharge for electricity. Harbors and Navigation Code (HNC) § 630 (Attachment 1) authorizes marina operators to submeter for electricity actually used by each vessel and charge the slipholder accordingly. Santa Barbara's local electrical service provider, Southern California Edison (SCE), established Rule 18 (Attachment 2) outlining requirements for electric submetering of marinas.

Staff is working with SCE to ensure compliance with applicable provisions of Rule 18. Slip permittees will have to be notified and agree to pay separately for electricity. This will require that all slip permittees sign an amendment to the Department's standard slip permit agreement. Additional information must be provided to slip permittees including SCE's rate schedule, contact information, Weights and Measures Department contact information, and information concerning dynamic pricing. Monthly slip billing will include electricity use for each slip, the seasonally adjusted SCE rate for the overall service, and sufficient information for the slip permittee to replicate the electricity bill calculation. A draft example of the required information will be submitted to SCE for review and approval prior to distribution to slip permittees.

Similar to slip fees and parking fees, a Resolution (Attachment 3) has been prepared that allows Council to establish a program for the Waterfront Department to charge for electricity. The Council Resolution includes information on the justification for submetering electricity and the authority to do so. Fees and/or rates for electricity will be included in the Waterfront's Fee Resolution adopted by Council with the annual budget approval.

Electric Submeter Installation

Installing submeters on over 1,100 slips is a significant task and previous efforts were not carried out for a variety of reasons. Waterfront staff participated in a City effort to identify a variety of energy conservation measures in the mid-2000s. It was apparent at that time that submetering for electricity and charging each individual slip permittee was the best method of providing incentive to conserve energy in the marinas. All slips should be submetered in order to carry out a program like this, since a significant disparity in electrical use exists throughout the marinas, and it's impossible to determine which slips are using how much electricity unless all are submetered.

Coincidentally, the Marina One Replacement Project was being considered at the time with design work commencing in 2007. Waterfront staff had developed a separate plan to replace all the dock boxes, which include power centers, in Marinas 2, 3, and 4. Electric submeters are installed in the power centers that provide AC electricity to individual slips. Both the Marina One Replacement Project and the Marina 2, 3, and 4 dock box replacement project included new power centers providing the opportunity to incrementally install submeters in all marinas. Although these projects were scheduled to take place over nine years, it was the first time that all of the slips in Santa Barbara Harbor were part of projects that included electric submeters.

Santa Barbara County's Weights and Measures Department is responsible for inspecting, testing and certifying the accuracy of electric submeters. They have incrementally certified every submeter installed over the past nine years. Their certification is valid for 10 years and they have conducted training in the marinas so future recertification can be done as efficiently as possible without removing the meters and sending them out for testing.

Installation of submeters began with Phase 2 of the Marina One Replacement Project in 2011. Waterfront staff began installing new dock boxes (including power centers and submeters) in Marina 3 at the same time. Initially, all of the submeters installed did not include transmitters and therefore require manual meter reading in the marinas. Electric submeter technology improved and the final phase of the Marina One (Phase 8 - A, B, C, and D fingers) project included submeters with transmitters that allow remote meter reading. This coincided with dock box installation on Marina 2 where submeters with transmitter were also installed.

As previously mentioned, submeters were installed as part of the Marina One Expansion Project (Q, R, and S fingers) in 1998. Recent testing indicated that these meters were no longer reliable and new submeters with transmitters have been installed.

