Study of Submetering

in HUD-Funded Housing

U.S. Department of Housing and Urban Development | Office of Policy Development and Research

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Executive Summary

Submetering, the practice of metering the energy or water consumption of individual apartments in buildings where consumption at the apartment level is not currently measured, is becoming more desirable in the public housing sector as housing agencies and owners seek ways to reduce utility costs. Numerous studies have shown that when customers are shifted from master metering to submetering, consumption declines enough to recover the cost of the submetering system in a reasonable time. Once that initial cost has been recouped, the building owner continues to enjoy reduced utility costs. As utility cost pressures increase, more and more HUD assisted housing providers will find submetering worth exploring not only in new or gut rehab construction but also as a retrofit option. The technology is proven and sophisticated, and the potential for substantial savings is real. This guidebook is intended to assist building owners considering the switch to submetering by presenting applicable federal and state policies and guidance related to utility submetering and assessing currently available submetering systems applicable for utilities (e.g., electricity, natural gas, and water utilities).

Historically, utility metering evolved from master meters, which track total consumption for entire buildings, to more granular individual metering. Master metering was originally favored for its cost efficiency, but rising energy costs and policies such as the Public Utility Regulatory Policies Act (PURPA) of 1978 encouraged individual metering to promote energy conservation.

Submetering allows tenants to be billed directly for their utility consumption, encouraging energy and water conservation and often leading to significant reductions in energy usage. It also enhances building management by helping property managers detect system inefficiencies and malfunctions early, which can reduce maintenance costs and improve tenant comfort. In addition, submetering can reduce overall utility expenses by promoting more responsible consumption and distributing bulk rate savings to tenants.

Despite its advantages, submetering presents several challenges. The installation and maintenance of submetering systems can be expensive, particularly in existing buildings where retrofitting is complex. Tenants may resist the change due to concerns about increased costs, making effective communication and adjustments to utility allowances critical. Implementing submetering also involves operational hurdles, such as accessing individual apartments for installation and managing billing systems, further complicated by the diverse regulatory landscape across states and local jurisdictions.

Federal regulations under 24 CFR 965 mandate individual utility metering for HUD-funded properties except in cases in which it is impractical or financially unjustifiable. Public housing agencies with master meters are required to conduct cost-benefit analyses every 5 years. Conversion costs can be funded through operating funds or modernization projects if necessary. In Rental Assistance Demonstration properties, initial utility allowances are based on Public and Indian Housing-approved figures, with future adjustments following multifamily housing policies.

Recent technological advancements have improved the accuracy and affordability of submeters. Electric submeters, ranging from traditional electromechanical models to smart meters with real-time data capabilities, have become increasingly accessible. Water submetering, although less common in the United States, offers significant benefits in managing consumption and detecting leaks. Natural gas submetering is feasible in high-consumption buildings, but steam submetering

is generally impractical due to its cost and complexity. Thermal submetering, though rarely used in the United States, is more common in Europe, where it measures space-heating energy in buildings with hydronic heating systems.

Retrofitting existing buildings with submeters presents considerable challenges due to varying building layouts and materials. Successful implementation requires careful planning, the selection of appropriate hardware, accurate data collection methods, and reliable billing systems. Ensuring that hardware meets accuracy standards and is compatible with existing infrastructure is essential for effective submetering.

The cost-effectiveness of submetering depends on building type and utility costs. Public-sector investments tend to accept longer payback periods compared with the private sector. Introducing submetering requires sensitive handling, especially where tenants were not previously responsible for utility payments. Comprehensive resident education and pilot projects can help demonstrate potential savings and alleviate concerns before a broader rollout.

Utility submetering offers significant opportunities to improve energy efficiency, reduce costs, and enhance financial performance in public and multifamily housing. However, overcoming financial, operational, and regulatory challenges requires strategic planning, effective communication with residents, and a thorough understanding of the applicable regulations. When implemented properly, submetering can contribute to more sustainable and efficient utility management in affordable housing.

Introduction

This report seeks to lay a foundation to understand the desirability, mechanics, value, effectiveness, and benefit to tenants, if any, of shifting certain utility costs from public housing (PH), privately owned multifamily (MF) assisted housing, and Rental Assistance Demonstration (RAD) housing units to tenants through the installation of utility submetering systems.

This report documents the current state of submetering regulations throughout the United States, provides guidance and recommendations on the benefits and complexities of the use of submetering for new and existing multifamily buildings, includes preliminary findings relating to submetering system costs, and considers existing U.S. Department of Housing and Urban Development (HUD) requirements concerning operating funds, capital funds, and utility allowances. The report references relevant publications focused on design and retrofit strategies, building management procedures, changes in resident behavior, and other approaches that can contribute to significant reductions in energy and water usage.

Traditional utility metering models were designed to enable a utility to recover costs from customers. With a single meter, a utility can capture consumption data in a single apartment, an entire building, or a campus with multiple buildings; however, utility metering was not always a given. In 1917, the costs of maintenance, meter reading, and bookkeeping were collectively deemed too high to make servicing small customers profitable. Many utilities advocated for a flat rate for customers, with meters provided only to the largest customers. In New York, for example, the water utility declared that water was “free” and expensive metering was unnecessary when a flat annual or quarterly charge could cover all system costs.

This single-meter model, developed during a period of low energy prices and limited focus on indoor and outdoor environmental issues, has worked well for utilities but is now inadequate for customer operational needs and utility conservation measures.

Most buildings and campuses built before the 1970s used a single utility meter to track consumption for each utility. Such single utility meters, also known as primary utility meters or master meters, were used to capture aggregate consumption data, which formed the basis of the bills provided to customers.

This practice began to change in the late-1970s. Rising domestic consumption of oil, coupled with a decline in domestic oil production and an increased reliance on imports, led to increases in energy prices. In response, the federal government advanced numerous measures to promote energy efficiency through the passage of the Public Utility Regulatory Policies Act (PURPA) of 1978.

PURPA was developed to encourage equitable rates to electric customers, greater conservation of energy supplied by electric utilities, and optimization of the facilities and resources used by electric utilities. Increasing the level of granularity of customer energy data was viewed as essential to meeting these goals, and many policy changes and standards were suggested, including the prohibition of master metering in new construction. Many states adopted this suggestion, although provisions in PURPA allowed a state government to take state laws into account when determining if the new standards were applicable and how to implement them.

> [PURPA] called for state regulators to require most new apartments to have individual electricity meters. But it also provided that "nothing in this subsection prohibits any state regulatory authority or nonregulated electric utility from making a determination that it is not appropriate to implement any such standard, pursuant to its authority under otherwise applicable state law." States could thus interpret the mandate for individual electricity meters in new buildings as a suggestion rather than a rule, and not all states adopted the policy.
>
> **—Michael Carliner**
> **Joint Center for Housing Studies of Harvard University**

With the passage of PURPA and the subsequent prohibition of master metering of electricity in new construction by many states (discussed in Submetering Regulations in this report), the traditional utility metering model began to change. Master metering in new construction began to decline, and energy was no longer too cheap to meter, forcing utilities and building owners to reconsider the need for metering and to consider options for capturing increasingly granular consumption data.

The growing need for responsible fiscal management, efficient building operation, and proper prioritization of building improvements has led to significant advances in the types of meters available and the quality, type, and granularity of data collected. Advances in communication technology have further enabled remote tracking of consumption in increasingly smaller time increments, making meters an increasingly affordable and cost-effective option to install and maintain.

Master Metering and Direct Metering

Master-metered buildings are defined as having a single utility meter, measuring and billing for the entire building instead of each apartment. Master metering is a common practice among all utility types. For some utilities, particularly water utilities, it was sometimes considered cost-effective to bill a flat rate to cover the costs of infrastructure rather than invest in the installation and continued maintenance of meters for each user.

Utility infrastructure is typically considered to be upstream of the meter; piping brings in water from the utility, then water flows downstream to meters and then distribution piping within the building to reach individual spaces. Master metering meant that utilities could avoid the cost and responsibility associated with distribution systems within a building. When coupled with costs associated with keeping and maintaining consumption records, issuing bills to a multitude of customers, and the potential for nonpayment and subsequent collection efforts, metering individual apartments was often not considered an appealing option.

Building owners could similarly benefit from master metering. Master-metered multifamily buildings often allow the sale of electricity, gas, and water at wholesale rates lower than typical retail rates. For an owner to benefit from wholesale rates, most utilities require a single meter and a single bill. For many building owners, the benefits of the bulk rate served as a competitive advantage to their individually metered peers. Buildings with master meters often offered tenants

"free utilities" and were able to aggregate utility costs in tenant rent, thus increasing the owner's profitability.

On the surface, master metering has elements of economic attraction for all participants:

- For the landlord or building owner, it provides wholesale rates for utility services and a potential marketing advantage compared with their individually metered competition.
- For the utility, it reduces installation costs and monthly operational costs (billing, meter reading, maintenance, etc.).
- For the resident, the perceived value of "free" utilities may exceed the actual cost embedded in rent. Also, single rent statements without variable utility costs make budgeting easier.

> Costs per kilowatt-hour under these promotional schemes were as little as one-fourth the prevailing rate for individual residences. As the cost of electricity thus became nearly negligible, many apartment and office operators took advantage of the "All Utilities Included" marketing scheme.
>
> **—Gordon Gross**
> **UMR-MEC Conference on Energy**

Tenants in some buildings may be individually metered by the utility. These tenants are *direct-metered* and traditionally subject to more costly retail rates than master-metered customers.

- Tenants are customers of the utility.
- Tenants are eligible for state incentives because they are utility customers.
- Service shutoff and disconnection are at the discretion of the utility.

Submetering

Submetering is the installation of additional metering devices downstream of a master meter that can measure the amount of a utility consumed by a specific entity. For multifamily housing, a master meter typically measures consumption for a campus of buildings or a single building. Submeters can measure the energy (or water) use of an individual apartment.

Submeters can also measure the specific consumption of building systems, such as heating, hot water, or central air-conditioning, which allows building operators to detect system malfunctions and make cost-effective system improvements to reduce energy and water consumption. Performance measurement of this type can also be an effective tool for monitoring the costs of individual tenants and supporting conservation efforts by quickly identifying extreme variations in consumption. Submetering offers building owners superior information about the overall performance of a building, mechanical systems within the building, and patterns of occupant energy use (which can be helpful in determining how to reduce demand peaks).

HUD Background

HUD's public housing (PH) program was established under the Housing Act of 1937 to provide safe, decent, and affordable rental housing. HUD's Public Housing Data Dashboard illustrates that the agency administers federal aid to approximately 2,700 local public housing authorities

(PHAs) to help manage and operate affordable housing for more than 910,000 units nationwide (HUD, n.d.d.).

HUD's multifamily (MF) housing program provides funding in a variety of forms to assist private owners of buildings designed to house families in separate housing units. The agency classifies these properties into three broad categories—Section 202/811 properties, HUD-insured (unsubsidized) properties, and HUD-assisted (subsidized) properties—on the basis of the type of funding provided. Households that receive a rental subsidy in this program may be reimbursed for utility expenses based on apartment characteristics and expected use but are responsible for any nonowner-paid utility costs greater than the reimbursed amount. As of December 2017, the MF program provided federal assistance to approximately 1.42 million households nationwide. Since 2005, this total has remained relatively steady, increasing by approximately 1 percent.

HUD's Rental Assistance Demonstration (RAD) program was established under the Consolidated and Further Continuing Appropriations Act of 2012, serving as a powerful mechanism to address the capital needs backlog of the nation's public housing stock. RAD gives PHAs a tool to preserve and improve public housing properties and address the $26 billion nationwide backlog of deferred maintenance. RAD also gives owners of three HUD "legacy" programs (Rent Supplement, Rental Assistance Payment, and Section 8 Moderate Rehabilitation) the opportunity to enter long-term contracts that facilitate the financing of improvements.

At its inception, the program had a statutory limit of 60,000 units; however, Congress has raised the cap multiple times on RAD units, and as of March 2018, the cap was raised to 455,000 units. As of October 1, 2018, RAD had helped HUD preserve 100,994 units of affordable public housing.

RAD allows PHAs to leverage public and private debt and equity to reinvest in public housing stock. In RAD, units move to a Section 8 platform with a long-term contract that, by law, must be renewed in perpetuity. Use Agreements are also recorded under RAD, which ensures that the units remain permanently affordable to low-income households.

Residents benefit from the right of return—a prohibition against rescreening—and robust notification and relocation rights. Residents continue to pay 30 percent of their adjusted income toward rent, maintain the same basic rights they possess in the public housing program, and gain a new option to request tenant-based assistance if they subsequently wish to move from the property.

RAD maintains the ongoing public stewardship of the converted property through clear rules requiring continued ownership or control by a public or nonprofit entity and has been highly cost effective, relying on shifting existing levels of public housing funds to Section 8 accounts as properties convert.

Benefits of and Barriers to Submetering

Submetering makes sense only when it can be shown to provide substantial benefits because it incurs significant costs, especially as a retrofit. Submetering has the potential to save energy and money and to reduce greenhouse gases (GHGs). It can also be used to provide timely alerts to building management about essential repairs, thus preventing the need for expensive repairs and improving residents' quality of life by eliminating the disruption such repairs would require.

As a bonus, often, submetering permits a building to continue using its master meter to purchase utilities at a bulk rate.

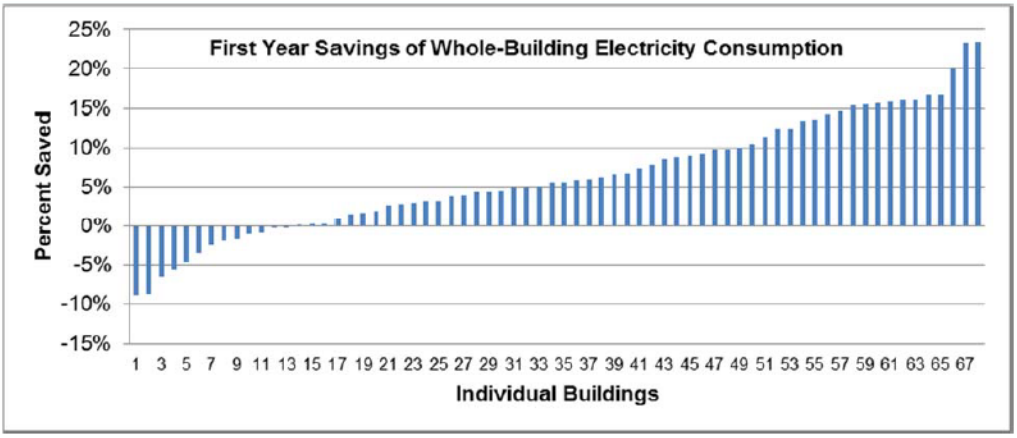
Despite these benefits, the most prominent barriers to implementing a submetering program are the costs of installation and billing. Others include the potential need for apartment access, resident resistance to a new way of doing things, and resident nonpayment.

Benefits

Energy and GHG savings potential. The installation of electric submeters, for example, in individual apartments would provide important feedback to residents and lead to energy conservation and GHG reduction. Studies have shown that submetering and individual metering are a proven first step toward reducing energy consumption (Christian and Ucar, 2019; Gross, 1976).

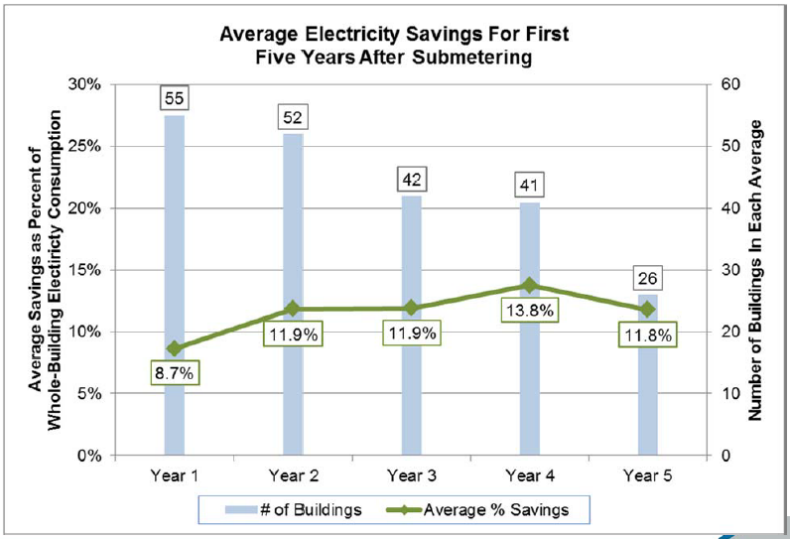
Data from the New York State Energy Research and Development Authority (NYSERDA) show substantial savings from electric submetering (see exhibits 1 and 2), both initially and over the longer term (NYSERDA, 2016). Exhibit 1 summarizes the first-year savings resulting from submetering in the 68 individual buildings participating in the study. Exhibit 2 shows the average percent savings for each of 5 years and the number of buildings with data for each year. Savings remain relatively constant after the first year of implementation.

Exhibit 1: Whole-Building Electricity Savings Following Submetering



Source: NYSERDA, 2016: 2

Exhibit 2: Average Electricity Savings Following Submetering



Source: NYSERDA, 2016: 1

Other research has established that unmetered tenants use more energy than their counterparts in individually metered apartments because they lack the means to measure how much energy is used and have no cost incentive to conserve (Levinson and Niemann, 2004; Reina and Willis, 2015).

The median master-metered New York City Housing Authority (NYCHA) apartment, for example, uses four times the energy of the median direct-metered NYCHA apartment; at worst, unmetered residents consume up to seven times the electricity of metered residents (Jung, Christian, and Sahagian, 2021).

Tracking Consumption: Monitoring and Efficiency. Submetering—be it of electricity, water, or some other quantity—permits building management to identify outliers consuming far above the average and take steps to mitigate the problem. If the submeters are so-called smart meters, the potential is even greater. Smart meters can provide real-time information so energy users can identify waste and adjust consumption as needed. These meters can also help residents benefit from future electric rates tailored to discourage consumption during peak periods.

When submetering water, leaks can be identified and addressed long before severe financial or physical damage occurs. The potential savings in repair costs and reduction of resident misery can be substantial.

Utility Rates. Master-metered buildings generally pay less per kilowatt hour (kWh) and per 100 cubic feet (CCF) of cooking gas than direct-metered buildings. These savings, where they exist, can be passed on to residents.

Barriers

Installed cost. Although submetering frequently results in energy or water cost savings, it is often not considered to be an energy-saving measure (see Energy Performance Contracts in this

report) and thus may not qualify for certain types of financing that might make such a project more attractive to a PHA.

Apartment access. Sometimes, submeters must be in individual apartments, usually due to a common riser for electricity, hot and cold water, or gas. In such cases, apartment access becomes crucial. Even if a small number of residents are unwilling to allow installers into their apartments, the entire project can be stymied for weeks or months if local laws support the residents' position.

Additional management workload. Once a submetering system is in place, someone must pay attention to it. Bills must be developed and sent out; meters must be occasionally tested for accuracy, repaired, or replaced; and the overall system must be maintained.

Resident resistance. Change is difficult, and it is especially difficult for anyone being asked to pay for something they previously received for free.

Any transition to submetering must be carefully managed (and must include extensive resident information sessions), but the savings to both the PHA and the residents will be substantial. The residents' increased agency will give them a greater sense of being in control of their affairs and result in quality-of-life improvements.

With submetering, residents should receive a rent reduction equivalent to the amount of a carefully calculated utility allowance. If the cost of a resident's energy (or water) consumption is less than the utility allowance, he or she will pocket the difference. And because residents are metered, they no longer pay an appliance surcharge for their air-conditioners, as some PHAs require.

Some residents will undoubtedly fear that submetering will increase their costs, but if their rent is reduced equitably, submetering can actually present an opportunity to reduce the total monthly outlay for rent and utilities.