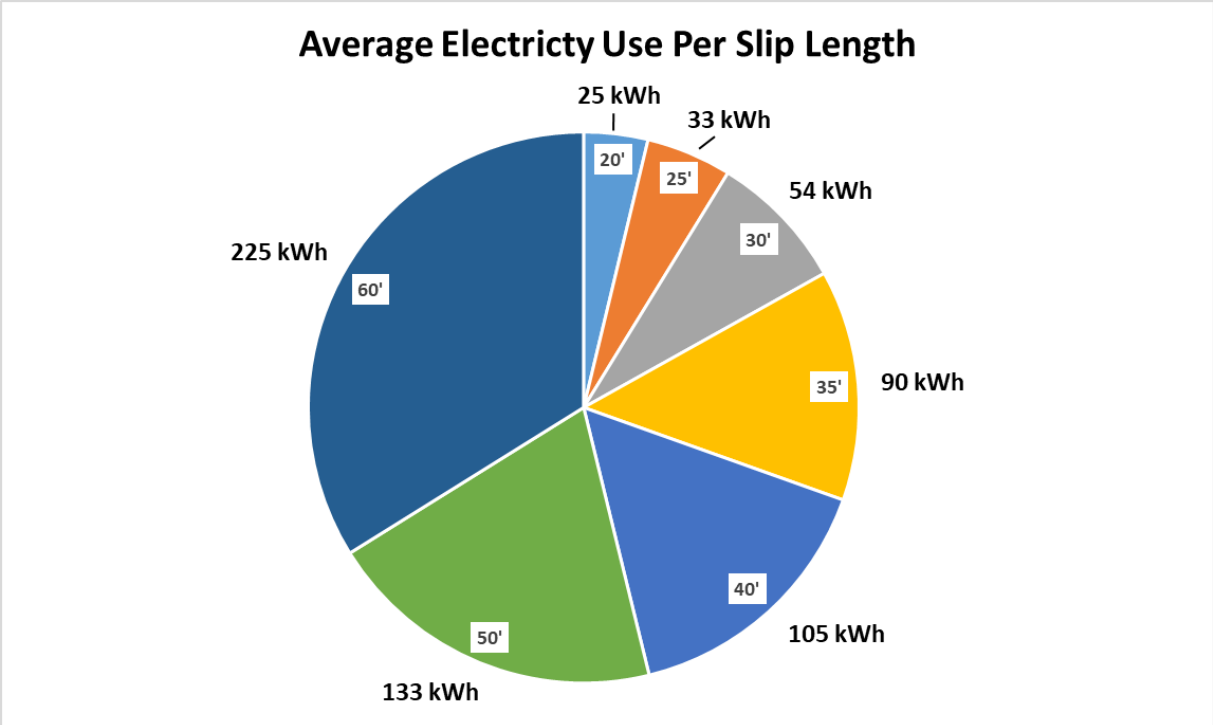
In summary, every slip in the harbor is currently submetered, including Fish Floats North and South. In total, currently 702 meters are read in the field and 439 meters with transmitters can be read remotely. The overall cost of the 1,141 submeters was approximately $265,000, spread over nine years. Labor for installation was absorbed as part of larger projects that facilitated installation of submeters.