Nonpayment by residents. Not every resident will initially be persuaded that submetering presents a financial opportunity. Interviews with several organizations that have submetered affordable housing (or considered submetering) indicate that some submetered residents will pay the rent portion of their monthly bill but not the electricity portion. When this nonpayment occurs, building management has two undesirable options: electricity shutoff or eviction—neither of which they are eager to pursue.

Submetering Regulations

The research reviewed federal, state, and local submetering policies to determine how they affect federal, multifamily, and HUD-funded housing.

Exhibit 3 shows the 10 HUD regions across the United States.

Exhibit 3: HUD Regions

Source: HUD

50-State Review of Submetering Regulations

Local and state administrative codes, legal precedent, public service commission orders, and related documents were reviewed for all 10 HUD regions.

A matrix of this 50-state review is included as appendix B of this report.

Federal Guidance and Regulations

A range of federal guidance affects the submetering of U.S. government buildings. Highlights of this guidance are presented here.

Energy Policy Act of 2005. Section 103 of the Energy Policy Act of 2005 (EPACT) notes, "Each agency shall use, to the maximum extent practicable, advanced meters or advanced metering devices that provide data at least daily and that measure at least hourly consumption of electricity in the Federal buildings of the agency."[1]

Section 154 requires, "The Secretary of Housing and Urban Development shall develop and implement an integrated strategy to reduce utility expenses through cost-effective energy conservation and efficiency measures and energy-efficient design and construction of public and assisted housing."[2]

[1] Energy Policy Act of 2005. Public Law 109–58. https://www.govinfo.gov/content/pkg/PLAW-109publ58/html/PLAW-109publ58.htm.

[2] Energy Policy Act of 2005. Public Law 109–58. https://www.govinfo.gov/content/pkg/PLAW-109publ58/html/PLAW-109publ58.htm.

General Services Administration. The General Services Administration (GSA) published a 2012 study, "Submetering Business Case: How To Calculate Cost-Effective Solutions in the Building Context," that outlines the financial implications of submetering in energy cost management strategies for water and energy (GSA, 2012).

Internal Revenue Service, U.S. Department of the Treasury. In 2016, the International Revenue Service (IRS) and the U.S. Department of the Treasury issued utility allowance regulations in relation to low-income housing tax credits. In particular, the use of ratio utility billing systems (RUBS) is addressed. RUBS is the use of a formula to allocate utility bills to apartments based on relative floor space, number of occupants, or some other measure rather than actual consumption. The use of RUBS is not prohibited, but the amount paid for utilities must be included in the gross rent (Department of the Treasury and Internal Revenue Service, 2016).

Environmental Protection Agency. In 2003, the Environmental Protection Agency (EPA) issued a memorandum, "Applicability of the Safe Drinking Water Act to Submetered Properties," to revise its policy on submetering water systems under the Safe Drinking Water Act (SDWA). Before this memorandum, the EPA required property owners to meet all SDWA drinking water requirements under section 1411.

The EPA determined that this policy was a disincentive to submetering and affirmed that submetering is a tool for reducing water usage that does not change the quality of the water provided. As a result, owners submetering water usage are not subject to additional water quality standards. In this memorandum, the EPA also noted that the water savings from RUBS are uncertain and that RUBS and other allocation systems do not meet the definition of submetering (Mehan, 2003).

Energy Information Administration. The Energy Information Administration (EIA) and the U.S. Department of Energy Office of Energy Efficiency and Renewable Energy (EERE) researched EIA energy consumption end-use models for commercial and residential units. The study led to updates to modeling practices, including an assessment of current interval data from advanced metering infrastructure systems and submeter systems managed by utilities throughout the United States (U.S. EIA, n.d.).

Federal Energy Management Program. The Federal Energy Management Program (FEMP) publishes *Federal Metering Guidance* at the direction of the Energy Act of 2020. The document states, among other things, that the U.S. Department of Energy (DOE) is required to establish guidelines for agencies to install energy and water meters in federal buildings.

This FEMP document includes additional guidance—

- Describing the legislative authority for energy and water metering and the meter-related reporting requirements for federal agencies.
- Specifying a method to verify the existence of currently installed building-level meters and to create an updated list of buildings to be metered with advanced energy and water meters.
- Explaining the criteria for determining whether installing advanced energy and water meters on a building is practicable.

- Providing guidelines on prioritizing buildings for the implementation of advanced energy and water meters.
- Setting the schedule for agencies to update their metering plans and outlining the minimum required information that agencies shall provide.
- Discussing additional recommendations for an effective plan covering meter implementation, cybersecurity, data management and analysis, and program performance (U.S. DOE, 2022).

Notable Findings Regarding Submetering

Local governments' authority on submetering varies from state to state. In general, each state's approach to this authority can be separated into those states using "Home Rule," in which their constitutions grant municipalities the right to govern, provided that the rules follow state and federal laws, and states using "Dillon's Rule," in which the state grants all authority.

Submetering is typically authorized either by a state's public utility commission or through legislation from a state's administrative code or landlord-tenant law.

Such enabling language often establishes—

- The role of landlords, building owners, and managers.
- Restrictions regarding what can be submetered and how submetering can be conducted.
- Requirements for calculating bills and establishing minimum/maximum charges.
- Limitations on the ability to earn a profit from submetering.

Some states are silent about submetering in multifamily housing. In those cases, utilities may include language in their tariff (price schedule) that either permits or prohibits submetering. Discussions with submetering companies and regulators reveal a mixed landscape of what occurs in practice:

- In some states, a lack of regulations or laws is viewed as a prohibition of submetering (e.g., Vermont).
- In others, silence means it is tacitly allowed (e.g., Idaho and Michigan).

Entities that submeter may be regulated under the same policies as utilities in states silent about submetering; therefore, although it is technically possible to submeter, the significant and potentially costly requirements to meet the standard of becoming a utility may make submetering infeasible.

Local municipal requirements or utility tariffs may differ from state regulations. For example—

- The state of Maine is silent on the subject of submetering water, but the cities of Portland and Belfast permit the submetering of water and wastewater.
- The state of New Hampshire permits submetering electricity, natural gas, and water, but within the state, the utilities Liberty Gas and Yankee Gas prohibit submetering natural gas in their service territories.

Several states prohibit master metering of multifamily residential properties for all new construction and require either individual metering by the utility or submetering by the owner.

Some states permit submetering for specific applications, such as campgrounds, mobile homes, electric vehicles, and wastewater, but either restrict or are silent about submetering residential and commercial properties.

A summary of each state's general rules on submetering is shown in exhibit 4.

Exhibit 4: States That Permit Submetering by Type of Utility and HUD Field Office Region

State	Electricity	Natural Gas	Water and Wastewater	HUD Region
CT	Y		Y	1
ME	Y		Y	1
MA	N	N	Y	1
NH	Y	Y	Y	1
RI		Y		1
VT				1
NJ		N	Y	2
NY	Y	N	Y	2
DE	Y	Y	Y	3
DC	Y	Y		3
MD	Y	Y		3
PA	Y	Y	Y	3
VA	Y	Y	Y	3
WV	Y	Y	Y	3
AL	Y	N	Y	4
FL	Y	N	Y	4
GA	Y	N	Y	4
KY	N	N	Y	4
MS	N	N	Y	4
NC	Y	Y	Y	4
SC	N	N	Y	4
TN	N	N	Y	4
IL	Y			5
IN	Y	N	Y	5
MI	Y	Y	Y	5
MN	Y	Y	Y	5
OH	Y	Y	Y	5
WI	Y	Y	Y	5
AR	N	N	Y	6
LA	Y	Y	N	6
NM	Y	Y	Y	6
OK	Y	Y	Y	6
TX	Y	Y	Y	6
IA	Y	Y	N	7
KS			Y	7
MO	Y	Y	Y	7
NE	N		N	7
CO	Y	Y	Y	8
MT	Y	Y	Y	8
ND	Y	Y		8
SD				8
UT	Y	Y	Y	8
WY				8

State	Electricity	Natural Gas	Water and Wastewater	HUD Region
AZ	Y	Y	Y	9
CA	Y	Y	Y	9
HI	Y	Y	Y	9
NV	Y	Y	Y	9
AK			Y	10
ID	N			10
OR	Y		Y	10
WA	Y	Y	Y	10

HUD = U.S. Department of Housing and Urban Development. Y = Yes, submetering is allowed, although individual municipalities, utilities, or counties may restrict it within their jurisdiction. N = No, submetering is prohibited on a statewide level.
Note: Blank cells represent where the code or law is silent on submetering.
Source: See Appendix B

HUD Guidance and Regulations

HUD properties are affected not only by regulations by states and other federal agencies but also by specific HUD regulations.

Utility Allowances

Federal housing law generally requires that a resident's share of total rent in public housing or other federally assisted housing should equal 30 percent of adjusted monthly income; this rent includes the cost of shelter and utilities. The utility allowance is the estimated dollar amount that a PHA determines is necessary to cover the costs of utilities—including electricity, natural gas, and water—and end uses, such as space and water heating.

In *checkmetered* or submetered buildings, the PHA gives a household a utility allowance by setting a maximum level of consumption. If this level is exceeded, a *surcharge,* or extra fee, can be charged to the household.

In direct-metered homes, the utility allowance is provided through a reduction in monthly rent. Many buildings have different metering systems for different utilities (sometimes referred to as mixed metering) (HUD, n.d.a.).

Energy Performance Contracts

The HUD Energy Performance Contract (EPC) program allows financial savings from energy- or water-cost reductions to repay the cost of measures that led to those savings (Early et al. 2017 & HUD, n.d.a.). Savings from EPCs can be recovered either through the Frozen Rolling Base incentive (freezing consumption level assumptions before installation of the energy conservation measure [ECM]), add-on subsidies (an increase in subsidy to assist in the ECM expense), or Resident-Paid Utility (RPU) incentive (exclusion of increases in rental income resulting from decreased utility allowances via reduced utility consumption). For submetering to be included in an EPC, the anticipated savings from submetering must be quantified and included in the submission to HUD. Historically, submetering has not been considered a savings measure.

Some confusion exists regarding EPCs and submetering. For example, the New York City Housing Authority was prohibited from submetering EPCs in 2010. However, the Richmond (VA) Redevelopment and Housing Authority was required to incorporate submetering in EPCs during the same period.

Impact on Public Housing Authority Subsidy

Submetering can reduce the operating subsidy that HUD provides to a PHA for each public housing unit. The operating subsidy calculation includes the total amount spent on utilities. When a unit is submetered, HUD reduces the PHA subsidy by the amount that is now the tenant's responsibility. The tenant is now responsible to the PHA for paying utilities, and HUD expects the PHA to collect the utility payments to offset the loss in subsidy from HUD.

Tenants who do not pay their share of the utility deprive the PHA of operating revenue, which can negatively affect both the finances of the PHA and its Public Housing Assessment System score. However, if the PHA is using an EPC, the RPU permits the PHA to keep the financial

savings as an offset to meet debt service toward the EPC. The PHA benefits from the presence of ECM, and the RPU incentive covers the cost.

24 CFR 965

Subpart D of 24 CFR 965 ("Individual Metering of Utilities for Existing PHA-Owned Projects") lays out submetering requirements for HUD-funded public housing properties. It states that all utility services shall be individually metered to residents, either through retail service to the residents by the utility supplier or through the use of submeters, sometimes referred to as checkmeters.

Exceptions to this requirement can be made if—

- The individual metering of certain end uses is impractical—for example, certain types of central heating systems, such as a central heating system in an apartment building.
- Switching from master metering to individual metering is not financially justified on the basis of a cost-benefit analysis.
- It is not permissible under state or local law.[3]

PHAs with master metering are required to reevaluate via cost-benefit analysis every 5 years unless they are exempt under conditions in which a PHA has more than one development of similar design and utility services. In that case, the PHA may prepare a cost-benefit analysis for a representative site, and in cases in which the finding is that a change in metering is not cost effective, this result would serve as a sufficient reason for the PHA not to perform cost-benefit analyses on the remaining sites.

The cost to convert from master to individual metering, including that of the cost-benefit analysis, shall be funded from the operating funds of the PHA. In cases in which operating funds are insufficient to feasibly cover the conversion, such costs are eligible to be included in a modernization project or for funding from any available development funds, paid for as part of EPC-eligible expenses with true ECMs.[4]

Rental Assistance Demonstration-Specific Regulations

Properties undergoing conversions through RAD use their Public and Indian Housing (PIH)-approved utility allowance for the first contract year after conversion. After the initial year, these projects must follow existing multifamily housing policies to adjust the property's utility allowance. Property owners should also follow the notification requirements in 24 CFR 245.405(a) and 245.410, requiring at least 30 days' notice to tenants (HUD, 2014).

Utility Allowances and Form HUD-52722

The PHA uses Form HUD-52722 to calculate the Allowable Utilities Expense Level (AUEL), or the estimated cost level for utilities for the next year (The Nelrod Company, 2008). The Utilities Expense Level is one component of the Operating Fund, which determines the amount of

[3] PHA-Owned or Leased Projects—General Provisions: Benefit/Cost Analysis for Similar Projects," 24 CFR Part 965.406. February 29, 1996. https://www.ecfr.gov/current/title-24/subtitle-B/chapter-IX/part-965.

[4] PHA-Owned or Leased Projects—General Provisions: Benefit/Cost Analysis for Similar Projects," 24 CFR Part 965.406. February 29, 1996. https://www.ecfr.gov/current/title-24/subtitle-B/chapter-IX/part-965.

operating subsidy to be paid to the PHA (HUD, n.d.c). Projects converting from PHA-supplied to resident-purchased utilities will exclude all utility data for the resident-purchased utilities on the next HUD-52722 form.

Capital Fund Guidebook (Regarding Master Metering)

The Capital Fund Guidebook details the requirements for the public housing CFP final rule regarding eligible and ineligible activities and cost limits. CFP provides financial assistance to public housing agencies to complete capital and management activities.

To receive a grant through CFP, a PHA must "validate project-level information in HUD's data systems, have an approved 5-year Action Plan, and enter into a Capital Fund Annual Contributions Amendment with HUD" (HUD, 2016).

Technical Considerations

Submeter Technology

As submetering has become more popular, the technology has advanced accordingly. Meters for electricity, water, and British thermal units (Btu), a standard measure of heat energy, have become smaller (and thus less obtrusive), more accurate, more sophisticated, and in some cases, more affordable.

Many submetering systems now take advantage of wireless technology, making installation, data gathering, and billing easier and less expensive.

Electric Submeters

Electricity submeters collect data from individual apartments and can communicate it to building owners or managers for various purposes, such as the following:

- Tenant billing and cost allocation
- Measurement and verification for new system installations
- Demand-response programs
- Calculation of energy consumption baselines, equipment fault detection, and optimization of building performance
- Utility bill verification

The most common types of electrical submeters include electromechanical meters and solid-state, digital, and smart meters (Parker et al., 2015).

Electromechanical meters. Electricity moves mechanical dials through a system of a rotating disk and gearbox. Data must be manually read and subtracted from previous readings unless a pulse output module is included. Such meters usually require a dedicated socket. This equipment is the most mature technology and was most widely used in the past. It is now largely superseded by newer technology (see exhibit 5).

Exhibit 5: Socket-Type Electromechanical Submeter

Source: Helping American Homeowners Association, “Electrical Protection Plans: Exterior Electric Wiring Plan”

Solid state, digital, or smart meters. These meters (see exhibit 6) use integrated circuits and have onboard memory and communication capability. As such, they can measure, record, and transmit interval data, often in near real time.

Exhibit 6: Non-Socket Solid-State Electric Submeter

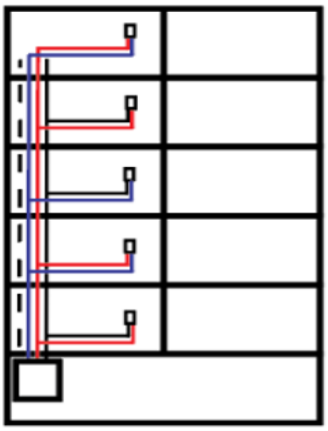
Source: Quadlogic, “Quadlogic Residential Solutions”

Submeters can be configured either as individual socket-type or non-socket meters for each apartment or as a single module with multiple inputs. The cost and complexity of a submetering installation depend heavily on the topology of the electric risers and distribution to the apartments.

Electric Riser Topologies

Shared riser. Many mid- to high-rise apartment lines (especially in master-metered buildings) are served by a three-phase, four-wire 120/208 volts alternating current (VAC) riser (see exhibit 7). Two of the three phase wires are tapped off the riser into each apartment in the line. For example, the first-floor apartment might be phases A and B, second-floor B and C, and third-floor C and A, with the pattern continuing to the top floor. A meter is usually required in each apartment with this topology.

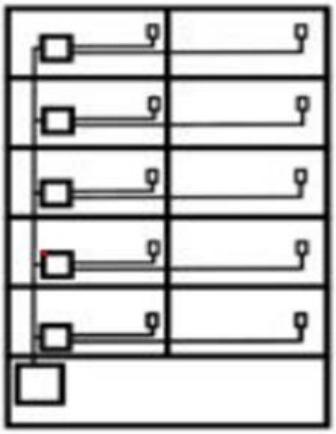
Exhibit 7: Shared Riser



Source: Jung, Christian, and Sahagian, 2021: 40

Shared riser with distribution panels. In some buildings, the electric riser feeds a small electrical closet on each floor or wing of each floor, and a separate branch feeds each apartment (see exhibit 8). In such cases, a multiple-input meter module could be used on each floor, like in a dedicated riser configuration.

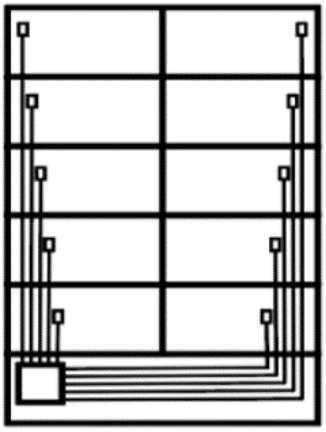
Exhibit 8: Shared Riser With Distribution Panels



Source: Jung, Christian, and Sahagian, 2021: 40

Dedicated riser. In low-rise buildings, each apartment usually has a dedicated riser (see exhibit 9).

Exhibit 9: Dedicated Riser



Source: Jung, Christian, and Sahagian, 2021:40

A multiple-input module (see exhibit 10) can be installed at the electric-service entrance. This process eliminates the need to enter apartments, confines the work to a relatively small area, and results in substantial savings instead of having to install meters in each apartment.

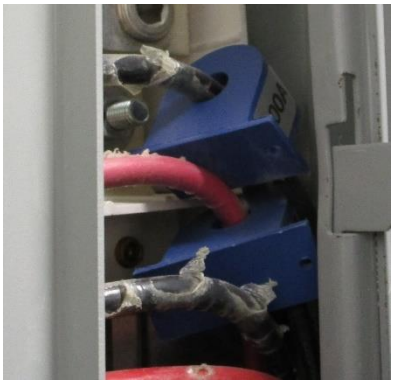
Exhibit 10: Multiple-Input Electric Submeter Module

Source: Tom Sahagian

Socket-type meters measure current directly; non-socket meters require current transformers (CTs) to measure current (see exhibits 11 and 12). Solid-core CTs are generally the most accurate but require a shutdown to install. Split-core CTs are somewhat less accurate but can be installed without the need for a shutdown.

If residents are to be billed on the basis of submeter readings, the meters should be revenue grade (typically plus or minus 0.5-percent accuracy; see exhibit 13).

Exhibit 11: Solid-Core CTs



Source: Tom Sahagian

Submetering systems include the submeter apparatus, a central data-collection device, and hardware to communicate the data to the end user or billing entity.

Wireless communication between devices is common, but Ethernet cables and other wired connections may also be used on the basis of the needs of the building.

Exhibit 12: Split-Core Current Transformer (CT)

Source: EKM Metering, “Split-Core CT”

Exhibit 13: Electrical Meter Type Summary

Submeter Type	Application	Accuracy	Cost
Electromechanical/Solid-State	Single Phase	0.5% or better	$300–$1,000
Electronic Non-Socket	Single Phase, 3 Phase	0.5% or better	$500–$1,000

Source: Tom Sahagian

Water and Wastewater Submeters

Just as electricity is often master metered, so too is water in most multifamily buildings. As water costs climb, the burden on PHAs and all other building operators increases. Although water submetering for billing purposes is common in many countries around the world, it is much less so in the United States.