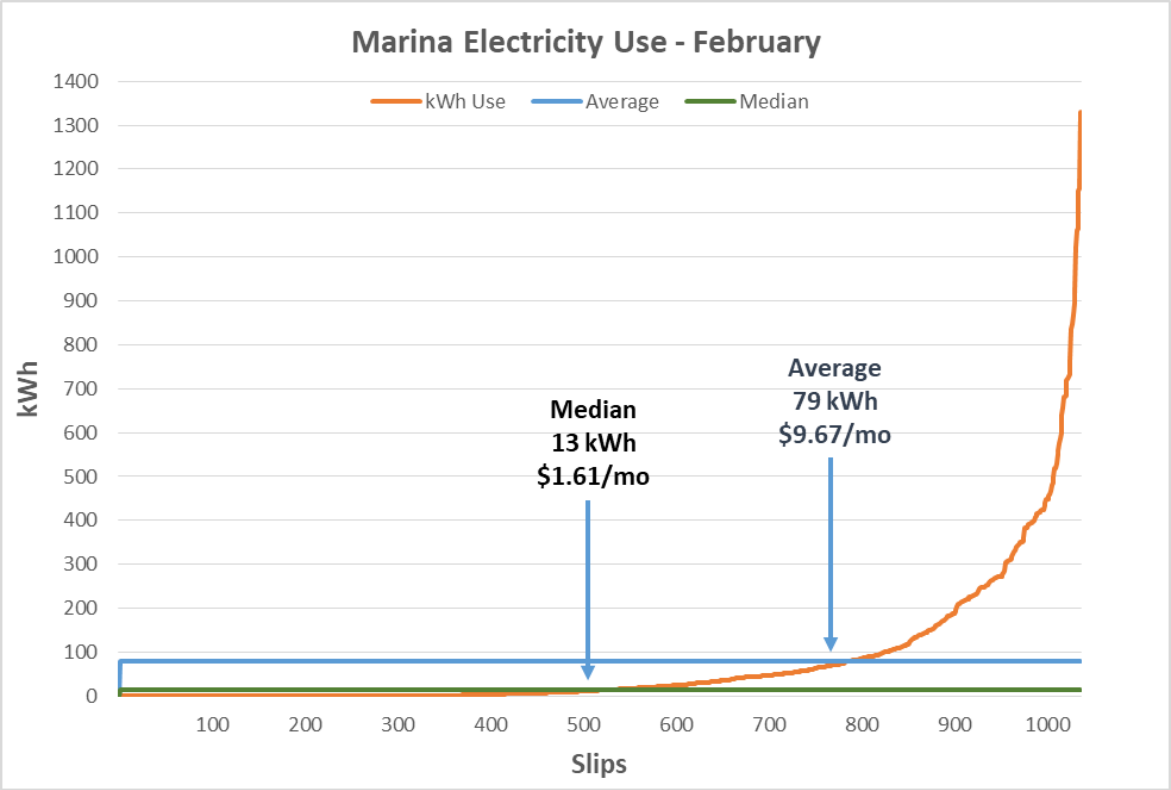
Electricity Use Patterns

Meter reading began in December 2018 with a trial of approximately 200 slips. By the end of February meters have been read on 1036 of the 1141 slips. Electrical use has been very consistent on a boat-by-boat basis and the February monthly reading identified use patterns and is used for a cost analysis and budget considerations. While disparity of electrical use among slip permittees is common, some patterns are predictable. Small boats, for example, tend to use less electricity than large boats. Use tends to be higher in the winter, when days are short and boaters use heaters to stay warm. Liveaboards' electrical use is generally higher than the overall average.

The most striking pattern is that approximately 1/3 of the boats use little or no electricity. Based on preliminary meter readings, 10% of the boats use 60% of the electricity and 20% of the boats use 81%–primary reasons why including a specific, one-size-fits-all surcharge in the monthly slip fee is not the preferred method of recovering the cost of electricity. The same surcharge for all the slip permittees would be unfair and provide only limited incentive to conserve energy. Relatively few slip permittees drive up electric costs for everyone. Furthermore, energy conservation is a much more achievable objective when only 10 - 20% of the slip permittees have to assess their electrical use and reduce that use by whatever means.

SCE's standard unit for measuring electricity is kilowatt hours (kWh). Monthly use by individual slip permittees ranges from 0 kWh to over 1,300 kWh. As previously noted, smaller boats tend to use less electricity (25' slips average 33 kWh/mo.) and larger boats more (50' slips average 133 kWh/mo.). The monthly average for all slips combined is 79 kWh with a median of 13 kWh demonstrating the disparity in use among 1141 slip permittees. There are 110 liveaboards (nearly 10% of all slips) that average 264 kWh/mo. with a median of 201 kWh/mo. demonstrating more balanced use. It's important to note that although liveaboards would theoretically use more electricity their use represents approximately 31% of the total use while the top 10% of all boats use over 60%.