Some building managers install water submeters only to detect leaks, especially from toilets. Such systems can often pay for themselves over time in reduced water costs and damage.

The evolution of water metering has paralleled that of electric meters somewhat, moving from mechanical types to more sophisticated electronic types:

Positive displacement meters. Nutating-disc and oscillating-piston flowmeters capture and release a fixed volume of water as it flows through the meter (see exhibit 14). Their accuracy can decrease over time from wear and tear and sediment buildup.

Single-jet and multijet meters. The flowing water spins a rotor to drive a gear train (exhibit 15).

Turbine meters. Usually reserved for larger loads, in turbine meters, the flowing water spins a propeller-like axial wheel to drive a gear train. They can be accurate for a wide flow range but are often much less so at low flow rates. Some small meters also use a turbine element (see exhibit 16).

Exhibit 14: Oscillating-Piston Meter

Source: Zenner, n.d.

Exhibit 15: Multijet Meter

Source: WESDOM Group, n.d.

Exhibit 16: Small Turbine Meter

Source: Tom Sahagian

Many sites that install water submeters measure only cold water because most leaks occur in toilets. However, some buildings also monitor domestic hot water; if so, the meter must be capable of withstanding temperatures as high as 140 degrees F.

All the conventional meter types previously described require cutting a pipe to install. For an individual apartment, the pipe would typically be 0.5 to 0.75 inch in diameter. Ultrasonic flow meters clamp onto the outside of a pipe and generally do not require cutting, but they are far too costly to be used for individual apartments.

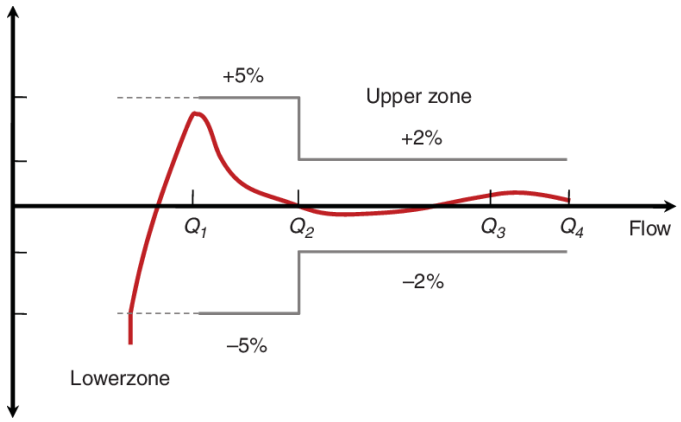
At least one manufacturer now offers a residential ultrasonic meter, but it requires cutting the pipe and is still expensive compared with more conventional technologies.

Water flow within buildings and individual apartments can vary over a wide range. As such, it is important to install meters that are appropriately sized and oriented for accurate results. For best accuracy, some meter types require a certain amount of straight pipe upstream and downstream (typically 10 pipe diameters up and 5 down) to ensure so-called laminar flow.

Water data gathering. It is a fairly simple task to read a single master water meter once a month, but if water submeters are inside apartments, manual readings become almost impossibly time consuming.

Most water submeters can be fitted with a pulse output module that can send consumption data to a local totalizer that communicates with a central office via the Internet or cellular modem. These systems can be hardwired or wireless. Exhibit 17 shows a sample accuracy curve for a water meter, highlighting its performance as compared with required and recommended accuracy metrics. Exhibit 18 summarizes standard water meter types, expected accuracy, and general expected equipment costs.

Exhibit 17: Typical Water Meter Accuracy Curve



Source: Fontanazza et al., 2014: 230

Exhibit 18: Water Meter Type Summary

Potable Water Meter Type	Application	Accuracy	Cost
Positive Displacement	Up to 1" connections	0.5%–1.0%	$50–$400
Single- and Multijet	0.25"–1.0"	0.25%–2.0%	$60–$150
Turbine	0.25"–4.0"	0.25%–2.0%	$100–$200

Source: Tom Sahagian

Natural Gas Submeters

Direct metering of natural gas in both market-rate and affordable housing is fairly common, but submetering is not. Submetering would generally make sense economically only if residents were consuming unusually large amounts of gas despite having nominally small loads, such as for stoves. In apartments with multiple or larger loads, such as stoves, domestic water heaters, and gas dryers, submetering might pay for itself.

By far, the most common individual residential gas meter is the positive displacement diaphragm type (see exhibit 19), which always requires cutting the supply pipe. Only fully qualified professionals should install such meters.

These meters, which are usually temperature and pressure compensated, are very accurate.

Exhibit 19: Diaphragm Gas Submeters With Wireless Data Transmitters

Source: Tom Sahagian

Exhibit 20 summarizes standard natural gas meter types, expected accuracy, and general expected equipment costs.

Exhibit 20: Natural Gas Meter Type Summary

Natural Gas Meter	Application	Accuracy	Cost
Diaphragm	0.75"–2.0"	1.0%	$150–$500

Source: Tom Sahagian

Steam Submeters

It is almost impossible to submeter steam cost effectively, or even at all, at the apartment level, and it is not recommended.

Thermal Submetering

Thermal submetering of central heating systems is not widespread in the United States, and initial research shows limited state-level regulation. ASTM International offers a *Standard Specification for Heat Meter Instrumentation* (ASTM E3137/E3137-M) to provide guidance on approaches (ASTM, 2018). Thermal submetering is regulated in the European Union by the Energy Efficiency Directive (EED) (see exhibit 21).

Exhibit 21: Thermal (Btu) Metering System in a London, England Apartment

Source: Tom Sahagian

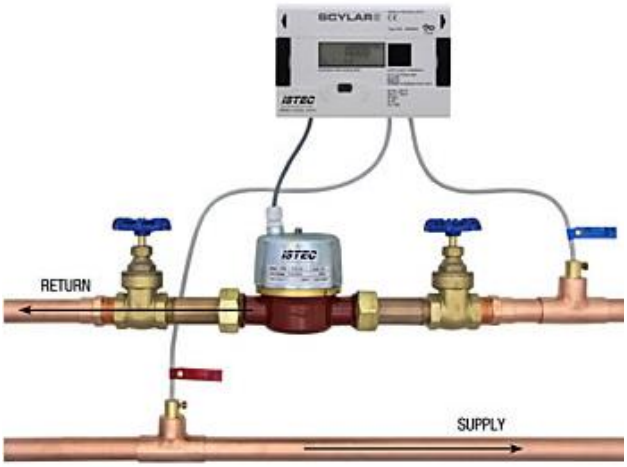
Thermal submetering measures the amount of space-heating energy used in an apartment. It is generally possible only in buildings with hot-water (hydronic) heating systems, in which each apartment's heating hot water flows through a loop or set of loops dedicated to that apartment.

Apartments with dedicated electric resistance heat or gas heat could be submetered with the appropriate electric or gas meters, as described earlier in this section.

For the hydronic systems previously mentioned, the most common submetering setup consists of a hot-water-tolerant flow meter, a temperature sensor on the supply and return pipes, and a Btu computer (see exhibit 22). As with other systems, the Btu computer can be manually read, hard wired, or wireless.

As an alternative, a cost allocation method can be developed to estimate the heat energy consumption of an apartment based on indoor temperature and other factors. The limited accuracy of such an approach can be problematic for residents.

Exhibit 22: Btu Meter



Source: ISTEC Corporation, n.d.

Billing Systems

Submetering data can be gathered, pursuant to local regulations, either manually or automatically and then used to develop monthly bills for each apartment.

The PHA can purchase software and send bills to residents, or the task can be delegated to a private third party.

Energy Information Systems

A submetering system can be as basic or complex as a PHA desires and for which it has adequate funds—funds not only to implement but to maintain and troubleshoot as well. As technology advances and systems become more sophisticated and less expensive, it may be tempting to seek a feature-laden system that provides energy measurement, billing, consumption and failure alarms, peak-demand control, and other niceties.

But first, a PHA interested in a submetering system must decide its energy- and water-monitoring priorities. The main value of submetering is that it provides monthly feedback to residents so that they can reduce their total monthly outlay of rent plus utilities. As they respond to price signals, the PHA's energy and water costs decline, and resident comfort increases, especially in overheated buildings. Water leak detection can also be a major benefit.

Online *dashboards* that provide users with easy access to large amounts of information have recently become more popular, but they come with costs that many PHAs may not be able to afford. The more data a system can provide, the more staff time is required to manage and maintain it.

Installation Challenges

This report will focus on existing buildings; retrofit projects present far more challenges than do new construction projects.

Building layout and construction. PHA buildings run the gamut, from two-story low-rises to high-rises with 20 or more stories, stick-built to masonry to concrete, built anywhere from a few years to 70 years ago. Interior wall material and thickness, the presence or absence of easily accessible pipe chases, common-area topology, and dropped or solid ceilings are a few factors affecting what is and is not feasible in any given building.

Perhaps the most common effect of a building's layout and wall composition on a submetering system is how difficult—or even impossible—they make it for the system to use wireless sensors and communication.

Electric submeters. Installation of electric submeters in basements or distribution panels on the floors is relatively straightforward and does not require apartment access. Meters can be installed in traditional socket arrays, or multiple-input meters can be used.

If the meters must be in the apartments, they must be fairly close to the apartment panel (CT wires can only be so long). Meters will generally be either flush mounted or surface mounted. Flush mounting eliminates protrusion from the wall but is more labor and finish intensive. Surface mounting creates a protrusion but is much less labor intensive, typically requiring no finish work and potentially resulting in slightly fewer air-sealing issues. Because modern solid-state meters can be as small as a conventional thermostat, the protrusion could be a nonissue for residents.

Where electric risers have been added to enable upgrades in service capacity, two or more meters may be required to capture all electric loads; even without additional risers, a second submeter may be needed where cooling energy costs are borne by residents but heat energy costs are not.

Water Submeters. Almost all multifamily buildings deliver hot and cold water to apartments via common risers, so water submeter installation will virtually always require apartment access. A possible exception would be a building where risers and branch takeoffs are accessible from common-area hallways.

Best Practices

Planning and Design

From the standpoint of hardware, data gathering, and billing, there has never been a better time to submeter energy and water use—not to mention the urgency of combating climate change. As is often the case, the technical aspects are the easy part; the human factor is the most challenging (see Tenant Outreach in this report).

Hardware: Electricity submetering. All hardware should be approved by Underwriters Laboratories, Inc. (UL) and the Federal Communications Commission (FCC) (where applicable).

Meters and CTs should be able to achieve at least plus or minus 1-percent accuracy of reading from 1 percent to 100 percent of the CT's current rating, with plus or minus 0.5 percent being preferable.

For safety, it is better to use CTs with a voltage output instead of a current output.

Many electric submetering installations omit a submeter for the common-area electricity, making it impossible to compare the total submetered kilowatt hours against the utility's master metered kWh.

Hardware: Water submetering. All meters should meet American Water Works Association (AWWA) accuracy standards.

Meters should be sized to take expected maximum flows and pressure drops into account. An oversized meter will present less pressure drop but will be less accurate at lower flows.

Data gathering. Hardwired, wireless, and powerline carrier (PLC) systems have all been used successfully. The selected method will depend on ease of retrofit, electric riser type, construction materials of the building, and performance of local vendors.

So-called smart electric meters allow building management to gather large amounts of data beyond simple total kWh, which can be used for a variety of planning and analytical purposes in addition to enabling money-saving demand management.

Meters for water and gas generally provide less information than smart electric meters but can also provide useful operational data. Water submeters, in particular, can be used to identify leaks that, if not caught right away, could lead to expensive repairs and mold remediation.

As useful as these data may be, if staff are not available to organize and analyze them, then data gathering may not be worth pursuing.

Billing. Many buildings submeter off-load billing to a third party, which can be cost effective; however, it is also possible—and maybe even more cost effective—to purchase a billing software package and handle the process in-house.

Cost Effectiveness

The cost effectiveness of any submeter installation depends on a number of factors, some or all of which will be specific to a given building. Generally, the lower the installation and billing cost, and the higher the cost of the utility being measured, the more cost effective the system will be (exhibit 23).

Exhibit 23: Submetering Costs and Savings

Installed Cost/Submeter	Average kWh/Apartment/Month	Average $/kWh/Year	Average Annual Electric $/Apartment	Average Savings With Submetering
$1,000	650	$0.15	$1,170	20%
New Average Annual Electric $/Apartment	**Monthly Billing Fee/Apartment**	**New Average Annual Total Electric Cost/Apartment**	**Average Annual Savings/Apartment.**	**Simple Payback, Years**
$936	$3.00	$972	$198	5.1

Source: Tom Sahagian

Also, cost effectiveness is a somewhat subjective measure. The usual indicator of cost effectiveness is the simple payback of the system, or the installed cost divided by the dollar savings minus billing costs per year. In the private sector, simple paybacks of 2 to 3 years are often required to invest in submetering. In the public sector, paybacks of up to 10 or even 15 years are frequently acceptable.

Exhibit 24 shows a sample calculation of simple payback. This spreadsheet is available on request.

Exhibit 24: Submetering Simple Payback

Average Collection (%)	Simple Payback, Years
100	5.1
90	5.6
80	6.3
70	7.2
60	8.4
50	10.1
40	12.6
30	16.8
20	25.3
10	50.5

Source: Tom Sahagian

Naturally, the payback will also vary with collections. In this example, even if collections drop as low as 50 percent, the payback still falls within a reasonable time frame.

In the case of water submetering, savings that result from early identification of leaks and excessive consumption can improve payback dramatically.

Tenant Outreach

Many affordable and public housing residents do not pay for utilities. Any plan to move to submetering must recognize that, from the residents' viewpoint, this is a significant change, one that may engender massive mistrust and, in any case, require adaptation by staff and residents alike.

As such, it is imperative that submetering be implemented carefully and sensitively, with an emphasis on comprehensive resident education and staff preparation well in advance of the installation of any system.

Theoretically, if a utility allowance is calculated fairly, residents' monthly outlay for rent plus utilities can be less than their current rent if the residents avoid wasteful practices. If this message can be delivered credibly by management, submetering has a good chance of success.

However, what should work in theory does not always play out that way in the real world. Many residents require more concrete evidence that their costs will not rise. Instead of introducing

submetering to an entire development or even an entire building, an introductory pilot project should be considered.

Such a project often will include the concept of *shadow billing,* in which submeters are installed and read, and the results are sent to residents, but no one is billed at first. This process allows the pilot participants to see what would happen if they were to be billed. Frequently, the shadow bill will be too high for the resident to have saved any money.

At that point, the next phase of resident education begins. Site staff can show residents how small changes in behavior can result in significant savings. As the shadow billing continues, residents receive the feedback they need to make better utility-consumption decisions. Over time, the residents' total monthly outlay can become less than it was before submetering.

However, this fact alone may not be persuasive enough to pave the way for the expansion of submetering beyond the pilot. It may be necessary to include a "before-and-after" savings comparison on the monthly utility bill to enhance consumer awareness. For even greater impact, residents whose utility cost is less than the amount of the utility allowance could be sent a refund check with their bill.

If and when the pilot program is deemed successful, the results can be used to help scale up submetering to more and more buildings in the development. Resident leaders who have been involved in the pilot can become credible champions of the expansion of the system.

Case Studies

The research team conducted site visits and interviews with PHAs and for-profit and nonprofit building owners and managers regarding their experiences with submetering in HUD-funded and affordable housing.

Seattle Housing Authority

Property: All homes in the portfolio

Utility or End Use Affected: Water

Contact: Bobby Coleman

The Seattle Housing Authority (SHA) provides low-income rental housing and rental assistance to more than 38,000 people in more than 18,000 households. SHA owns and operates 8,500 apartments and single-family homes spread across 375 locations and administers more than 11,000 housing choice vouchers in Seattle.

SHA implemented a water submetering program to reduce utility costs without penalizing residents. Water is the most expensive utility for SHA. The program applies to housing in the Choice Neighborhood developments and Hope IV communities but has not yet been instituted in its public housing portfolio. The program resulted from a public outreach program, and about 2,500 units are submetered and participate. A study of outcomes found that water usage in the program was about 65 gallons per person per day, compared with the citywide average of 85 gallons per person per day.

Guardian Water & Power, a third-party vendor, charges residents for water consumption. The vendor also manages meter reads, and it prepared an operations and maintenance manual with technical details on the meters to assist residents with troubleshooting before calling the vendor for maintenance. Both hot- and cold-water meters may be present in an apartment.

Water usage is paid directly by SHA to Seattle Public Utilities. SHA provides an incentive program that grants tenants a monthly allowance equivalent to a certain number of gallons consumed each month. Residents receive a credit equal to $0.01 per gallon when consumption is below the threshold. Conversely, residents are charged $0.01 per gallon for each gallon of water over their allowance.

Allowances are calculated using a gallons-per-capita daily average for each property by household size. SHA staff provide the vendor with an occupancy update for all units each month. The vendor then generates allowances based on those occupancies and provides the allowance on the bill. Tenants receive the same utility allowance for water and sewer each month, calculated using a 3-year rolling average consumption of matching household sizes at their property. The allowance is updated annually. Tenants receive a letter each year notifying them of the upcoming year's monthly water and sewer utility allowance.

On a quarterly basis, Guardian Water & Power provides SHA with a list of tenant accounts with negative balances and outstanding balances 60 days past due. Residents with negative balances are given credit toward future bills. Residents with past-due bills receive notification of past-due balances on their bills.

Submeter data enable SHA to administer a utility allowance program recognized by HUD while also incentivizing water conservation. Monthly billing and tracking software allows for the identification of high usage, leaks, and other data points unavailable in a master-metered situation. Tenants can also monitor their water usage and can identify and report leaks.

Monthly administration of the program is reportedly time-consuming. All bills are reviewed monthly for accuracy, and occupancy figures are also updated monthly to calculate allowances.

RiseBoro Community Partnership

Property: Our Lady of Lourdes, 1875 Broadway, Brooklyn, NY 11207

Utilities or End Uses Affected: Electricity, Heating, Cooling, and Water

Contact: Josh Shaffer

RiseBoro is a New York City-based organization providing community revitalization services, including affordable housing development and management. RiseBoro's properties include permanent housing for low- to moderate-income families, senior citizens, and other populations with special needs. RiseBoro's portfolio includes various types of HUD-funded housing.

The 1875 Broadway property is an 18-unit affordable housing building constructed in 2018 that is heated and cooled by a centralized heat pump system. RiseBoro opted to submeter the apartments for electricity, heat, and water, at least partly to be able to offer lower-cost electricity to the residents. Additional reasons included the following:

- Increased insight into resident consumption habits, which helps make informed operational changes at this building and others.
- Theoretical potential for submetering to generate income. By charging residents at the utility rate, it is possible to both bring in income to support the extra work that submetering entails and offer residents a lower rate than they would have from the utility. RiseBoro does this by leveraging the electricity consumption of its entire portfolio to lock in low rates through an energy service company.
- The increased demand resulting from being master metered allows participation in demand response programs.
- The benefits of solar photovoltaic production can easily be shared among residents.

Each apartment is billed for plug load, appliance, lighting electricity, and cooling electricity. Electricity associated with heating and ventilation is not billed. Cooling energy for each apartment is calculated using software in the central heat pump system.

RiseBoro reports that some residents complain about the monthly cost of electricity. Almost all of them pay some or all the rent portion of their monthly bill but not the electricity portion. The building was RiseBoro's first submetered property, and the rollout was not as smooth as RiseBoro had hoped. Some staff are concerned about the optics of shutting off a resident's electric accounts for nonpayment; thus, to date, there have been virtually no consequences for the residents.

Even if RiseBoro were inclined to terminate service, the staffing, administrative, and regulatory requirements of an electricity submetering program are challenging for a small organization.

Although RiseBoro submeters water, they cover all water and sewer costs, mostly to inform operations and find leaks. Exhibit 26 shows the building facade on the left.

Exhibit 25: Our Lady of Lourdes Exterior

Source: Steven Winter Associates

The Related Companies/Chicago Housing Authority

Property: Lathrop Homes Phase IA

Utilities or End Uses Affected: Electricity, Heating, and Cooling

Contact: Sarah Wick, The Related Companies; Lee Pratter, Chicago Housing Authority

Lathrop Homes Phase IA is a 414-unit, 16-building Chicago Housing Authority (CHA) apartment complex, substantially renovated in 2018 and managed by The Related Companies. The renovation included the installation of a centralized heat pump system, which replaced a centralized steam system. The new configuration includes market-rate residents, other subsidized residents, and CHA residents. Residents are submetered for electricity.

The previous system consisted of a central gas-fired boiler servicing the campus of buildings. Utilities were master metered and not paid for by residents. Residents were temporarily relocated to other units before the buildings were upgraded. The approach in Lathrop Phase IA was for a central variable refrigerant flow (VRF) system, which could achieve high-efficiency electric heating and cooling and allow for the use of both to be charged directly to residents via submetering.

Each resident is direct-metered by the local utility for their electric plug load (which includes fan energy for the indoor heat pump unit in each apartment). The Related Company, not the local utility, is the billing entity only for heating and cooling electricity. Cooling and heating electricity are calculated using a submeter to measure the indoor fan unit energy, allocating a proportional amount of the total electricity used for the central heat pump system to each apartment.

Each apartment is allowed to deduct a heating and cooling utility allowance from their rent. The allowance is calculated on the basis of the cost of electric-resistance heat, which is usually more expensive than fossil-fueled heat and much more expensive than heat-pump heat. Recently analyzed data, however, suggest that the residents are paying more for heat under the heat-pump regime than they would under an electric-resistance heating system. The Related Company will be investigating this finding.

The billing arrangement is thus somewhat convoluted, and residents did not pay for utilities before the renovation, so there is some resident confusion regarding what they owe and why. An element of distrust is also seen among the residents regarding the fairness and accuracy of the billing by The Related Company because it is neither the utility provider nor the housing authority. The result is that many residents do not pay their heating or cooling bills.

As shown previously, electric submetering generally reduces consumption compared with master metering, but at Lathrop, the billing feedback does not appear to have had that effect based on total building consumption.

One possible reason for this effect is that residents had become accustomed to substantial overheating from the steam system. The new heat pump system can control setpoints much more tightly, which leads to numerous complaints and, in turn, induces the building superintendent to override the central control system.

Exhibit 26 shows a rendering of the completed upgraded properties.

Exhibit 26: Lathrop Homes Phase IA Exterior

Source: Cassidy, 2021

Conclusions and Recommendations

Submetering has been proven, in most cases, to reduce energy and water consumption by providing price signals to building residents, and it is encouraged by HUD regulations. In new construction, submetering (where allowed by law) or, even better, direct metering by the local utility should be included in a building's design.

The decision is not as clear-cut for existing buildings. Retrofits of any kind are always more costly than new construction or major rehab. Residents who are not accustomed to paying for utilities are unlikely to embrace the prospect with open arms. Housing advocates and their political allies will not look kindly on any plan that has the potential to increase their constituents' costs. State regulations may make it very difficult, either legally or politically, to shut off service to nonpaying residents.

The research clearly shows that nonpayment of the submetering portion of residents' monthly bills is a real issue and a source of income loss for housing providers. Despite often being empowered to shut off service in the event of nonpayment, most owners or managers are reluctant to take that step. As a result, word spreads that nonpayment of the submetering bill has no consequence. Some housing providers avoid submetering for this reason—being put in a position to deal with nonpayment. Others simply absorb the cost as their only recourse. Assistance in dealing with this occurrence is likely needed to expand submetering's use.

Submetering in HUD-funded properties is not commonplace. Extensive outreach was conducted to housing authorities, affordable housing providers, vendors and manufacturers, and housing organizations, but the number of entities engaged in or willing to discuss submetering was limited.

Nonetheless, submetering is worth considering for a number of reasons:

- It generally reduces the demand for energy and water, which benefits the community as a whole.
- It provides for a much fairer allocation of costs by eliminating the subsidy of a few large users by many less-wasteful users.
- It provides an opportunity for residents to reduce their total monthly outlay for rent plus utilities when properly implemented.

- It allows residents to pay less for their utilities than they otherwise would if they were direct utility customers, for whom bulk rates apply.
- It can provide building management with valuable information about total consumption and patterns of consumption, which can inform future policy and expenditure decisions and, perhaps equally as important, alert management to leaks, apartment damage, and other potentially costly episodes in a timely fashion.

In addition, although not the specific focus of this research, the future electrification of heating and domestic hot water (DHW) systems brings unique challenges, many of which can be related to submetering. Decentralized and centralized electric systems provide the opportunity for the use of low-carbon intensive fuels, increased efficiency, and submetering because the equipment can be more easily monitored than a centralized fossil-fuel system. Growth in the use of these technologies in HUD-funded properties will require financial mechanisms and utility allowances that recognize the costs and complexities of modern electric systems. Increased installation of these systems can provide opportunities for growth in submetering because they are inherently more able to be monitored for heating, cooling, and DHW usage.

Given the gravity of climate change and the need for everyone to help reverse global warming, it is decidedly in HUD's interest to heavily promote submetering. To assist its constituents in that effort, the authors recommend that HUD fund pilot programs to develop successful submetering programs to provide a real-world roadmap.

Appendix A: Additional Reading

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Hirschfeld, Herbert E. 2010. "Integration of Energy Management, Electrical Submetering and Time Sensitive Pricing in a Large Residential Community Utilizing Wireless Communications: Phase 3." In *ACEEE Summer Study on Energy Efficiency in Buildings:* 1-170–1-182. https://aceee.org/files/proceedings/2010/data/papers/1939.pdf.

Case studies that document the costs and benefits of utility submetering systems.

Hirschfeld, Herbert E., and Joseph S. Lopes. 1998. "Dual System (Energy Management/Electrical Submetering) Retrofit," *American Council for an Energy-Efficient Economy* 8 (147): 8.164. https://aceee.org/files/proceedings/1998/data/papers/0812.PDF.

Case studies that document the costs and benefits of utility submetering systems.

Hirschfeld, Herbert E., Jospeh S. Lopes, Howard Schechter, and Ruth Learner. 2001. *Residential Electrical Submetering Manual*. Prepared for the New York State Energy Research and Development Authority. Albany, NY: New York State Energy Research and Development. Authority. https://www.nj.gov/emp/home/docs/pdf/080508_NJApartmentAssoc_FennessyC.pdf.

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Mayer, Peter W., Erin Towler, William B. DeOreo, Erin Caldwell, Tom Miller, Edward R. Osann, Elizabeth Brown, Peter J. Bickel, and Steven B. Fisher. 2014. *National Multiple Family Submetering and Allocation Billing Program Study.* Prepared for the East Bay Municipal Utility District. Oakland, CA: East Bay Municipal Utility District. https://docplayer.net/8352642-National-multiple-family-submetering-and-allocation-billing-program-study.html.

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Summary of utility submetering policies throughout the United States.

National Low Income Housing Coalition. 2018. "HUD Issues Two RAD Notices Implementing FY18 Appropriations Act Provisions and Making Additional Changes." National Low Income Housing Coalition. http://nlihc.org/article/hud-issues-two-rad-notices-implementing-fy18-appropriations-act-provisions-and-making.

National Science and Technology Council Committee on Technology, Subcommittee on Buildings Technology Research and Development. 2011. *Submetering of Building Energy and*

Water Usage: Analysis and Recommendations of the Subcommittee on Buildings Technology Research and Development. Washington, DC: National Science and Technology Council. https://obamawhitehouse.archives.gov/sites/default/files/microsites/ostp/submetering_of_building_energy_and_water_usage.pdf.

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RAD Resource Desk. n.d. "Properties Participating in RAD Program." RAD Resource Desk. http://www.radresource.net/pha_data.cfm.

U.S. Department of Housing and Urban Development. n.d. "Housing Choice Vouchers Fact Sheet." U.S. Department of Housing and Urban Development. https://www.hud.gov/program_offices/public_indian_housing/programs/hcv/about/fact_sheet.

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Description of HUD's public housing program, eligibility, and how rent is determined.

———. n.d. "Rental Assistance Demonstration (RAD)." U.S. Department of Housing and Urban Development. http://portal.hud.gov/hudportal/HUD?src=/RAD.

———. n.d. "Section 202 Supportive Housing for the Elderly Program." U.S. Department of Housing and Urban Development. http://portal.hud.gov/hudportal/HUD?src=/program_offices/housing/mfh/progdesc/eld202.

———. n.d. "Section 811 Supportive Housing for Persons with Disabilities." U.S. Department of Housing and Urban Development. http://portal.hud.gov/hudportal/HUD?src=/program_offices/housing/mfh/progdesc/disab811.

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Section 154 of the Energy Policy Act of 2005 requires that "the Secretary of Housing and Urban Development shall develop and implement an integrated strategy to reduce utility expenses through cost-effective energy conservation and efficiency measures and energy-efficient design and construction of public and assisted housing." This document is the fourth report (2012) required by this provision.

———. 2016. "Utility Expenditures in HUD-Assisted Housing." Working draft, U.S. Department of Housing and Urban Development, Washington, DC.

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U.S. Department of Housing and Urban Development (HUD), Office of Policy Development and Research, Energy Task Force. 2006. *Promoting Energy Efficiency at HUD at a Time of Change.* Washington, DC: U.S. Department of Housing and Urban Development. https://www.huduser.gov/Publications/pdf/EnergyEfficiency.pdf.

> Section 154 of the Energy Policy Act of 2005 requires that “[t]he Secretary of Housing and Urban Development shall develop and implement an integrated strategy to reduce utility expenses through cost-effective energy conservation and efficiency measures and energy-efficient design and construction of public and assisted housing.” This document is the first report (2006) required by this provision. Subsequent reports highlighting progress in implementing the strategy were required every 2 years thereafter.

———. 2008. *Implementing HUD’s Energy Strategy.* Washington, DC: U.S. Department of Housing and Urban Development. https://www.hud.gov/sites/documents/DOC_4321.PDF.

> Section 154 of the Energy Policy Act of 2005 requires that “[t]he Secretary of Housing and Urban Development shall develop and implement an integrated strategy to reduce utility expenses through cost-effective energy conservation and efficiency measures and energy-efficient design and construction of public and assisted housing.” This document is the second report (2008) required by this provision.

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Federal Guidance

Energy Policy Act (EPACT) of 2005, 42 USC § 13201. https://www.govinfo.gov/content/pkg/PLAW-109publ58/html/PLAW-109publ58.htm.

> Section 154 of the Energy Policy Act of 2005 requires that “The Secretary of Housing and Urban Development shall develop and implement an integrated strategy to reduce utility expenses through cost-effective energy conservation and efficiency measures and energy-efficient design and construction of public and assisted housing.”

Public Utility Regulatory Policies Act (PURPA) of 1978, 16 U.S.C. § 20601. https://www.usbr.gov/power/legislation/purpa.pdf.

> PURPA was developed to encourage equitable rates to electric customers, greater conservation of energy supplied by electric utilities, and optimization of the facilities and resources used by electric utilities. Increasing the level of granularity of information concerning customer energy use was viewed as essential to meeting these goals, and many policy changes and standards (e.g., prohibition of master metering in new construction and standards for time-variant pricing) were suggested. PURPA required each state regulatory authority and nonregulated utility to consider the adoption of a number of standards, including the prohibition of master metering in new buildings,

within two years of the passage of PURPA. However, PURPA included provisions that allowed the state to take into consideration applicable state laws when determining that the new standards were applicable.

U.S. Department of Housing and Urban Development Guidance

24 CFR 965 at Subpart D. https://www.hud.gov/sites/documents/24CFR965UTILITY.PDF.

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———. n.d. "Multifamily Asset Management and Project Servicing (4350.1)." U.S. Department of Housing and Urban Development. https://www.hud.gov/program_offices/administration/hudclips/handbooks/hsgh/4350.1.

———. 1992. "HUD Handbook 4350.1: Chapter 12. Energy Conservation." U.S. Department of Housing and Urban Development. https://www.hud.gov/sites/documents/DOC_35282.PDF.

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Environmental Protection Agency

U.S. Environmental Protection Agency. 2003. "Applicability of the Safe Drinking Water Act to Submetered Properties." Memorandum, U.S. Environmental Protection Agency, Regional Administrators, Regions I–X. Washington, DC: U.S. Environmental Protection Agency. https://nepis.epa.gov/Exe/ZyPDF.cgi/P100NBAL.PDF?Dockey=P100NBAL.PDF.

https://www.regulations.gov/document?D=EPA-HQ-OW-2007-0838-0001.

In 2003, the EPA issued a memorandum to revise its policy on submetering water systems under the Safe Drinking Water Act (SDWA). Prior to this memorandum, the EPA required property owners to meet all the drinking water requirements under SWDA section 1411. The EPA determined that this policy was a disincentive to submetering. The EPA affirmed that submetering is a tool for reducing water usage, and the application of submetering does not change the quality of the water provided. As a result, owners submetering water usage are not subject to additional quality standards. Also, in this memorandum, the EPA noted that water savings from RUBS are uncertain; RUBS or other allocation systems do not meet the definition of submetering. Therefore, this change in policy does not cover RUBS systems, and "Primacy Agencies" (states) will need to determine if these systems are subject to the requirements of SWDA section 1411.

Department of Energy

U.S. Energy Information Administration. 2015. An Assessment of Interval Data and Their Potential Application to Residential Electricity End Use Modeling. https://www.eia.gov/consumption/residential/reports/smartmetering/pdf/assessment.pdf.

The EIA and EERE conducted a research project on EIA's energy consumption end-use models for commercial and residential units. The study led to updates to modeling practices and included an assessment of current interval data from advanced metering infrastructure systems and submeter systems managed by utilities throughout the United States.

State and Local Resources

Arizona Department of Water Resources. 2018. *Water Metering.* Phoenix, AZ: Arizona Department of Water Resources. https://new.azwater.gov/sites/default/files/media/Metering%20Water%20-%20FINAL%2008-24-18.pdf.

Description of the Arizona rules related to water submetering and types of applicable meters.

Commonwealth of Massachusetts. 2020. "Electric Submetering." Mass.gov. https://www.mass.gov/service-details/electric-submetering.

Overview of resources and regulations pertaining to electrical submetering for Massachusetts.

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Guidelines for residential and irrigation water submetering.

The City of Seattle. 2004. *Seattle Municipal Code Chapter 7.25, Questions and Answers.* Seattle, WA: City of Seattle. http://www.seattle.gov/Documents/Departments/HearingExaminer/ResidentialThirdPartyBillingQuestionsandAnswers.pdf.

Description of the Seattle rules related to utility submetering.

Department of Food and Agriculture, California Division of Measurement Standards. 2013. *Field Reference Manual: California Code of Regulation Title 4, Division 9.* Sacramento, CA: Department of Food and Agriculture Standards.

References submeter meter specifications and testing procedures.

Fambrough, Judon, and E.V. "Rusty" Adams, III. 2016. *Landlords and Tenants Guide Special Report No. 866.* College Station: TX, Texas A&M University Real Estate Center. https://trerc.tamu.edu/wp-content/uploads/2023/10/Landlord-and-Tenants-Guide.pdf.

Description of the Texas rules related to utility submetering.

Hirschfeld, Herbert E., Jospeh S. Lopes, Howard Schechter, and Ruth Learner. 2001. *Residential Electrical Submetering Manual*. Prepared for the New York State Energy Research and Development Authority. Albany, NY: New York State Energy Research and Development. Authority. https://www.nj.gov/emp/home/docs/pdf/080508_NJApartmentAssoc_FennessyC.pdf.

Legacy manual for electric submetering that guides policymakers and contractors.

Lopes, Joseph S., and Herbert E. Hirschfeld. 2018. *Maryland Public Service Commission—Master Meter Conversion Study.* Prepared for the Maryland Public Service Commission. Baltimore, MD: Maryland Public Service Commission. https://www.psc.state.md.us/wp-content/uploads/Final-Master-Meter-Conversion-Study-2018.pdf.

Study of costs and benefits of transitioning Maryland metering from master metering to submetering for certain applications of water, energy, and natural gas.

MeterNet. 2018. *Sub-Metering Services. Guide to Water Sub-Meters in California,* 5th ed. Fallbrook, CA: MeterNet. https://meternetusa.com/assets/2018-california-sub-metering-guide.pdf. Technical regulations for water submetering equipment in California.

New York State Energy Research and Development Authority (NYSERDA). 2021. "Submetering for Multifamily Buildings." NYSERDA. https://www.nyserda.ny.gov/All-Programs/Multifamily-Building-Programs/Submetering.

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Pacific Gas and Electric Company (PG&E). n.d. "Sub-Metered Tenant and Landlord Responsibilities." PG&E. https://www.pge.com/en/account/billing-and-assistance/understand-your-bill/sub-metered-tenant-and-landlord.html.

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Public Utility Commission of Texas. n.d. *Utili-Facts: Submetered Utility Service for Property Owners Guide.* Austin, TX: Public Utility Commission of Texas. https://www.puc.texas.gov/consumer/facts/factsheets/waterfacts/TenantGuideSubmeteredService.pdf.

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Energy savings of 10 to 25 percent for submetering applications in multifamily buildings.

H2O Degree. 2016. “Cheverly Crossing Case Study: Submeter Data and Water Leak Detection Help Apartment Building Property Owner Cut Utility Expenses by Over Half.” Case study, H2O Degree. http://www.h2odegree.com/library/casestudy_cheverly.pdf.

Case study for comprehensive water, electric, and natural gas submetering in a master-metered apartment building in Maryland. Key results include the following:

- “Tracking electric usage at Cheverly Crossing immediately resulted in a 33% decline in use. The three critical summer months in the first year of metering, consumption was down by 49% compared to the same three months of the prior year. Savings was $24,126 per year, of which $16,500 accrued in the summer months alone.”
- “While Cheverly Crossing reduced water use by 66% in the last 12 months compared to the baseline, they reduced their water/sewer expense by over 80%. The building’s water/sewer averaged $115 per apartment per month in the first nine months of 2008—in the first half of 2010, [it] dropped to an impressively lower $13.25 average. In the first year after the submetering installation, Cheverly’s total water/sewer expense went from $73,320 in 2008 down to a significantly lower $13,565 during 2009. And since 2010, the results have been maintained at this low level.”
- “When the first year of submetering results from Cheverly Crossing were analyzed, NOVO Properties showed a $70,000-plus per year cash flow improvement and a $1.32 million boost in property valuation ($22,000 per unit).”

ICLEI, Institute for Market Technology. 2018. *Commercial Energy Policy Toolkit—Factsheet for Local Governments: Submetering.* Bonn, Germany: ICLEI. https://www.imt.org/wp-content/uploads/2018/02/Commercial_Energy_Policy_Fact_Sheet_-_Submetering.pdf.

Overview of the benefits and policy guidelines for commercial energy submetering.

King, Jennifer, and Christopher Perry. 2017. *Smart Buildings: Using Smart Technology to Save Energy in Existing Buildings.* Washington, DC: American Council for an Energy-Efficient Economy. https://eecoordinator.info/wp-content/uploads/2017/03/Smart-Building-Report.pdf.

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Maruejols, Lucie, and Denise Young. 2011. “Split Incentives and Energy Efficiency in Canadian Multi-Family Dwellings,” *Energy Policy* 39 (6): 3655–3668.

Maruejols and Young (2011) reported that average energy usage by Canadian tenants of low-rise apartments was more than twice as high as when utility costs were included in the rent. These three studies are representative of the findings of other researchers and reinforce the current messaging of the federal government (GSA) and state authorities (various) that submetering can significantly reduce utility use.

Munley, Vincent G., Larry W. Taylor, and John P. Formby. 1990. “Electricity Demand in Multi-Family, Renter-Occupied Residences,” *Southern Economic Journal* 57 (1): 178–194.