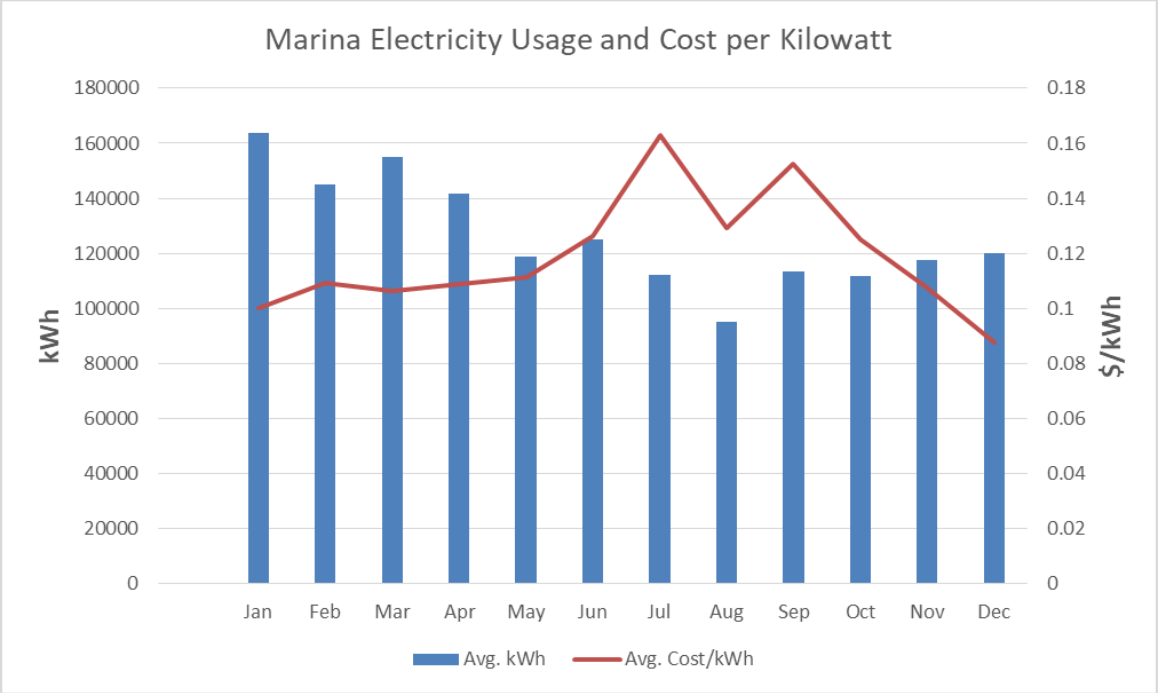
Boaters can reduce the use of AC electrical systems in a variety of ways. The same energy savings strategies used on land such as LED lighting, energy efficient appliances, and reducing use during peak hours apply to boats as well. The marine environment typically has higher humidity than on land and boaters are challenged with keeping their boats dry. This is often done with electric heaters that use a lot of electricity. Drying out boats can be accomplished with energy efficient dehumidifiers instead of heaters. Most boats have an AC and DC electrical system. Solar panels and wind generators are common on boats, and can charge a DC electrical system. Boaters can run more of their electric appliances such as lights off the DC system and/or use an inverter to convert DC to AC electricity for appliances that cannot run on DC. In general, there are a number of ways for boaters to save electricity.

Budget Considerations

Electricity to the four marinas in Santa Barbara Harbor is provided by three meters (Marina 1, Marina 2, and Marina 3/4). The average annual electrical use is 1,500,000 kilowatt hours (kWh) at a total cost of approximately $180,000. To put this in context, El Estero Wastewater Treatment Plant uses approximately 10,000,000 kWh per year and the airport terminal uses approximately 1,900,000 kWh per year. The City constantly reviews electrical use and upgrades these facilities regularly to make them more energy efficient. Energy conservation in the marinas is up to individual slip permittees, and charging for electricity will provide an incentive to do so.

SCE's rates fluctuate seasonally. Electricity rates go up in summer between June and September and go back down for the remainder of the year. If SCE wants to raise their

rates they request approval from the Public Utilities Commission (PUC) which they do at the beginning of the calendar year. The Waterfront is billed monthly by SCE for electricity. The bills contain detailed information about generation charges, delivery charges, and other fees. SCE Rule 18 allows for the full recapture of providing electricity. For slip permittee billing purposes, a monthly rate will be charged based on the overall cost divided by the number of kWh. For example, if 70,000 kWh is used in a month for a cost of $8,500, the rate would be $0.12/kWh ($8,500 ÷ 70,000 kWh = $0.12/kWh). In 2018, the monthly rate ranged from a low of $0.10/kWh in January to a high of $0.17/kWh in July with an overall average rate of $0.1242/kWh.