After evaluating electricity usage in an all-electric apartment complex in the Washington, D.C. area, Munley, Taylor, and Formby found that tenants who did not pay for usage consumed 32 percent more electricity on average than usage-paying tenants.

Pazuniak, Roman, Vincent Reina, and Mark Willis. 2015. *Utility Allowances in Federally Subsidized Multifamily Housing.* New York: New York University, Furman Center. https://furmancenter.org/files/NYUFurmanCenter_UtilityAllowances_June2015.pdf.

Offers strategies to reduce HUD portfolio energy usage through adjustments to utility allowances.

Rao, Prakash, Michael Muller, and Garan Gunn. 2017. "Conducting a Metering Assessment to Identify Submetering Needs at a Manufacturing Facility," *CIRP Journal of Manufacturing Science and Technology* 18: 107–114. https://escholarship.org/content/qt9mn7b13n/qt9mn7b13n.pdf.

"This paper presents a metering assessment to identify the optimal use of submeters and applications of the collected data at a manufacturing facility.... The benefits of conducting a metering assessment are presented using an example from a [small to midsized manufacturing] metal tube manufacturing facility."

Stanton, Tom, and Katheryn Kline. 2016. *Energy and Water Utility Billing Rules, Standards, and Practices: A Survey of the State of the Art and Ideas About Future Directions.* Silver Spring, MD: National Regulatory Research Institute (NRRI). https://pubs.naruc.org/pub/FA85BBE5-D376-1AC1-73FB-75434B8A758F.

"Summary of state utility billing rules and practices and related customer communications. Explores possible linkages among the billing rules and practices and related customer communications and how to improve them so that complaints might be avoided. Based on the literature review and information gathered from state utility regulatory commissions, consumer advocates, and utilities. Includes an inventory of regulatory agencies and codes for each state.

"Part II reviews methods for the work, including a literature review, email survey of state public utility regulatory commissions, and analysis of complaints data."

U.S. Department of Energy, Energy Efficiency and Renewable Energy. 2011. *Nissan North America: How Sub-Metering Changed the Way a Plant Does Business.* Washington, DC: U.S. Department of Energy, Energy Efficiency and Renewable Energy, Industrial Technologies Program. https://www1.eere.energy.gov/manufacturing/tech_assistance/pdfs/nissan_case_study_02.pdf.

"At its largest U.S. auto manufacturing facility in Smyrna, Tennessee, Nissan discovered a wealth of savings opportunities through the plant's sub-metering efforts. The process of connecting all of the plant's large, energy-consuming pieces of equipment to sub-meters and a central software system was initially met with some reservation by plant staff because it was viewed as a time-consuming project. However, once the plant was fully metered and reports of end-use energy consumption profiles were generated, the value of the new system and its capabilities were immediately recognized by staff and corporate leaders alike."

Wein, Olivia, and Charlie Harak. 2003. *Soaking Tenants: Billing Tenants Directly for Water and Sewer Services.* Boston, MA: National Consumer Law Center. https://docplayer.net/19565043-Soaking-tenants-billing-tenants-directly-for-water-and-sewer-services-by-olivia-wein-and-charlie-harak.html.

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Zhai, Zhiqiang, and Andrea Salazar. 2020. "Assessing the Implications of Submetering with Energy Analytics to Building Energy Savings," *Energy and Built Environment* 1 (1): 27–35. https://www.sciencedirect.com/science/article/pii/S2666123319300029.

Analysis of the effectiveness of submetering for energy information systems for 21 building portfolios across the United States.

Submeters installed in green labs at UVA highlight opportunities for electricity and water savings from submeters.

Appendix B: 50-State Submetering Regulation Review

Region 1

State	Utility Eligible for Submetering				Description/Sources
	Electricity	Natural Gas	Water Wastewater	Other	
CT	Y (1, 2, 3, 4, 5, 6)		Y (7, 8)		"The Public Utilities Regulatory Authority is in charge of regulating services and rates for electricity, natural gas, and water. Implementing billing services using submeters or ratio utility billing systems (RUBS) is allowed for electricity and water, but submetering is not allowed for natural gas billing. "In July of 2013, the submetering laws in the state of Connecticut were redefined. Before this new legislation passed, submetering was only allowed at recreational campgrounds and individual slips at marinas for metering the electric use by individual boat owners. "Now, thanks to a new energy bill signed into law by the Governor, any commercial, industrial, multifamily residential, or multi-use building where electric power or thermal energy is provided by a Class I renewable source is allowed to install submeters."[5] 1) **Connecticut General Statutes Chapter 277 § 16-19ff.**[6] Submetering regulations and application process. 2) **Regulations of Connecticut State Agencies; Title 16, 16-11-100.**[7] Definition of submetering customer (facility or campground authorized by PURA). 3) **Regulations of Connecticut State Agencies; Title 16, 16-11-236.**[8] Calculating costs for submeters. 4) **Regulations of Connecticut State Agencies; Title 16, 16-11-237.**[9] Installation and maintenance of submeters.

[5] Banyan Utility. 2024. Connecticut. https://banyanutility.com/state-directory/connecticut/.
[6] Connecticut General Statutes, Chapter 277, Department of Energy and Environmental Protection Public Utilities Regulatory Authority. § 16-19ff; https://www.cga.ct.gov/current/pub/chap_277.htm#sec_16-19.
[7] Regulations of Connecticut State Agencies; Title 16, 16-11-100; https://eregulations.ct.gov/eRegsPortal/Browse/RCSA?id=Title_16Subtitle_16-11Section_16-11-100&content=submeter/.
[8] Regulations of Connecticut State Agencies; Title 16, 16-11-236; https://eregulations.ct.gov/eRegsPortal/Browse/RCSA?id=Title_16Subtitle_16-11Section_16-11-236&content=submeter/.
[9] Regulations of Connecticut State Agencies; Title 16, 16-11-237; https://eregulations.ct.gov/eRegsPortal/Browse/RCSA?id=Title_16Subtitle_16-11Section_16-11-237&content=submeter/.

State	Utility Eligible for Submetering				Description/Sources
	Electricity	Natural Gas	Water Wastewater	Other	
					5) **Connecticut PURA Submeter Application.**[10] 6) ***PMC Property Group, Inc., et al. v. Public Utilities Regulatory Authority et al.*, 2019 WL 1593888**.[11] Court decision on submetering in multifamily housing units. 7) **Regulations of Connecticut State Agencies; Title 16, 16-11-55.**[12] Sale on a measurement basis for water, submetering allowed with Commission approval only. 8) **Water Submetering application form.**
ME	Y (1,2)		Y (3,4,5) (municipalities)		"As a general rule, the use of ratio utility billing systems (RUBS) and submetering is not prohibited in the state of Maine. The Public Utilities Commission is in charge of implementing utility billing rules in the state. They have not set forth any regulations that prevent the billing practices."[13] 1) **Maine Rev. Stat. Ann. Title 35-A, § 313.**[14] Submetering permitted in campgrounds. 2) **Maine Rev. Stat. Ann. Title 35-A, §313-A.**[15] Submetering by electric vehicle charging station providers. 3) **City of Portland Water/Wastewater Submetering.**[16] Allows for deductive/subtractive and sewer/reverse mode submetering for calculation of wastewater charges. 4) **Belfast Water District Sub-Metering.**[17] Water service submetering is determined by the utility on a case-by-case basis.

[10] CT PURA Submeter Application; https://www.ct.gov/pura/lib/pura/electric/Electric_Submetering_Instructions.pdf.
[11] *PMC Property Group, Inc., et al.* v. *Public Utilities Regulatory Authority et al.*, 2019 WL 1593888; https://www.mitchellwilliamslaw.com/webfiles/PMC%20Property%20Group%20Inc%20v%20Public%20Utilities%20Regulatory%20Authority.pdf.
[12] Regulations of Connecticut State Agencies; Title 16, 16-11-55; https://eregulations.ct.gov/eRegsPortal/Browse/RCSA/Title_16Subtitle_16-11Section_16-11-55/.
[13] Banyan Utility. 2024. Maine. https://banyanutility.com/state-directory/maine/.
[14] Maine Legislature Revised Statutes, Title 35-A: Public Utilities, Chapter 3: Rates of Public Utilities, § 313; http://www.mainelegislature.org/legis/statutes/35-A/title35-Asec313.html.
[15] Maine Legislature Revised Statutes, Title 35-A: Public Utilities, Chapter 3: Rates of Public Utilities, § 313; http://www.mainelegislature.org/legis/statutes/35-A/title35-Asec313-A.html.
[16] City of Portland Water/Wastewater Submetering Program; https://www.portlandmaine.gov/DocumentCenter/View/1444/Rules-and-Regulations-for-the-Use-of-the-Sewer-System?bidId=.
[17] Belfast Water District Terms and Conditions; http://belfastwater.org/terms-conditions.htm.

State	Utility Eligible for Submetering				Description/Sources
	Electricity	Natural Gas	Water Wastewater	Other	
					5) **Westbrook Planning & Code Enforcement, Wastewater Utility System Submeter Application.** Provides guidance on wastewater submetering provided Chapters 26 and 27 of the City of Westbrook City Ordinance are followed. 6) **Maine Rev. Stat. Ann. Title 35-A, § 3210.** Defines Thermal Energy and the ability for it to be metered for an end user.
MA	N (2,3)	N (2,3)	Y (1)		"According to the Massachusetts General Laws Chapter 186 Section 22: A landlord may cause to be installed by a plumber licensed in the commonwealth, at the expense of such landlord, submetering equipment in the landlord's building to measure the quantity of water provided for the exclusive use of each dwelling unit, provided that such equipment meets the standards of accuracy and testing of the American Water Works Association or a similar accredited association; and provided further, that a sub-meter is installed for each dwelling unit in the building and for the common areas of the building, so that all water used in a building is measured by both a primary meter and a sub-meter. The practice of utility billing for natural gas, trash, and electricity is prohibited in the state of Massachusetts. The only billing practice that is allowed is billing for water using a submetering system. The property manager is not allowed to charge any fees."[18] 1) **Massachusetts General Laws Part 2, Title 1, Chapter 186, § 22.**[19] Submetering definitions and regulations for landlord submetering, including charges, customer protection, maintenance, terms of agreement, etc. Also includes public housing development exemption. 2) **Massachusetts Submetering Overview.** Electric submetering is prohibited because it is the resale of electricity. Owners of a multi-unit property with a single meter may recover utility costs from a tenant by including electricity in the tenant's rent. Rent inclusion is permitted if the owner does not measure the tenant's electricity use or charge the tenant separately for electric service based on usage. 3) **Massachusetts State Sanitary Code, 410.354.** Residential property owners are required by the state Sanitary Code to pay for electricity for each unit unless the unit has a separate meter that is installed, maintained, and read by a utility company and a written rental agreement between the owner and the tenant provides for payment by the tenant in rent.
NH	Y (3,4)	Y (1,2)	Y (5) (Municipality)		"If the owners of the multitenant dwellings are not profiting from utility billing or providing utilities to the public in general, they are not regulated by the Public Utilities Commission. The restrictions include the

[18] Banyan Utility. 2024. Massachusetts. https://banyanutility.com/state-directory/massachusetts/.
[19] Massachusetts General Laws Part 2, Title 1, Chapter 186, Section 22. https://malegislature.gov/laws/generallaws/partii/titlei/chapter186/section22.

State	Utility Eligible for Submetering				Description/Sources
	Electricity	Natural Gas	Water Wastewater	Other	
					rules regarding the disclosure of specific information to the residents in the rental agreement. The information should include such things as who is responsible for the payment of utilities, trash, and other charges."[20] 1) **New Hampshire Rev. Stat. Ann. Chapter Puc 502.15.**[21] Definition of master meter system for natural gas. 2) **New Hampshire Rev. Stat. Ann. Chapter Puc 505.01d.**[22] Prohibition of master metering without written approval from the commission. 3) **New Hampshire Rev. Stat. Ann. Chapter Puc 302.14.**[23] Definition of electricity master metering. 4) **New Hampshire Rev. Stat. Ann. Chapter Puc 303.02.**[24] Prohibition of master metering for multiple dwelling units. 5) **Town of Bow, Code of the Town of Bow, Chapter 174.** Water submetering permitted with prior written approval.
RI		Y (1)			In the state of Rhode Island, it is legal to bill the tenants for utilities. The terms of the agreement have to be included in the rental contract.[25] 1) **815-RICR-20-00-1 § 1.3A 19.**[26] Definition of master meter natural gas system and submetering.
VT	(1,2)				"Vermont has the most complicated sets of rules and regulations when it comes to utility billing. In general, fees are allowed but regulated by some specific laws. However, if the fees become a source of profits for the property owners, they could spell legal trouble. Using the ratio utility billing system (RUBS) is not allowed in some cities. Vermont is considered one of the most complicated places to implement a submetering system. Vermont has specific rules regarding the meter approval and licensing of installers. "In the state of Vermont, a person operating a recreational campground may provide submetered electric service to campground users on a nonprofit basis if such service is provided in accordance with

[20] https://banyanutility.com/state-directory/newhampshire/.
[21] New Hampshire Code of Administrative Rules, Puc 500 Rules for Gas Service; https://www.puc.nh.gov/Regulatory/Rules/Puc500.PDF.
[22] New Hampshire Code of Administrative Rules, Puc 500 Rules for Gas Service; https://www.puc.nh.gov/Regulatory/Rules/Puc500.PDF.
[23] New Hampshire Code of Administrative Rules, Puc 300 Rules for Electric Service; https://www.puc.nh.gov/Regulatory/Rules/Puc300.PDF.
[24] New Hampshire Code of Administrative Rules, Puc 300 Rules for Electric Service; https://www.puc.nh.gov/Regulatory/Rules/Puc300.PDF.
[25] Banyan Utility. 2024. Rhode Island. https://banyanutility.com/state-directory/rhodeisland/.
[26] 815-RICR-20-00-1 1.3A 19; http://www.ripuc.ri.gov/rulesregs/divrules/REG_10851_20190822144131.pdf.

State	Utility Eligible for Submetering				Description/Sources
	Electricity	Natural Gas	Water Wastewater	Other	
					rules adopted by the board, including rules relating to notice of rates and charges, accuracy of electrical submeters, and reasonable billing and complaint procedures."[27] 1) **30 V.S.A. § 249a. Campground submetering.**[28] Electric submetering for campgrounds. 2) **Vermont Utilities Electric Service Requirements Manual § 709. Sub Metering.**[29] A customer may, at their expense, install, maintain, and operate check metering equipment, provided such equipment does not interfere with the Utility's equipment. No electric energy shall be metered by a customer for resale to others.

[27] Banyan Utility. 2024. Vermont. https://banyanutility.com/state-directory/vermont/.
[28] Regulations of Connecticut State Agencies; Title 16, 16-11-55; https://eregulations.ct.gov/eRegsPortal/Browse/RCSA/Title_16Subtitle_16-11Section_16-11-55/.
[29] Vermont Utilities Electric Service Requirements Manual; https://greenmountainpower.com/wp-content/uploads/2016/08/VT-Utilities-Electric-Service-Requirements-Manual.pdf.

Region 2

State	Utility Eligible for Submetering				Description/Sources
	Electricity	Natural Gas	Water Wastewater	Other	
NJ		N (1,2)	Pending (3), Y (4)		"In New Jersey, the jurisdiction of the Board of Public Utilities is not clear. According to the Board of Public Utilities, submetering is not allowed for natural gas and electricity except for existing, older submetering systems. "In the state of New Jersey, the term 'Submetering' is the practice of generating profits from billing the residents. The term 'Check metering' is used when meaning not-for-profit billing practices. "Billing for water and sewer is also allowed using master metering (RUBS) or check metering. The owners could also charge administrative fees related to billing processes. "The New Jersey Board of Public Utilities authorizes submetering for industrial or commercial buildings, publicly financed and government-owned buildings, cooperative housing or condominiums, and charitable institutions. In 2005, the Board issued a 5-year pilot program for residential submetering of electricity and gas. Residential buildings constructed in the state of New Jersey after August 8, 2011, must install submeters."[30] 1) **New Jersey Administrative Code § 14:6-6.2 Definitions.**[31] General definition for a master metered system. 2) **New Jersey Administrative Code § 14:6-6.3 Service to master meter systems.**[32] 3) No gas utility in this State shall provide gas service to any newly developed **master meter** system as defined in N.J.A.C. 14:6-6.2. 4) **Assembly No 2910 218th Legislature Water Conservation and Metering Act.**[33] This bill permits the submetering of water consumption in multifamily dwellings to promote water conservation. 5) **State of New Jersey Board of Public Utilities, Division of Water, Order Approving Water Submetering, Docket No. WO11060381, 8/18/11.** Determination in response to the petition by the New Jersey Apartment Association finds that water submetering in newly constructed residential apartments is in accordance with the law and the public interest. Buildings constructed prior to the order are unable to submeter.

[30] Banyan Utility. 2024. New Jersey. https://banyanutility.com/state-directory/newjersey/.
[31] New Jersey Administrative Code § 14:6-6.2 Definitions; New Jersey Administrative Code § 14:6-6.2.
[32] New Jersey Administrative Code § 14:6-6.3 Service to master meter systems, New Jersey Administrative Code § 14:6-6.3.
[33] Assembly No 2910 218th Legislature Water Conservation and Metering Act; https://www.njleg.state.nj.us/2012/Bills/A2000/1577_I1.HTM.

State	Utility Eligible for Submetering				Description/Sources
	Electricity	Natural Gas	Water Wastewater	Other	
NY	Y (1, 2, 3, 4, 5, 6, 7)	N (7)	Y (8)		"The practice of billing rental residents for utilities is allowed in the state of New York with a few restrictions. "An application must be submitted to the Public Service Commission and approved prior to the start of a submetering system installation. The application requires specific information about the submetering system and the safeguards protecting the tenant's rights and the language in the lease agreement describing the specifics. In addition to the above rules, the city of New York has extra regulations to monitor pollution and enforce water conservation."[34] 1) **New York CRR Title 16 Part 96.**[35] General provisions for residential submetering in multi-unit premises. 2) **9 CRR-NY 2202.16 Rent decrease for reduction of services, etc.**[36] Where the conversion is to submetering of electricity, with the tenant purchasing electricity from the owner or a contractor retained by the owner, who purchases electricity from a utility at the bulk rate, such schedule of rent reductions is based on the median monthly cost of electricity to tenants derived from data from the United States Census Bureau's *2002 New York City Housing and Vacancy Survey,* as tabulated by the New York City Rent Guidelines Board, 51 Chambers Street, Suite 202, New York, NY, and available on its website at www.housingnyc.com, adjusted to reflect the bulk rate for electricity plus a reasonable service fee for the cost of meter reading and billing, based on the maximum estimated fee included in the *Residential Electric Submetering Manual* revised October 2001, published by the New York State Energy Research and Development Authority, 17 Columbia Circle, Albany, NY, and available on its website at www.nyserda.org, and reflected in *Operational Bulletin 2003-1.* 3) **9 CRR-NY 2102.4 Grounds for decrease of maximum rent.**[37] Every three years, the New York State Energy Research and Development Authority issues a new residential electric submetering manual setting forth a new maximum estimated submetering service fee; DHCR shall move to amend the regulations to incorporate that document by reference. 4) **New York Consolidated Laws, General City Law - GCT § 25-aa. Definitions.**[38] Definitions for eligible energy users for special submetering rebates.

[34] Banyan Utility. 2024. New York. https://banyanutility.com/state-directory/new-york-utility-regulations/.
[35] New York CRR Title 16 Part 96.
[36] 9 CRR-NY 2202.16 Rent decrease for reduction of services, etc.
https://govt.westlaw.com/nycrr/Document/I4f87babdcd1711dda432a117e6e0f345.
[37] 9 CRR-NY 2102.4 Grounds for decrease of maximum rent. 9 CRR-NY 2102.4.
[38] New York Consolidated Laws, General City Law - GCT § 25-aa. Definitions; https://codes.findlaw.com/ny/general-city-law/gct-sect-25-aa.html.

State	Utility Eligible for Submetering				Description/Sources
	Electricity	Natural Gas	Water Wastewater	Other	
					5) **New York Consolidated Laws General City Law Special Rebates $25-BB.**[39] Rebates for energy redistribution in NYC. 6) **New York Consolidated Laws, Public Service Law - PBS § 66-m. Green jobs-green New York on-bill recovery.**[40] The commission shall not approve any application for the conversion to submetering of any master meter which is subject to any on-bill recovery charges. 7) **16 CRR-NY 231.1 Prohibition of residential submetering required.**[41] All gas corporations, electric corporations, gas and electric corporations and municipalities other than those named in subdivision (a) of this section, which have not filed with this commission tariff provisions prohibiting the submetering of gas or electricity for residential purposes shall, within 30 days, after service of this Part, file appropriate amendments to their tariff schedules, to become effective on not less than 30 days' notice to the public and this commission, prohibiting the submetering, remetering or resale of gas or electricity for residential purposes. 8) **20 CRR-NY 44.3 Activities not subject to tax.**[42] Where an owner of real property pays charges for water supplied to a building, on a meter, frontage, or other basis, and in turn charges the tenant or tenants in the building for the quantity of water consumed by them at the same rates as he is required to pay, such owner is not considered a utility.

[39] New York Consolidated Laws General City Law Special Rebates $25-BB. https://codes.findlaw.com/ny/general-city-law/gct-sect-25-bb.html.
[40] New York Consolidated Laws, Public Service Law - PBS § 66-m. Green jobs-green New York on-bill recovery; https://codes.findlaw.com/ny/public-service-law/pbs-sect-66-m.html.
[41] 16 CRR-NY 231.1 Prohibition of residential submetering required, 16 CRR-NY 231.1.
[42] 20 CRR-NY 44.3 Activities not subject to tax, 20 CRR-NY 44.3.

Region 3

State	Utility Eligible for Submetering				Description/Sources
	Electricity	Natural Gas	Water Wastewater	Other	
DE	Y (1,2,3)	Y (1,2,3)	Y (1,2,3)		"Billing tenants for utilities and submetering are allowed in the State of Delaware. The Public Service Commission does not regulate these activities for property owners who are not performing them for profit. Except for the metering systems that have been established prior to July of 1996, property owners can only charge for utilities using a submetering system, including water, gas, and electricity charges. In these cases, the use of ratio utility billing systems (RUBS) is not allowed. The landlord could also provide a trash bin for the tenants and charge for trash collection. The tenants cannot be charged for more than the actual cost of the utilities. "When it comes to gas and water meters, the state of Delaware follows the standards set forth by the National Conference of Weight and Measures, which means that all metering equipment must be approved by the National Type Evaluation Program (NTEP) and the National Institute of Standards & Technology (NIST) before being installed."[43] 1) **Delaware Code Title 25 § 5312 Metering and charges for utility services.**[44] Landlords are allowed to install and maintain meters for determination of utility services by each residential rental unit. This rule was amended by 70 Del. Laws, c. 513, § 2; 80 Del. Laws, c. 71, § 1. 2) **Delaware Code Title 25 Chapter 61 Commercial Leases § 6101 Metering and charges for utility services.**[45] Commercial submetering for utility services is allowed for landlords if the bill does not exceed what it would have been under the public utility structure. 3) **Delaware Code Title 25 Chapter 70 Manufactured Home Communities § 7020 Fees; services; utility rates.**[46] Allowed fees and recovery for submetering of manufactured homes.
DC	Y (1,2)	Y (1,2)			1) **Washington, DC Code § 34-1552 Commission to promulgate rules, including standards.**[47] Commission to establish rules on cost allocation using submeters for natural gas and electricity.

[43] Banyan Utility. 2024. Delaware. https://banyanutility.com/state-directory/delaware/.
[44] Delaware Code Title 25 § 5312 Metering and charges for utility services. https://delcode.delaware.gov/title25/c053/index.shtml.
[45] Delaware Code Title 25 Chapter 61 Commercial Leases § 6101 Metering and charges for utility services. https://delcode.delaware.gov/title25/c061/index.shtml.
[46] Delaware Code Title 25 Chapter 70 Manufactured Home Communities § 7020 Fees; services; utility rates. https://delcode.delaware.gov/title25/c070/sc02/index.shtml.
[47] Washington, DC Code § 34-1552 Commission to promulgate rules, including standards. http://dccode.org/browser/#/34/34-1552.

State	Utility Eligible for Submetering				Description/Sources
	Electricity	Natural Gas	Water Wastewater	Other	
					2) **Washington, DC Code § 34-1553 Energy submetering and energy allocation equipment.**[48] Submetering is allowed if it is authorized in the rental agreement. Also establishes fees and recordkeeping for owners.
MD	Y (1, 2, 3, 4)	Y (1, 2, 3, 4)	Locally Determined (5,6,7)	Y (8,9)	"Although utility billing for multifamily residential communities is allowed in the state of Maryland, several local restrictions may apply. The submetering systems need to be approved by the Maryland Public Service Commission for electricity and natural gas billing. Fees are either not allowed or permitted with very strict local regulations. Water and sewer billings are not regulated on the state level but are subject to local restrictions."[49] 1) **Maryland Code, Public Utilities, § 7-301.**[50] Submeters need to be authorized and tested by the Commission. 2) **Maryland Code, Public Utilities, § 7-303.**[51] Definitions and determination of cost allocation and verification. 3) **Maryland Code, Public Utilities § 7-304.1.**[52] Definitions for master metering. 4) **Code of Maryland Regulations Title 20 Public Service Commission, Subtitle 25 Electric and Gas Submeters, Chapter 20.25.01 General Regulations.**[53] The purpose of submetering is to encourage effective conservation. 5) **Montgomery County Code of County Regulations Chapter 29.00.01 Ratio Utility Billing System.**[54] Tenant protection and regulations for master-metering and use of ratio utility billing systems for Montgomery County. 6) **Howard County Bureau of Utilities Water Only Submetering Policy.**[55] Commercial and industrial water and wastewater submetering regulations and permitting for Howard County.

[48] Washington, DC Code § 34-1553 Energy submetering and energy allocation equipment. http://dccode.org/browser/#/34/34-1553.
[49] Banyan Utility. 2024. Maryland. https://banyanutility.com/state-directory/maryland/.
[50] Maryland Code, Public Utilities, § 7-301. https://codes.findlaw.com/md/public-utilities/md-code-public-util-sect-7-301.html.
[51] Maryland Code, Public Utilities, § 7-303. https://codes.findlaw.com/md/public-utilities/md-code-public-util-sect-7-303.html.
[52] Maryland Code, Public Utilities § 7-304.1. https://codes.findlaw.com/md/public-utilities/md-code-public-util-sect-7-304-1.html.
[53] Code of Maryland Regulations Title 20 Public Service Commission, Subtitle 25 Electric and Gas Submeters, Chapter 20.25.01 General Regulations. http://mdrules.elaws.us/comar/20.25.01.01.
[54] Montgomery County Code of County Regulations Chapter 29.00.01 Ratio Utility Billing System. http://montgomeryco-md.elaws.us/code/core_ch29_29.00.01.
[55] Howard County Bureau of Utilities Water Only Submetering Policy. https://www.howardcountymd.gov/Departments/Public-Works/Bureau-Of-Utilities/Water-Meter-Division/Bureau-of-Utilities-Water-Only-Submetering-Policy.

State	Utility Eligible for Submetering				Description/Sources
	Electricity	Natural Gas	Water Wastewater	Other	
					7) **Washington Suburban Sanitary Commission Residential Submetering Policy and Billing.**[56] Water and sewerage submetering and bill calculation for Washington Suburban Sanitary Commission Territory. 8) **Maryland Code, Education § 9.5-503.**[57] Childcare centers' "required space" needs to have submetered utilities. 9) **Maryland Code, Housing and Community Development § 4-901.**[58] Regular Rehabilitation Projects include providing utility submetering in residential rentals.
PA	Y (Except Where Locally Determined—1) (3)	Y	Y (4,5,6)		"Landlords and property managers in Pennsylvania are not subject to the regulations of the Public Utility Commission but only if the landlord does not make any profits from being a utility reseller. "The use of master metering (RUBS) and submetering is allowed for water, sewer, natural gas, and electricity billing."[59] 1) **Borough of Quakertown, PA Municipal Code Part 8 §824 Submetering.**[60] Submetering is expressly prohibited. 2) **Pennsylvania Code § 32.25(d)(4)(iii).** Refers to situations where sales tax is and is not applied to a reseller of a utility. 3) **PPL Electric Utilities, Rules for Electric Service.** Permits electrical submetering. 4) **Pittsburgh Water & Sewer Authority, Procedures Manual for Developers.** 5) **Chapter 6—Domestic Water Service 6.5.** Water submetering is the responsibility of the building owner. 6) **Philadelphia Regulations, Chapter 4 Water 01.5.** Property owners may install submeters to measure water for their purposes.
VA	Y (1,2,3,4,5,6,7)	Y (1,2,3,4,5,6,7)	Y (6,7)		"The owners of multifamily dwellings may install submetering equipment or use master metering (RUBS) to allocate the cost of utilities to the residents and charge them additional administration fees for the collection and processing of the payments. The terms of the agreement have to be clearly stated in the rental contract or lease agreement. There is a cap on late fees that may be

[56] Washington Suburban Sanitary Commission Residential Submetering Policy and Billing. https://www.wsscwater.com/customer-service/rates/submeter.html.
[57] Maryland Code, Education § 9.5-503. https://codes.findlaw.com/md/education/md-code-educ-sect-9-5-503.html.
[58] Maryland Code, Housing and Community Development § 4-901. https://codes.findlaw.com/md/housing-and-community-development/md-code-hous-and-cmty-dev-sect-4-901.html.
[59] Banyan Utility. 2024. Pennsylvania. https://banyanutility.com/state-directory/pennsylvania/.
[60] Borough of Quakertown, PA Municipal Code Part 8 $824 Submetering. https://ecode360.com/31568241.

State	Utility Eligible for Submetering				Description/Sources
	Electricity	Natural Gas	Water Wastewater	Other	
					charged. The companies engaged in installing the metering equipment have to be certified by the Department of Professional and Occupational Regulation."[61] 1) **Virginia Administrative Code Chapter 305. Rules for Electricity and Natural Gas Submetering and for Energy Allocation Equipment 20VAC5-305-10. Definitions.**[62] Definitions for submetering and submetering equipment. 2) **Virginia Administrative Code Chapter 305. Rules for Electricity and Natural Gas Submetering and for Energy Allocation Equipment 20VAC5-305-20. General Requirements.** Submetering can only be used if all units utilize submetering and it is included in the rental or lease agreement. No restriction for mixed-use buildings so long as each use has a submeter. 3) **Virginia Administrative Code Chapter 305. Rules for Electricity and Natural Gas Submetering and for Energy Allocation Equipment 20VAC5-305-40. Submetering.** When submeters are installed, all charges for electricity or natural gas used, except the allowed service charge, shall be calculated from the readings of such submeters. 4) **Virginia Administrative Code Chapter 305. Rules for Electricity and Natural Gas Submetering and for Energy Allocation Equipment 20VAC5-305-90. Billing for apartment houses, office buildings, and shopping centers.** 5) **Virginia Administrative Code Chapter 305. Rules for Electricity and Natural Gas Submetering and for Energy Allocation Equipment 20VAC5-305-100. Billing for campgrounds.** 6) **Code of Virginia Title 56 Chapter 10 § 56-245.2. Definitions.**[63] Definitions for submetering and energy allocation equipment. 7) **Code of Virginia Title 55.1 Chapter 12 § 55.1-1212 (Effective October 1, 2019). Energy submetering, energy allocation equipment, sewer and water submetering equipment, and ratio utility billing systems; local government fees.**[64]

[61] Banyan Utility. 2024. Virginia. https://banyanutility.com/state-directory/virginia/.
[62] VA Administrative Code Chapter 305. Rules for Electricity and Natural Gas Submetering and for Energy Allocation Equipment. https://law.lis.virginia.gov/admincodeexpand/title20/agency5/chapter305/.
[63] Code of Virginia Title 56 Chapter 10 § 56-245.2. Definitions. https://law.lis.virginia.gov/vacode/56-245.2/.
[64] Code of Virginia Title 55.1 Chapter 12 § 55.1-1212 (effective October 1, 2019). Energy submetering, energy allocation equipment, sewer and water submetering equipment, and ratio utility billing systems; local government fees. https://law.lis.virginia.gov/vacode/55.1-1212/.

State	Utility Eligible for Submetering				Description/Sources
	Electricity	Natural Gas	Water Wastewater	Other	
WV	Y (1)	Y (1)	Y (1)		"In West Virginia, allocation of utility costs from the landlords to the tenants is allowed. The use of master metering (RUBS) or submetering to bill tenants for utilities is not prohibited."[65] 1) **West Virginia Code ARTICLE 6A. RESIDENTIAL RENTAL SECURITY DEPOSITS. §37-6A-1. Definitions.**[66] If the rental agreement so provides, a landlord may use submetering equipment, energy allocation equipment, or a ratio utility billing system. 2) **Potomac Edison Company, Rates and Rules & Regulations for Electric Service in Certain Counties in West Virginia, 19.** Master Metering, Multi-unit residential buildings constructed after 1982 must be individually metered unless an exemption is deemed proper. Submetering is not permitted.

[65] Banyan Utility. 2024. West Virgina. https://banyanutility.com/state-directory/west-virginia-utility-regulations/.
[66] West Virginia Code Article 6a. Residential Rental Security Deposits. §37-6A-1. Definitions. http://www.wvlegislature.gov/wvcode/ChapterEntire.cfm?chap=37&art=6A&section=1.

Region 4

State	Utility Eligible for Submetering				Description/Sources
	Electricity	Natural Gas	Water Wastewater	Other	
AL	Y (3,4,5) (Multi-Building Condominiums /Mobile Homes)	N	Y (1)	Y (2)	"The Utility Services Division of the Alabama Public Service Commission is responsible for the regulation of natural gas utilities, wireline telecommunications, and private water and wastewater utilities. The Utility Services Division consists of an Economic Compliance Group and a Service Compliance Group. The Service Compliance Group includes the Telecom Services Section and the Consumer Services Section. The Consumer Services Section is responsible for consumer inquiries and complaints regarding electric service, natural gas, and water and sewer services. The Alabama Public Service Commission does **not** regulate property owners who do utility billing for their tenants, including electricity, gas, and trash billing, using submeters or ratio utility billing systems (RUBS)."[67] The state of Alabama requires any utility with 100 or more customers to sell water based on metered volume. The only exceptions are temporary service, water used for street sprinkling and sewer flushing (certain conditions apply), water used for public and private fire protection, and any other flat-rate arrangement that the commission has approved. All meters used by any utility in the state must meet the standards for cold water meters as set forth by the American Water Works Association. 1) **Alabama Public Service Commission Water Rules W-13.**[68] Generally, requires all water sold by a utility with 100 or more customers to be based on metered volume sales. The rule allows utilities to provide a flat rate or estimated service for temporary service where the water use can be readily estimated, for public and private fire protection, and for street sprinkling and sewer flushing under certain circumstances. Other flat-rate service arrangements must be approved by the commission.[69] 2) **General Rules of the Alabama Public Service Commission: Meter Rentals (Rule 7).**[70] No rental shall be charged by any utility for any meter installed by it which is used by the utility as the basis for rendering its bills, except where such additional meter is furnished by utility at the request of the customers for submetering or for convenience of

[67] Banyan Utility. 2024. Alabama. https://banyanutility.com/state-directory/alabama/.
[68] Water Rules of the Alabama Public Service Commission W-13. https://psc.alabama.gov/wp-content/uploads/2021/12/WaterRules.pdf.
[69] https://www.ncsl.org/research/energy/utility-submetering.aspx.
[70] General Rules of the Alabama Public Service Commission (Rule 7). http://www.psc.alabama.gov/Administrative/GenRules_01_10_05.pdf.

State	Utility Eligible for Submetering				Description/Sources
	Electricity	Natural Gas	Water Wastewater	Other	
					the customer. Where additional meters furnished by the utility are to be used as submeters or for the convenience of the customer, a charge for such meters may be made in accordance with a schedule approved by the Commission. 3) **§ 27A:5. Form—Bylaws of multi-building, mixed-use condominiums.**[71] 6.22.6. "Rates and charges to be paid by Unit Owners shall be based on the actual cost of the energy consumed. The Condominium Board or its agent may charge the Unit Owner the actual cost of providing an electricity billing statement charged by the Managing Agent or a submetering company. The capital and repair costs of the electronic submetering equipment will not be passed on to Unit Owners as part of their charges for electrical service. The capital costs of submetering the Property have been included in the Purchase Price for each Unit. Any costs for repair of the submetering system will be treated as a Residential Common Expense of the Condominium and paid for through Residential Common Charges." 4) ***Decker* v. *Marshall*: Caselaw on electric utility submetering in mobile home parks.**[72] Precluded cooperative from selling electricity for submetering or resale, but did not preclude cooperative's policy as to mobile home park owners' metering and billing options respecting tenants, which allowed service to be billed in owner's name and owner to be responsible for collection and payment of bill for electric service to tenant. 5) ***Davidson* v. *Marshall-DeKalb Elec. Co-op.***[73] Submetering/Resale Restriction.
FL	Y (1,2) N (11, for resale, depending on municipality)	N (7) (Municipalities)	Y (3,4,5,6,8,10,12) (Municipalities)	Case Law: *Viterra Energy Servs.* v. *Gateway GP Sawgrass Mills, Inc.*, 858 So. 2d	"Many restrictions apply on the local level, but submetering practice is permitted on the state level. Using ratio utility billing systems (RUBS) and submetering are allowed by the state of Florida for electricity, gas, and water. Some restrictions are employed by different counties in Florida. "As an example, in Osceola County, Toho Water Authority is in charge of water resources. They have specific regulations prohibiting the owners of multifamily residential units from charging administrative fees as part of submetering utility billing. They also require the

[71] § 27A:5. Form—Bylaws of multi-building, mixed use condominiums, 10 Com. Real Estate Forms 3d Appendix 27A § 27A:5.
[72] Decker *v.* Marshall-DeKalb Elec. Co-op., 659 So. 2d 926 (Ala. 1995).
[73] Davidson *v.* Marshall-DeKalb Elec. Co-op., 495 So. 2d 1058 (Ala. 1986).

State	Utility Eligible for Submetering				Description/Sources
	Electricity	Natural Gas	Water Wastewater	Other	
				1208 (Fla. Dist. Ct. App. 2003) *Fla. Pub. Serv. Com* v. *Bryson*, 569 So. 2d 1253 (Fla. 1990) *Falk* v. *Beard*, 614 So. 2d 1086 (Fla. 1993)	submetering systems to be approved by the Toho Water Authority and to be inspected for accuracy within the required time intervals. "In Miami-Dade County, the use of ratio utility billing systems (RUBS) is not allowed for water and electricity billing. The submetering systems have to be approved and the meters have to be tested for accuracy."[74] Although submetering is permitted in Florida, it is not required. According to the Fla. Administrative Code §25-6.049, "Where individual metering is not required and master metering is used in lieu thereof, reasonable apportionment methods, including submetering, may be used by the customer of record or the owner of such facility solely for the purpose of allocating the cost of the electricity billed by the utility." 1) **Florida Administrative Code § 25-6.049**.[75] "Where individual metering is not required and master metering is used in lieu thereof, reasonable apportionment methods, including submetering, may be used by the customer of record or the owner of such facility solely for the purpose of allocating the cost of the electricity billed by the utility."[76] 2) **2012 Legis. Bill Hist. Florida H.B. 7117.**[77] In order to fulfill the submetered data reporting requirements, agencies will be required to install submeters for total building electrical consumption and demand at all state-owned and metered state-leased facilities larger than 5,000 net square feet. Where a building has particularly large energy consuming systems such as heating, ventilation & air conditioning (HVAC) or water heaters, additional submetering requirements may apply. This plan also outlines acceptable submetering schemes for all types of energy-consuming systems found in state buildings. 3) **Fort Myers Beach, Florida, Code of Ordinances § 30-24 (g).**[78] This category of service is available where submetering or separate metering is desired or needed. This type of service must be approved by the town manager or designee. Submeters are for

[74] Banyan Utility. 2024. Florida. https://banyanutility.com/state-directory/florida/.
[75] https://www.flrules.org/gateway/RuleNo.asp?title=ELECTRIC%20SERVICE%20BY%20ELECTRIC%20PUBLIC%20UTILITIES&ID=25-6.049.
[76] https://www.ncsl.org/research/energy/utility-submetering.aspx.
[77] 2012 Legis. Bill Hist. FL H.B. 7117.
[78] Fort Myers Beach, Florida Code of Ordinances Sec. 30-24.