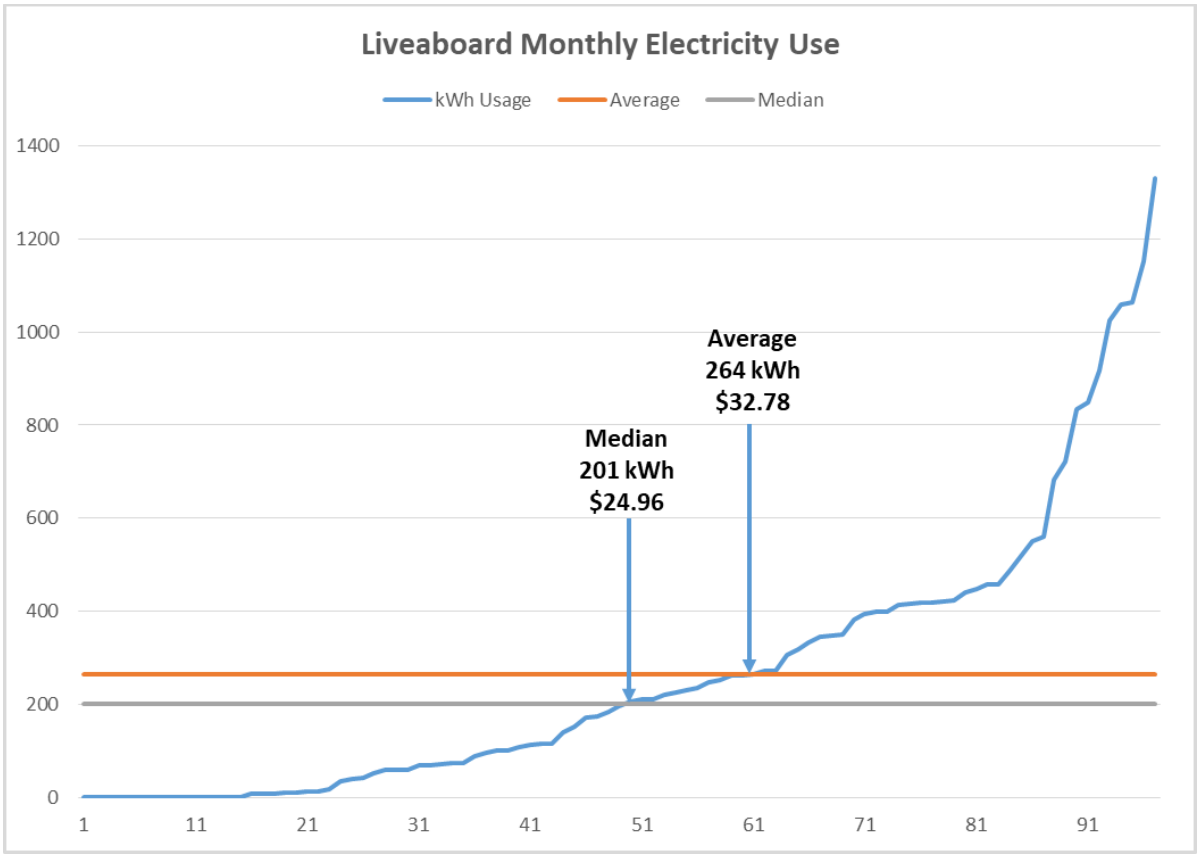
Electricity use by boats in all the marinas represents approximately 76% of all the electricity used (marina restrooms make up the balance). February is a representative month for the year due to the average cost of electricity ($15,000/month) and therefore suitable for annual cost projections. Based on February's meter readings, slip permittees could be billed back for approximately $138,270 annually as allowed by SCE Rule 18. The cost of electricity for 2017 and 2018 (averaged) was $182,000. This assumes all boats would pay for their electrical use. There are a few exceptions to charging all boats for electricity, visitor slips and liveaboards.

SBMC 17.20.005 authorizes 30 slips within Santa Barbara Harbor set aside for visitors. The Waterfront also requires slip permittees to notify staff when they will be out of their slip for five days or longer. If they are gone more than 90 days they often request to be put on Temporary Cancellation (TC) status and their slip fees are reduced by 75% per month. Typically, 60 slip permittees are on TC at any given time or do not have a boat in their slips, for a total of 90 slips available for visitors. Slip fees are still collected while a

slip permittee does not have a boat in the slip and the visitors also pay a fee which is approximately 3x the slip fee rate.

Reading meters at the beginning and end of each boat's visit would be very difficult. Therefore, charging for electricity for visiting boats is infeasible. As previously mentioned, average monthly use per boat is 79 kWh/mo. At the average billing rate of $0.1242/kWh visiting slips represent approximately $10,500/yr. in electricity that would not be recovered through monthly billing. Nevertheless, this is more than offset by visitor-fee revenue.

Liveaboards pay slip fees and a monthly charge of $150. The additional $150 is meant to offset costs associated with increased use of utilities and services, like water, electricity, and janitorial services (restrooms and trash collection). Average use of electricity among 110 liveaboards is 264 kWh/mo. with a median of 201 kWh/mo. This equates to approximately $30/mo. for electricity at a typical billing rate of $0.1242/kWh. Electricity use among liveaboards ranges from 0 kWh/mo. to 1331 kWh/mo. suggesting some liveaboards are very prudent with their electrical use and others are not. Since liveaboards are theoretically paying for electricity through their monthly liveaboard fee of $150, it seems reasonable to reduce the fee by $30 while still having liveaboards pay for their actual use of electricity. A $30 reduction in the monthly liveaboard fee equates to an annual reduction of submeter electrical revenues of $39,600.