State	Utility Eligible for Submetering				Description/Sources
	Electricity	Natural Gas	Water Wastewater	Other	
					customers' benefit only, and only actual charges for service may be billed to the submetered properties. No administrative costs or other charges may be added by the owner. The town does not maintain, read, or otherwise utilize submeter information for billing purposes. 4) **Panama City Beach, Florida, Code of Ordinances § 23-14 (3).**[79] The City Manager is authorized and directed to grant a franchise to submeter and resell potable water service, or potable water and sewer service if available, to each landlord or nonprofit entity meeting the requirements of Section 23-32(a) who shall supply and update annually such information as the City Manager may require in order to determine that such requirements are being met. 5) **Fort Myers, Florida, Code of Ordinances § 90-2 (c) (2).**[80] The owner of the building or development may only bill to tenants the actual charges of water and sewer service, plus sales tax, to the building or development, as billed to the owner by the city. The owner may add no administrative costs or other charges. Any owner engaging in submetering shall provide to the utility billing department a detailed description of the methods used in submetering, demonstrating the charges to the consumers do not exceed rates charged by the city. 6) **Hernando County, Florida, Code of Ordinances § 28-238 (b) (1-3).**[81] Up to a total of four (4) residential units shall be considered a separate unit for payment of water and sanitary sewer fees and charges, and separate connections (water and/or sanitary sewer), and water meters shall be required for each unit. 7) If a landlord or condominium association with a master meter chooses to submeter individual units within a multi-unit complex, whether residential or commercial, such landlord or condominium association shall not be considered a utility subject to regulation by the county if the landlord or association provides service solely to its own tenants or unit owners without specific compensation for such utility service.

[79] Panama City Beach, Florida Code of Ordinances Sec. 23-14.
[80] Fort Myers, Florida Code of Ordinances Sec. 90-2.
[81] Hernando County, Florida Code of Ordinances Sec. 28-238.

State	Utility Eligible for Submetering				Description/Sources
	Electricity	Natural Gas	Water Wastewater	Other	
					8) The department may require a submetering agreement defining ownership and responsibility for maintenance of any lines between the point of connection and any submeters as a condition for department approval of plans for development. 9) **Chattahoochee, Florida, Code of Ordinances § 60-1.**[82] Resale of natural gas is prohibited, even by means of submetering. 10) **Altamonte Springs, Florida, Code of Ordinances § 26-91.**[83] a. Multifamily subdivisions and condominium complexes shall be master metered at the public right-of-way or public utility easement. b. Commercial development shall have a master meter serving each lot or developable building site. The master meter shall be located at the public right-of-way or public utility easement. On-site water systems downstream of and served by a master meter assembly shall be maintained by the homeowners association, owner's association, or the property owner. The installation, operation, maintenance and reading of submeters shall be the responsibility of the property owner or established association. 11) **Chattahoochee, Florida, Code of Ordinances § 59-1.** Resale of electrical current prohibited. 12) **Code of Ordinances City of West Palm Beach, Florida, § 90-31.** Water submetering permitted provided charges are not above cost.
GA	Y (Municipalities) Depending on the municipality, the resale of electrical	N	Y (1,2) Master meters—Municipalities control master meter regulations for mobile home	Georgia utilizes master meters often, which involves using the same meter for multiple occupancies on a multi-unit	"The current laws and regulations in Georgia allow submetering and ratio utility billing systems (RUBS) for all utilities. The owners of multifamily residential units could install meters to measure the utility consumption in each housing unit and bill the residents accordingly. The owners could also charge reasonable fees for installing, maintaining, and billing of the metering systems. The only restriction is that the terms of the charges should be disclosed to the tenants prior to the establishment of a lease contract." [84]

[82] Chattahoochee, Florida Code of Ordinances Sec. 60-1.
[83] Altamonte Springs, Florida Code of Ordinances Sec. 26-91.
[84] Banyan Utility. 2024. Georgia. https://banyanutility.com/state-directory/georgia/.

State	Utility Eligible for Submetering				Description/Sources
	Electricity	Natural Gas	Water Wastewater	Other	
	current is prohibited.		parks often (installed by the county), multi-residential buildings	property or businesses. RUBS are used for electricity, natural gas, sewer, and water (although how they are regulated is based on the municipality). Many municipal statutes are available for master metering regulations.	Under the 2010 Water Stewardship Act, all new multi-unit residential buildings and certain retail and light industrial buildings in the state of Georgia that were granted a construction permit after July 1, 2012, are required to install submeters. All tenants in buildings that were built after this date must be charged for water and wastewater use based on their measured usage. Although not required, the act also encourages property owners of existing multi-unit buildings to install and start using submeters. 1) **2010 Water Stewardship Act.**[85] Requires submetering of each new multi-unit building and certain retail and light industrial buildings. Tenants must be charged for water and wastewater based on their usage. Encourages but does not require the installation of submeters in existing multi-unit buildings. 2) **16 Southeast Transaction Guide § 305.03 (2019).** Master meter—relationship to condominiums. 3) **Georgia.** Comp. R. & Regs. r. 391-3-5-.02 (Lexis Advance through Rules and Regulations Filed through January 24, 2020). Definitions. 4) Relevant Municipal Documents (ordinances/definitions) **5) Atlanta, Georgia, Code of Ordinances § 8-2002.** **6) Atlanta, Georgia, Code of Ordinances § 154-115.** **7) Effingham County, Georgia Code of Ordinances § 5.4.** **8) Palmetto, Georgia, Code of Ordinances § 6-31.** **9) Roswell, Georgia, Code of Ordinances § 24.5.9.1.** 10) **Wayne County, Georgia Code of Ordinances § 32-111.**
KY	N	N	Y (1)	Related caselaw: *Dennis Anderson Park*	"According to the Kentucky Public Utility Commission rules, landlords who are not making a profit from billing their tenants are not considered a public utility and are exempt from their rules.

[85] 2010 Water Stewardship Act. http://www.legis.ga.gov/Legislation/20092010/103008.pdf.

State	Utility Eligible for Submetering				Description/Sources
	Electricity	Natural Gas	Water Wastewater	Other	
				Lake Apartments, LLC v. *Louisville & Jefferson Cty. Metro. Sewer Dist.*, No. 2012-CA-000288-MR, 2014 Ky. App. Unpub. LEXIS 822 (Ct. App. Oct. 17, 2014)	"The landlords are permitted the use of ratio utility billing systems (RUBS) and submetering for electricity and natural gas. The property managers are also allowed to charge the tenants for trash. Water billing is also allowed, and the owners may charge reasonable fees provided all rates and terms are disclosed in the rental agreement."[86] **401 KAR 8:020. Public and semipublic water systems; submetering; general provisions.** [87] A property using a submeter in this context will not be considered a public water system and will not be regulated by the Kentucky Public Service Commission. Landlords may only charge tenants for actual water usage as measured by the submeter.
MS	N	N	Y (1,2)		"Regulating utilities, including electric, gas, water, and sewer, is the responsibility of the Mississippi Public Service Commission (MPSC). "Using submetering for water billing is allowed but not the use of the ratio utility billing system (RUBS). The tenants may be charged for water and sewer separately. "The use of a submetering system for billing has to be disclosed to the tenants, and a written acknowledgment has to be obtained from them." [88] 1) **Mississippi Code. Ann. § 77-3-97.**[89] A multi-unit building owner or manager may provide for submetering of each dwelling or rental unit in order to measure the water usage. If submetering is utilized, tenants may be charged separately for water and wastewater usage. Each owner/manager must disclose the use of submetering to each tenant in a written document. 2) **2002 Mississippi ALS 513, 2002 Mississippi Laws 513, 2002 Mississippi S.B. 2797.** An act to promote the conservation of water resources through the authorization of

[86] Banyan Utility. 2024. Kentucky. https://banyanutility.com/state-directory/kentucky/.
[87] 401 Ky. Admin. Regs. 8:020.
[88] Banyan Utility. 2024. Mississippi. https://banyanutility.com/state-directory/mississippi/.
[89] Miss. Code. Ann. § 77-3-97 (West). https://www.ncsl.org/research/energy/utility-submetering.aspx.

State	Utility Eligible for Submetering				Description/Sources
	Electricity	Natural Gas	Water Wastewater	Other	
					submetering of water and wastewater services being provided to residents of multi-unit dwellings.
NC	Y (6)	Y (2,6)	Y (3,6)		"Utility billing using a master metering (RUBS) system is not allowed in North Carolina. The residential rental units must have a separate submeter that measures the actual utility usage of the residents. This requirement is true for water, sewer, electricity, and natural gas billing systems implemented by the rental unit owners or their agents. A maximum administration fee of $3.75 per month could be applied for water billing if it is approved by the Utilities Commission."[90] 1) **Article 9E. Master Electrical and Natural Gas Meters Prohibited. § 143-151.42. Prohibition of master meters for electric and natural gas service.**[91] "[I]t shall be unlawful for any new residential building, as hereinafter defined, to be served by a master meter for electric service or natural gas service. Each individual dwelling unit shall have individual electric service with a separate electric meter and, if it has natural gas, individual natural gas service with a separate natural gas meter, which service and meters shall be in the name of the tenant or other occupant of said apartment or other dwelling unit. No electric supplier or natural gas supplier, whether regulated public utility or municipal corporation or electric membership corporation supplying said utility service, shall connect any residential building for electric service or natural gas service through a master meter, and said electric or natural gas supplier shall serve each said apartment or dwelling unit by separate service and separate meter and shall bill and charge each individual occupant of said separate apartment or dwelling unit for said electric or natural gas service." 2) **North Carolina G.S.A. § 62-50 § 62-50. Safety standards for gas pipeline facilities.**[92] Regulatory authority for gas/natural gas brought to mobile home parks/condos/multi-unit dwellings and measured on a submeter.

[90] Banyan Utility. 2024. North Carolina. https://banyanutility.com/state-directory/northcarolina/.
[91] https://www.ncleg.net/EnactedLegislation/Statutes/HTML/BySection/Chapter_143/GS_143-151.42.html.
[92] N.C. Gen. Stat. Ann. § 62-110.

State	Utility Eligible for Submetering				Description/Sources
	Electricity	Natural Gas	Water Wastewater	Other	
					3) **§ 62-110 (g). Certificate of convenience and necessity.**[93] Billing procedures for water usage in multi-unit dwellings. A lessor shall not utilize a ratio utility billing system or other allocation billing system that does not rely on individually submetered hot water usage to determine the allocation of water and sewer costs. 4) **North Carolina Gen. Stat. Ann. § 130A-315 (d).**[94] **"**Water quality regulations…When a person that receives water from a public water system is authorized by the Utilities Commission, pursuant to G.S. 62-110(g), to charge for the costs of providing water or sewer service, that person shall not be subject to regulation under this Article solely as a result of submetering and billing for water service. The supplying water system shall perform the same level of monitoring, analysis, and record keeping that the supplying system would perform if the providing water system had not been authorized to charge for the costs of providing water or sewer service pursuant to G.S. 62-110(g)." 5) **20 North Carolina Index 4th Landlord and Tenant § 68.**[95] Please see for links to applicable statutes. 6) **North Carolina Gen. Stat. Ann. § 42-42.1.**[96] Allows landlords to bill via submetered quantities in an effort to promote conservation. Places limitation on ability of landlord to shut off utilities for nonpayment purposes.
SC	N (4)	N (4)	Y (1,2) (Municipalities)	Many municipal codes exist regulating the use of master meters for water and wastewater. (3)	"The Public Service Commission in South Carolina has ruled that the Office of Regulatory Staff is not involved in setting rates charged for utilities by the landlord resellers. According to the rules, tenants and landlords may include any legal terms in the rental contract, including the utility charges, if both sides are in agreement."[97] 1) **York, South Carolina, Code of Ordinances § 44-89.** All water service shall be rendered on a metered basis (except for private hydrants and sprinklers). Mobile home park owners may contract with the city to connect each home to the line within the park.

[93] N.C. Gen. Stat. Ann. § 62-110.
[94] N.C. Gen. Stat. Ann. § 130A-315.
[95] 20 N.C. Index 4th Landlord and Tenant § 68.
[96] N.C. Gen. Stat. Ann. § 42-42.1.
[97] Banyan Utility. 2024. South Carolina. https://banyanutility.com/state-directory/southcarolina/.

State	Utility Eligible for Submetering				Description/Sources
	Electricity	Natural Gas	Water Wastewater	Other	
					The city will handle the master meter readings and billing; the mobile home park owners will maintain the master meters.[98] 2) **Batesburg-Leesville, South Carolina, Code of Ordinances § 8-2.**[99] Mobile home parks intended to supply rental dwellings will be equipped with a master meter. Mobile home parks in which each dwelling is intended for individual ownership shall be provided with individual meters at each property. Mobile home parks that change primarily from individual ownership to rentals will be required to install a master meter. 3) **Submeter.com/submetering-in-south-carolina.**[100] Submetering in South Carolina requires knowledge of the state utility management rules. Although submetering for gas and electric is not regulated, water is. In addition, the resident's lease must allow for utility billing. **South Carolina Code of Regulations, Chapter 103, 103–327. Master Metering.** New apartments must be directly metered, with some exceptions.
TN	N (1)	N (1)	Y (2,3,4,5)	Current legislation in progress—established to reach energy use objectives on new construction. (1)	"The state of Tennessee provides one of the most tolerant sets of rules when it comes to billing tenants for utility services. Submetering and master metering (RUBS) are allowed and not regulated."[101] 1) **2019 Bill Text Tennessee H.B. 2570.**[102] Provide for an independent measurement and verification audit of measured energy use every twelve (12) months following the occupancy of the building. 2) **1999 Bill Text Tennessee H.B. 3159.**[103] Multi-unit dwelling owners may not charge individual units separately for each dwelling's water consumption unless each unit has its own, provided submetering unit.

[98] York, South Carolina Code of Ordinances Sec. 44-89.
[99] Batesburg-Leesville, South Carolina Code of Ordinances Sec. 8-2.
[100] NES. 2023. Submetering in South Carolina. https://www.submeter.com/submetering-in-south-carolina/.
[101] Banyan Utility. 2024. Tennessee. https://banyanutility.com/state-directory/tennessee/.
[102] 2019 Bill Text TN H.B. 2570.
[103] 1999 Bill Text TN H.B. 3159.

State	Utility Eligible for Submetering				Description/Sources
	Electricity	Natural Gas	Water Wastewater	Other	
				Municipalities have also enacted legislation regulating water and stormwater meters. **Clarksville, Tennessee Code of Ordinances § 13-309** **Memphis, Tennessee Code of Ordinances § 9-76-19** **Millersville, Tennessee Code of Ordinances § 19-127**	3) **2001 Bill Text Tennessee H.B. 566.**[104] Every master meter customer is responsible for maintenance and repair of its submeter facilities that are separate from the master meter. Every water utility shall have the right to refuse to provide service to submetered facilities. Every water utility offering service to submetered facilities shall have the right to establish and collect such fees and charges as it determines proper for such services. 4) **2003 Bill Text Tennessee S.B. 768; same as 2003; Bill Text Tennessee H.B. 794**.[105] Submetering regulations and billing for water and wastewater (includes definitions). 5) **2008 Tennessee Regulation Text 10515.**[106] Regulation—specific monitorization of water contamination levels provided through master meters. 6) **Tennessee Compiled Rules & Regulations, Chapter 1220, 1220-04-04-.07 Disposition of Electricity (2) Master Metering.** Direct metering required in new apartment construction or renovations that require rewiring except for electricity for central heating, ventilation, and AC. Does not apply to hotels, campgrounds, hospitals, or dormitories. **Relevant Caselaw:** *Bd. of Waterworks of Baxter* v. *Smith Util. Dist. of Smith Cty.*, No. 86-324-II, 1987 Tenn. App. LEXIS 2543 (Ct. App. Mar. 6, 1987).

[104] 2001 Bill Text TN H.B. 566.
[105] 2003 Bill Text TN S.B. 768; same as 2003; Bill Text TN H.B. 794.
[106] 2008 TN Regulation Text 10515.

Region 5

State	Utility Eligible for Submetering				Description/Sources
	Electricity	Natural Gas	Water Wastewater	Other	
IL	Y			(1,2)	"The use of ratio utility billing systems is allowed for billing the tenants of a multifamily housing unit in Illinois. The landlord is required to provide the tenants with a copy of the formula that is used to calculate the allocated utility payments between the residents of the community. This information shall be provided to the tenants before demanding payments for the utilities. The main emphasis is on disclosure of the information. "The owners are not allowed to charge more than the total amount they are being charged by the public utilities. The tenants could request a copy of the public utility bill from the landlord for their records."[107] 1) **83 Illinois Administrative Code 280.** General rules and regulations on metering gas, electric, water, and sewer. Does not explicitly discuss submetering. a. Summary: https://www.icc.illinois.gov/consumer/education/rules.aspx. 2) **Illinois Statutes Chapter 765. Property § 1.2** prohibits switching "from landlord-paid master metered utilities to tenant-paid individually metered utilities or from landlord-paid to tenant-paid utilities" during a lease term.
IN	Y (1)	N	Y (2,3)		"The responsibility of regulating different utilities rests upon the Indiana Utility Regulatory Commission (IURC). Although the use of master metered (RUBS) public utility services are not prohibited, the Indiana Utility Regulatory Commission is favoring the use of submetering systems. "The landlord may charge fees for the billing of water and sewer, including a set-up fee, an administration fee of no more than $4/month, and a returned check fee. The utility bill should contain an itemized list of fees, a description of services, and a disclosure regarding the tenant's right to file a complaint with the Indiana Utility Regulatory Commission about excessive charges. Charging fees are not allowed for electricity billing. "In the state of Indiana, submetering equipment may be installed in individual units of rented or leased units in a building or in individual units of a building

[107] Banyan Utility. 2024. Illinois. https://banyanutility.com/state-directory/illinois/.

State	Utility Eligible for Submetering				Description/Sources
	Electricity	Natural Gas	Water Wastewater	Other	
					exempt from commission rules on master metering to fairly allocate the cost of each unit's electrical consumption."[108] 1) **Indiana Code § 8-1-2-36.5.** Lays out rules on submetering installation and billing for electricity. 2) **Indiana Code 8-1-2-1.2.** Regulations on water submetering. 3) **Indiana Administrative Code 170 IAC Article 15.** Regulations on water submetering. a. Factsheet: https://iaaonline.net/wp-content/uploads/2019/01/Utility-Sub-Billilng-FAQs-from-IURC.pdf.
MI	Y (N—Certain Municipalities)	Y	Y	(3) Electric Submetering for Mobile Home Parks (4)	"The rules concerning utility billing are different for different parts of Michigan. The use of ratio utility billing systems (RUBS) and submetering is permitted for electricity billing. "In areas of the state that are serviced by Michigan Consolidated Gas Company, billing for natural gas is not permitted. Michigan Public Service Commission does not regulate water or sewer billing systems."[109] "With the exception of natural gas, there are no statewide rules or regulations governing the practice of utility submetering or allocation in Michigan. However, local jurisdictions may have enacted such measures."[110] 1) **Michigan Gas Utilities Corporation (provider in Western and Southern Michigan) prohibits gas submetering.**[111] 2) **DTE Gas Company Regulations.** Submetering of gas service is prohibited. 3) **Michigan Public Service Commission.** Regulates electricity and natural gas billing. 4) **Michigan Compiled Laws § 125.2328: The Mobile Home Commission Act.** Authorizes submetering for mobile home parks for electricity, fuel, and water service.