There are also administrative costs associated with reading meters and billing. It takes approximately eight hours to read the 702 meters that do not have transmitters. Staff intends on hiring an hourly employee to read these meters once a month. The Marina Management software is set up to include billing for electricity. There are also some costs associated with inputting the meter data into a format suitable for uploading into the billing software. The estimate for these administrative costs is $4,320 annually.

Considering the estimated annual gross revenue generated by electrical fees of $138,270 less unbillable electrical fees from visitors, a $30/mo. credit of liveaboard fees, and administrative fees, charging for use of electricity in the four marinas would result in net revenue of $83,850. It is staff's intention to provide at least two months of electrical use to each slip permittee prior to beginning billing in July 2019. Strategies for reducing use of electricity will also be provided. This will give slip permittees who use a great deal of electricity time to evaluate their electrical systems and their use to make changes to conserve energy and lower their monthly electrical fees.

Electric Submetering Annual Revenue and Expenses

Gross Revenue	$138,270
Liveaboard credit $30/mo.	-$39,600
Visitors	-$10,500
Admin costs	-$4,320
Net Revenue	**$83,850**

It's important to note that the projected net revenue offsets the existing cost of electricity used by boaters. This could provide net annual revenue of $83,850 compared to FY 2017 and 2018 (averaged). If boaters conserve electricity, the net revenue would be reduced as would the expense of electricity. The overall benefit to the Waterfront's budget should be relatively consistent since reduced revenues due to energy conservation would be complemented by reduced expenses.

Summary

After years of research and submeter installation projects, the Waterfront Department is ready to charge each slip permittee for electricity, as authorized by the HNC § 630 and SCE Rule 18. Annual projected net revenue will offset the cost of the recently installed submeters over the next 3 – 4 years. The proposed Marina Submetering Program is designed to be fair to slip permittees and provide incentive to conserve energy, a long term goal of the City.

Attachments: 1. Harbors and Navigation Code §630
2. SCE Rule 18
3. Proposed City Council Resolution

Prepared by: Karl Treiberg, Waterfront Facilities Manager

EXCERPTS FROM THE

HARBORS AND NAVIGATION CODE

CHAPTER 4.5. MARINAS

630. Submetering of electrical power. The operator of every privately or publicly owned marina or small craft harbor, or facilities in connection therewith, furnishing electrical power to slips or berths for use aboard any vessel, may provide facilities for submetering to measure the electrical power actually used by or aboard each vessel and may base charges therefor upon that use including the actual cost of inspection, testing, and registration of submeters that may be charged by any authority having jurisdiction thereof.

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Southern California Edison — Revised — Cal. PUC Sheet No. 47472-E
Rosemead, California (U 338-E) — Cancelling Revised — Cal. PUC Sheet No. 45542-E

Rule 18 Sheet 1

SUPPLY TO SEPARATE PREMISES AND USE BY OTHERS

A. Separate Metering. Separate Premises will not be supplied through the same meter nor will the electric loads of such separately metered Premises be aggregated physically, electronically or otherwise, except as may be specifically provided for in the tariff schedules.

B. Nondomestic Loads. In accordance with Rule 16, electric service shall be individually metered to each tenant in a nondomestic residential building or group of buildings or other development on a single Premises with multiple tenants or enterprises. However, where, in the opinion of SCE, it is impractical to meter each tenant individually or where the Commission has authorized SCE to supply electric service through a single meter, SCE may provide service through a single meter subject to the provisions of Sections E and H below. (T) (T)

Buildings originally constructed for a nondomestic purpose that subsequently converted to residential use on or after December 7, 1981 without the need for a building permit shall be eligible to convert from their prior rate schedule to an existing applicable domestic service submetering rate schedule. Any nondomestic building converted to residential use, for which a building permit was required on or after July 1, 1982, must be separately metered by SCE. (T) (T)

C. Other Uses or Premises. A customer shall not use electricity received from SCE upon other Premises, except for SCE's operating convenience, nor for other purposes than those specified in the customer's application or in the rate schedule applied.

D. Customer with Multiple Service Accounts/Meters at a Single Premises. When a customer (single enterprise) occupies a single Premises with multiple service accounts/meters, the readings of such meters shall not be combined for billing purposes except as provided for in Rule 9.B. However, if the customer physically aggregates the electric loads of such multiple service accounts/meters into a single service account (master-meter), the account will be provided service under an applicable rate schedule.

E. Use by Others. A customer shall not charge for electricity received from SCE and used by another person, except:

1. Where energy is purchased at rates specifically applicable to resale service; or

2. Where the charge to domestic or nondomestic tenants is absorbed in the rental for the Premises or space occupied, is not separately identified, and does not vary with electrical usage, or where all of the following conditions are met for nondomestic service:

   a. Service to the customer is supplied to a single meter (master meter) located in a commercial building or development on a single Premises;

   b. The customer installs and maintains meters of comparable accuracy as utility revenue meters for nondomestic tenants subject to all applicable safety rules, regulations, and general orders established by the State of California and its subdivisions and local governments and their subdivisions.

(Continued)

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Southern California Edison — Revised — Cal. PUC Sheet No. 45543-E
Rosemead, California (U 338-E) — Cancelling Revised — Cal. PUC Sheet No. 44118-E

Rule 18 — Sheet 2
SUPPLY TO SEPARATE PREMISES AND USE BY OTHERS

(Continued)

E. Use by Others. (Continued)

2. (Continued)

c. Submetering of electric usage by nondomestic tenants shall be subject to the mutual agreement of the customer and the nondomestic tenant. (N)

d. The customer shall provide all nondomestic tenants with the following information:

(1) The SCE rate schedule that applies to service to the customer.

(2) Contact information for SCE customer service.

(3) Contact information for the California Department of Food and Agriculture, Division of Measurement Standards meter complaint process.

(4) Information concerning dynamic pricing options and all energy conservation and load management programs available for tenant participation.

e. Bills for tenant electric usage shall resemble bills rendered by SCE for comparable service and must include the following information:

(1) Energy (kWh) and demand (kW) and associated charges by time-of-use (TOU) period in the same level of detail as shown on SCE's bill to the customer.

(2) Energy and demand charges allocated to the tenant for common area usage, and other consumption exclusive of tenant measured usage. Such allocations should be in accordance with methods specified in leases (such as square footage of occupied space) and shall not be based on tenant measured usage.

(3) Charges for submetering, and billing and information services provided by the customer.

(4) Sufficient information to permit tenants to replicate customer's bill calculation.

f. The rates and charges billed by the customer to nondomestic tenants, in total, for the electricity provided by SCE to the customer and used by such tenants shall be the same as the rates and charges billed by SCE to the customer. The customer shall apportion or prorate fixed monthly charges (e.g., customer, peak demand) among submetered tenants such that the total amount billed to submetered tenants equals the amount billed to the customer by SCE. (N)

g. When a customer at an existing Premises where energy charges for tenants are absorbed in a lease begins billing tenants for submetered electric service, the customer shall adjust rental charges such that charges for tenant-controlled energy usage are not also reflected in the lease. Charges for master metered customer-controlled energy usage (e.g., common area usage) may continue to be included in rental charges. (T)(L) (T)(L)

(Continued)

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Southern California Edison Revised Cal. PUC Sheet No. 51854-E
Rosemead, California (U 338-E) Cancelling Revised Cal. PUC Sheet No. 50442-E

Rule 18 Sheet 3
SUPPLY TO SEPARATE PREMISES AND USE BY OTHERS

(Continued)

E. Use by Others. (Continued)

3. Where the customer is the owner, lessee, or operator of a multifamily accommodation and submeters electricity furnished for use by a domestic tenant in a single-family dwelling at the same rates that SCE would charge for the service if supplied directly and such customer's account is eligible for service under Schedule DMS-1, DMS-2, or DMS-3. In such cases, said owner, lessee, or operator shall furnish, install, maintain, and test the submeters. This electrical usage applies only to the single-family dwellings and excludes other electrical usage such as for swimming pools, recreation rooms, or laundry facilities which are used in common by tenants. In addition, said owner, lessee, or operator served under Schedule DMS-2 may elect to have SCE perform mobilehome park bill calculation services in accordance with the provisions contained within Schedule DMS-2 and Form 14-774, Bill Calculation Service Agreement.

4. As provided in Sections F and G below.

5. For use solely as motor fuel for light duty plug-in electric vehicles.

All energy use, including use by others, supplied through a single SCE meter is the responsibility of the customer of record.

F. Privately or Publicly Owned Boat Marinas. SCE will furnish electrical service to a master-meter customer at a privately or publicly owned boat marina or small craft harbor. The master-meter customer may submeter tenant usage aboard a vessel moored in an individual slip or berth at the marina or harbor but may not submeter any other tenant or any land-based facility.

If the master-meter marina customer submeters and furnishes electricity to an individual boat slip or berth for tenant usage aboard a vessel, the rates and charges to the user must not exceed those that would apply if the user were purchasing such electricity directly from SCE.

G. Cold-Ironing Load. A master-metered customer may submeter a tenant's cold-ironing load aboard an ocean-going vessel at the Port of Long Beach or the Port of Hueneme but may not submeter any other load or land-based facility.

If the master-metered customer submeters cold-ironing load to an ocean-going vessel, the combined total amount of the rates and charges to the submetered user for services supplied by SCE must not exceed the rates and charges the master-metered customer is billed by SCE for such services. (T) (T)

Cold-ironing load is defined as the use of shore-supplied electricity for the lights, heating, cooling, machinery, and other needs of an ocean-going vessel while at berth or otherwise electrically connected, as replacement for the vessel's auxiliary internal combustion engines.

(Continued)

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Southern California Edison — Revised — Cal. PUC Sheet No. 49230-E
Rosemead, California (U 338-E) — Cancelling Revised — Cal. PUC Sheet No. 45545-E

Rule 18 — Sheet 4

SUPPLY TO SEPARATE PREMISES AND USE BY OTHERS

(Continued)

H. Resale of Electricity. Resale of electricity or submetering of electricity for the purpose of resale is prohibited, except as provided for under Section E.1, E.2, E.3, F, or G above. Violation of any provision of this Rule shall result in discontinuance of electricity, or refusal to provide service, in accordance with Rule 11. The sale of electricity by an investor-owned utility to an electric vehicle service provider under E.5 above is a retail sale of electricity, not a sale for resale. (T) (N) | (N)

I. Direct Access. When SCE delivers electric power purchased by an ESP to a master-metered Direct Access Customer, such Customer is subject to the provisions of Section E, F, or G above regarding SCE's charges for such delivery.

RESOLUTION NO.

A RESOLUTION OF THE COUNCIL OF THE CITY OF SANTA BARBARA ESTABLISHING AN ELECTRIC SUBMETERING PROGRAM FOR THE WATERFRONT DEPARTMENT DEFINED HEREIN

WHEREAS, General Plan Policy ER% call for the City to pursue energy efficiency and conservation as a means of addressing climate change, reducing air pollution, and reducing our dependence on fossil fuels; and

WHEREAS, the Harbors and Navigation Code § 630 authorizes marina operators to submeter for electricity used by each vessel and charge the slipholder; and,

WHEREAS, Santa Barbara Harbor marinas are the third highest use of electricity among all City facilities; and,

WHEREAS, metering each slip for electricity and charging a fee has proven to significantly reduce use of electricity; and,

WHEREAS, the Board of Harbor Commissioners of the City of Santa Barbara has recommended establishing the electric submetering program and charging fees; and,

WHEREAS, the Council of the City of Santa Barbara has adopted a program for charging individual slip permittees for electrical use in the harbor.

NOW, THEREFORE, BE IT RESOLVED, by the Council of the City of Santa Barbara that the Waterfront Department establish an Electric Submetering Program and charge fees as follows:

A. Slip Permittees

1) The local electrical service provider sets the rate for electrical use on a seasonal basis.

2) Slip permittees will be charged a monthly fee for the number of kilowatt hours (KWh) used at each slip as measures by a separate electrical submeter certified by the Department of Weights and Measures.

3) The rate for the monthly fee will be the total number of KWh used at each marina divided by the total monthly charge for that marina for the preceding month.

B. Visiting Vessels

1) The base visiting rate for vessels less than 70' length overall, other than those actively and solely engaged in commercial fishing, will be $1.00 per linear overall foot per day plus the cost of electricity for the first 14 cumulative days in the Harbor.

2) The base visiting rate for vessels 70' or longer, other than those actively and solely engaged in commercial fishing, will be $1.50 per linear overall foot per day plus the cost of electricity for the first 14 cumulative days in the Harbor.