[108] Banyan Utility. 2024. Indiana. https://banyanutility.com/state-directory/indiana/.
[109] Banyan Utility. 2024. Michigan. https://banyanutility.com/state-directory/michigan/.
[110] Guardian Water & Power. 2024. Michigan Submetering—Must Read Before You Submeter in Michigan. https://www.guardianwp.com/single-post/2019/01/19/Michigan-Submetering---Must-Read-Before-You-Submeter-in-Michigan.
[111] Guardian Water & Power. 2024. Michigan Submetering—Must Read Before You Submeter in Michigan. https://www.guardianwp.com/single-post/2019/01/19/Michigan-Submetering---Must-Read-Before-You-Submeter-in-Michigan.

State	Utility Eligible for Submetering				Description/Sources
	Electricity	Natural Gas	Water Wastewater	Other	
					5) **Wisconsin Electric Power Company Rules and Regulations State of Michigan.** Where the resale of electric service exists, the company will be under no obligation to furnish or maintain meters or other facilities for the resale of service by the reselling customer to the ultimate user. The use of "master metering" will be limited to existing customers.
MN	Y (1,2), Y (5)—Utility, N (4)—Municipality	Y (1–3)	Y (1–3)	Y (6)	"There are several conditions for implementing a submetering system in Minnesota. The property owner is required to provide specific information to the tenants about the actual cost of the utility bills for the entire property. All the terms must be specified in the rental agreement as to who is responsible for making payments of the utility charges. Charging fees are allowed but under very strict rules and cannot be done to generate profits. "In the state of Minnesota, a public utility and the Public Service Commission cannot limit the availability of submetering to a building occupant when the building is served by a public utility's master meter that measures the total electric energy delivered to the building."[112] 1) **Minnesota Stat. § 216B.022.** A public utility and the Public Service Commission cannot limit electrical submetering. 2) **Minnesota Stat. § 504B.215. Requirements for submetering billing.** **3) Minnesota Statutes 325E.026. Unauthorized Use of Utility Meters and Sub-meters.** 4) **City of Detroit Lakes Electric Service Rules and Regulations.** No electric submetering of electric service is allowed. 5) Northern States Power Company. The Company permits redistribution and submetering where allowed by law, but a landlord may not charge the tenants more than the landlord is charged by the Company. 6) **Minnesota Electric Vehicles Pilots.** Permitted submetering of level 2 chargers for the residential pilots.
OH	Y (1)	Y (1)	Y (1)		"The state of Ohio allows utility billing of the rental dwellings by the landlords. However, some cities within the state prohibit the use of the ratio utility billing systems (RUBS).

[112] Banyan Utility. 2024. Minnesota. https://banyanutility.com/state-directory/minnesota.

State	Utility Eligible for Submetering				Description/Sources
	Electricity	Natural Gas	Water Wastewater	Other	
					"The rules state that a landlord could not turn the practice into a profit-generating business. The methods used for calculating the utility bills and the administration fees must be clearly defined in the rental agreement."[113] 1) Ohio Public Utilities Commission (PUCO) has supervisory authority over all public utilities and prescribes rules to protect consumers. Submetering companies fall under PUCO jurisdiction if the company fails the *Shroyer Test,* initiated by customer complaints—this follows instances in Ohio where residents were overcharged via submetering. a. Ohio Public Utilities Commission Submetering FAQ: https://www.puco.ohio.gov/be-informed/consumer-topics/submetering-frequently-asked-questions/ b. PUCO Investigation of Submetering Docket.
WI	N (1), Y (2,3)—Utility	Y	Y (2,4)		"Billing for electricity using the ratio utility billing system (RUBS) is prohibited since dwellings built after 1980 are required to have separate electrical meters installed. This stipulation would put the responsibility on the owners to disclose to the future tenants if the utility charges are not included in the rental payments. "Billing renters for natural gas, water, and sewer charges is allowed using submeters or master meters (RUBS) if the owner does not charge the tenants more than the utility companies charge the property."[114] 1) **Wisconsin Administrative Code, PSC 113.0803.** Individual electric meters are required for non-transient multi-dwelling unit residential buildings, mobile home parks, and commercial establishments—buildings constructed after 1980 shall have separate meters for each unit. 2) **Wisconsin Public Service Commission.** "Should the Utility Master Meter or Individually Meter Multiple Unit Condominiums and Apartments? Can the owner privately meter individual units?" The PSC notes that no rules or regulations prohibit submetering. 3) **Wisconsin Electric Power Company Rules and Regulations.** Requirements for submetering with permission, rates cannot exceed those filed with the Company.

[113] Banyan Utility. 2024. Ohio. https://banyanutility.com/state-directory/ohio.
[114] Banyan Utility. 2024. Wisconsin. https://banyanutility.com/state-directory/wisconsin.

State	Utility Eligible for Submetering				Description/Sources
	Electricity	Natural Gas	Water Wastewater	Other	
					4) **Public Service Commission of Wisconsin, Schedule X-1 Water Utility Operation Rules.** The owner of multi-unit buildings can provide dedicated meters to each unit and is required to provide interior plumbing and meter settings to enable individual metered service to each unit and individual disconnection without affecting service to other units. Each meter and meter connection will be treated as a separate water utility account for the purpose of the filed rules and regulations.

Region 6

State	Utility Eligible for Submetering				Description/Sources
	Electricity	Natural Gas	Water Wastewater	Other	
AR	N (1)	N (1)	Y (2,3)		"The Arkansas Public Service Commission does not regulate municipally owned utilities, public power agencies, or exempt wholesale generators. "However, the rates and services of public utilities, including electricity, natural gas, and water, are regulated."[115] 1) **General Service Rules—5.20—B. General Requirements.** States that new construction residential properties cannot install master meters or combine bills of individual customers, with some exceptions if master metering does not conflict with energy efficiency goals of the Arkansas Energy Code. 2) **Policy on Regulatory Compliance for a Submetered Property Engineering Section /Arkansas Department of Health.** Describes rules regarding submetered water systems. Notes that RUBS is not considered submetering for the purposes of this policy. 3) **Central Arkansas Water Company Regulations.** Submetering of water for the purpose of reselling by a customer is prohibited. Submetered water is under the jurisdiction of the Arkansas Department of Health.
LA	Y	Y	N (1, 2, 3, 4)		"The use of ratio utility billing systems (RUBS) and submetering is not prohibited when billing residents for electricity, natural gas, and trash. The practice is not allowed for billing of water and sewer unless the provider is a municipality." [116] The Louisiana Public Service Commission has ruled that water submetering is prohibited.[117] 1) **Louisiana Public Service Commission—General Order § 901, "Submetering" and Resale of Utility Service; Prohibition.** Appears to ban water submetering unless the customer is a municipality; prohibits RUBS. 2) **Shreveport, Louisiana, Regulations.** "(a) It shall be unlawful for any person to construct, occupy, or allow to be occupied any structure in which the construction plan provides for a master meter and submetering of the water consumption of one or more owners or tenants unless the plan has been approved by the director. (b) It shall be unlawful for any person to connect to a house line for a separate property or multiple properties with the intent to re-sell water which has passed through their water meter without prior authorization from the department."

[115] Banyan Utility. 2024. Arkansas. https://banyanutility.com/state-directory/arkansas.
[116] Banyan Utility. 2024. Louisiana. https://banyanutility.com/state-directory/louisiana.
[117] Banyan Utility. 2024. Louisiana. https://banyanutility.com/state-directory/louisiana.

State	Utility Eligible for Submetering				Description/Sources
	Electricity	Natural Gas	Water Wastewater	Other	
					3) **Ruston, Louisiana, Code of Ordinances Chapter 27-126 Residential Rate Schedule.** Service under residential rates shall not be resold, submetered, used for standby, or shared with others. 4) **Louisiana Public Service Commission Guidelines and Requirements for Water and Wastewater Utilities.** No submetering is permitted unless the customer is a municipality or public utility. 5) **City of New Orleans Article II § 30-64 e.** Implies electric submetered service is an option.
NM	Y (1)	Y (1)	Y (1), N—Rio Rancho (3)	(4)	"The owners and property managers are allowed to use submetering and ratio utility billing systems (RUBS) to bill tenants for the utilities. The Public Regulation Commission does not regulate this practice. "The only restriction is that the property managers have to provide the residents with a copy of the master utility bills if requested. The owners are responsible for the utility costs for the common areas and vacant units. The monthly service fees could not exceed $5.00 per billing cycle. These rules apply to water, sewer, natural gas, trash, and electricity billing."[118] 1) **New Mexico Statutes—Chapter 47—Property Law, 47-8-20 Obligations of Owner—Part F.** Residents in direct and submetered units are entitled to receive copies of utility bills upon request. When common area charges are apportioned between units, residents are to be provided calculations upon request. Owners cannot charge administrative fees of more than $5 for each month. 2) **New Mexico Office of the State Engineer—A Water Conservation Guide for Public Utilities.** Discusses benefits of water submetering. 3) **Rio Rancho Water and Wastewater Rules and Rates—Chapter 51.03.** Water service submetering is not allowed. 4) **New Mexico Administrative Code, Title 17: Public Utilities and Utility Services (17 NMAC).** General rules on utilities. 5) **City of Santa Fe 25-1: Implied submetering.** *Submeter* means a device owned by the property owner and installed for the purpose of measuring the consumption of water for individual dwelling units as set forth in Rule 18 of Exhibit A, Chapter XXV SFCC 1987.
OK	Y (1)	Y (2)	Y (3) N (4,5,6)—Municipalities		"The use of master-metered (RUBS) and submetered systems for billing the residents of a multifamily residential complex is permitted in the state of Oklahoma.

[118] Banyan Utility. 2024. New Mexico. https://banyanutility.com/state-directory/newmexico.

State	Utility Eligible for Submetering				Description/Sources
	Electricity	Natural Gas	Water Wastewater	Other	
					"The billing entity could make no more than 10% profits from the utility charges collected from the renters. The reseller's 'per unit' utility costs have to be disclosed in each invoice. "In the state of Oklahoma, residences, apartment complexes, or similar residential units and multicommercial unit complexes may be or may continue to be served with a single utility meter and consumer submeter system, if such measuring of electrical service is deemed to encourage conservation of energy; contribute to the efficient use of facilities and resources of electric utilities; and result in equitable rates to the electrical consumers affected by such meters."[119] 1) **Oklahoma Administrative Code § 165:35-13-7.** Authorizes apartment complexes and multi-commercial to submeter electricity provided they promote energy conservation and result in equitable rates. 2) **Oklahoma Administrative Code § 165:45-7-11.** Gas Measurement Requirements—(g) Service to newly-constructed multiple residences, apartment complexes, or similar residential units shall be individually metered, one meter per residence, and billed under the applicable rate schedule. (j) Except as provided in this subsection, no consumer shall separately meter or submeter and separately bill another consumer for gas. A landlord or innkeeper may include the cost of gas in rent. A landlord may utilize any formula in computing the energy component of rent, provided that component is not separately metered and billed as "gas." (k) Service to previously constructed multiple residences, apartment complexes, or similar residential units may continue to be provided with a single meter or multiple meters. At the option of the utility, individual consumers may be served with individual meters at the applicable rate schedule. 3) **TITLE 165. CORPORATION COMMISSION CHAPTER 65. WATER SERVICE UTILITIES PERMANENT RULES, 165:65-9-1.** References rules relating to recordkeeping for submetering water. 4) **Rogers County Rural Water District Rule #6.** Standard water service connection is for the sole use of the applicant or the consumer and does not permit the extension of pipes to transfer water from one property to another, resell, or submeter water to any other consumer. 5) **Pittsburg County Rural Water, Sewer, Gas and Solid Waste Management.** Service is for Sole Use of the Consumer: A standard water and waste disposal service connection is for the sole use of the applicant or the consumer and does not permit the extension of pipes to transfer water from one property to another, nor to share, resell, or submeter

[119] Banyan Utility. 2024. Oklahoma. https://banyanutility.com/state-directory/oklahoma.

State	Utility Eligible for Submetering				Description/Sources
	Electricity	Natural Gas	Water Wastewater	Other	
					water to any other consumer or allow another user to connect to the applicant's sewer line. 6) **Washington County Rural Water District.** Sole Use: A standard water service connection is for the sole use of the applicant or the consumer and does not permit the extension of pipes to transfer water from one property to another, nor to share, resell, or submeter water to any other consumer.
TX	Y (1,2,6,7)	Y (3)	Y (4,5,7)	(8)	"Texas has one of the most detailed sets of rules and regulations concerning tenant billing services by the owners. "The owners of residential dwellings may use metering or ratio utility billing systems (RUBS) for tenant billing. Additional charges and fees are not allowed under this system except for a limited amount for late fees and reconnect fees. The maximum fee amounts have a cap. The rental contract must clearly outline the charges and methods used for calculating utility bills. It is the responsibility of the management team to maintain records of the master utility bills. These records have to be available for inspection by tenants upon request. "The Texas Water Code requires each unit in a building with five or more residential units built after Jan. 1, 2003, to have either an individual water utility meter or a submeter. If feasible, it requires water companies to install individual meters in such buildings at the building owner's request. "The water company can charge reasonable costs for installing the meters. If the water company determines that installing these meters is not feasible, the law requires the property owner to install a plumbing system compatible with submeters. "The code also requires property owners to maintain adequate records and make them available to tenants and submeters to meet certain standards for accuracy, testing, and record keeping."[120] 1) **Texas Utilities Code Ann. § 184.012.** A political subdivision may not authorize the construction or occupancy of a new apartment house, including the conversion of property to a condominium, without direct metering or submetering for electricity. 2) **Title 16, Texas Administrative Code, Chapter 25, Subchapter 6—Submetering.** General rules on electrical submetering. a. **Substantive Rules Applicable to Electric Service.**

[120] Banyan Utility. 2024. Texas. https://banyanutility.com/state-directory/texas.

State	Utility Eligible for Submetering				Description/Sources
	Electricity	Natural Gas	Water Wastewater	Other	
					b. **Public Utility Commission of Texas, Utili-Facts—Submetered Utility Service for Property Owners Guide.** c. **Public Utility Commission of Texas, Utili-Facts: Submetering for Apartments, Condos and Mobile Home Parks.** 3) **Texas Utilities Code 124.02—Submetering.** Authorization for natural gas submetering for apartments and mobile home parks. 4) **Texas Water Code § 13.501 through 13.506.** Requires each unit in a building with five or more residential units built after Jan. 1, 2003, to have either an individual water utility meter or submeter. Lays out guidelines for billing. 5) **Title 16, Texas Administrative Code, Chapter 24 Subchapter I.** General rules on water submetering. a. **Public Utility Commission of Texas Water Submetering FAQ Site.** 6) **El Paso Electric Company second Revised Rule No. 19.** Describes requirements for billing submetered residents for electricity. 7) **City of Austin Chapter 15-9 Utility Service Regulations.** Regulations for submetering of electricity and water. 8) **Landlords and Tenants Guide.** Submetering guidance for landlords and tenants.

Region 7

State	Utility Eligible for Submetering				Description/Sources
	Electricity	Natural Gas	Water Wastewater	Other	
IA	Y (1)	Y (2)	N (3)		"Billing tenants for utilities is not regulated by the Iowa Utilities Board. The use of submetering and ratio utility billing system (RUBS) is allowed. The only restriction is that the landlords and property managers have to disclose the details of utility rates and charges before signing a rental agreement."[121] 1) **Iowa Code Chapter 20 Service Provided by Electric Utilities 199—20.3(476) General service requirements.** Energy saving thresholds for master metering eligibility. 2) **Iowa Code Chapter 19 Service Supplied by Gas Utilities 199—19.3(476) General service requirements.** Allowance for master metering where individual metering is impractical; cost of individual metering exceeds long-term benefits; benefits of individual metering are more effectively accomplished by master metering. 3) **Iowa Code Chapter 21 Service Provided by Water Utilities 199—21.3(476) General water service requirements. 21.3(1).** *Separate metering for premises.* Separate premises shall be separately metered and billed. Submetering shall not be permitted.
KS			Y (1,2)		"The utility regulating agency, the Kansas Corporation Commission, is only in charge of electricity and natural gas and not the water or sewer. The rental agreement needs to include who is responsible for payment of the utility charges."[122] 1) **Kansas 2019 Statutes Article 27 12-2723.** No city or public water supply system shall prohibit the installation of a separate water meter for each dwelling unit within a building containing multiple dwelling units in lieu of installation of a master meter for the entire building. 2) **Kansas Statues Chapter 58, Article 25.** Landlords and tenants—Provisions for landlords to submeter water.
MO	Y	Y	Y		"In Missouri, only investor-owned utilities are regulated by the Missouri Public Service Commission. "The use of submetering and ratio utility billing system (RUBS) is allowed for electricity and water billing. In the state of Missouri, reselling natural gas is prohibited, but charging for the exact

[121] Banyan Utility. 2024. Iowa. https://banyanutility.com/state-directory/iowa.
[122] Banyan Utility. 2024. Kansas. https://banyanutility.com/state-directory/kansas.

State	Utility Eligible for Submetering				Description/Sources
	Electricity	Natural Gas	Water Wastewater	Other	
					amount of gas used by each resident is allowed as long as the property owner is not making any profits from the billing practice."[123] 1) **Division 4240 PSC Chapter 20 Electric Utilities 20 CSR 4240-20.050.**[124] Each residential and commercial unit in a multiple-occupancy building, construction of which has begun after June 1, 1981, shall have installed a separate electric meter for each residential or commercial unit. 2) **City Utilities Service Rules and Regulations.**[125] City Utilities has adopted the Public Utility Regulatory Policy Act (PURPA) of 1978 standards (latest revision) regarding Master Metering of a Multiple Tenancy Premise. Master Metering of electric and gas Service shall be prohibited or restricted to the extent as defined in these Service Rules and Regulations and as required by the Missouri Public Service Commission (PSC) Code of State Regulations 240-40. 3) **Division 4240 Public Service Commission Chapter 40 20 CSR 4240-40.020.**[126] Master meter system means a pipeline system for distributing gas within, but not limited to, a definable area, such as a mobile home park, housing project, or apartment complex, where the operator purchases metered gas from an outside source for resale through a gas distribution pipeline system. The gas distribution pipeline system supplies the ultimate consumer, who either purchases the gas directly through a meter or by other means, for instance, by rents.
NE	N (1,2)		N (3)		"Utility billing is not regulated by the Nebraska Public Service Commission. "It is permissible to use ratio utility billing system (RUBS) or submetering to generate utility bills for multitenant dwellings. It is recommended to include the terms of occupancy in the rental contract. This should specify obligations of either party as it pertains to payment of utility bills."[127] 1) **Nebraska Power Review Board Regulations Title 12 Guidance Note.** The Board's interpretation of Nebraska law is that a violation occurs when a nonutility entity sells electricity to third parties, and the compensation paid by the third party is based on the actual amount of electricity used by the third-party customer as measured by an electric meter or other similar device. Whether the entity is making a profit from the sale of electricity is not relevant. A.

[123] Banyan Utility. 2024. Missouri. https://banyanutility.com/state-directory/missouri.
[124] Division 4240 Public Service Commission Chapter 40 20 CSR 4240-40.020. https://www.sos.mo.gov/CMSImages/AdRules/csr/current/20csr/20c4240-40.pdf.
[125] City Utilities Service Rules and Regulations. https://www.cityutilities.net/wp-content/uploads/legal-servicerules.pdf.
[126] Division 4240 Public Service Commission Chapter 40 20 CSR 4240-40.020. https://www.sos.mo.gov/CMSImages/AdRules/csr/current/20csr/20c4240-40.pdf.
[127] Banyan Utility. 2024. Nebraska. https://banyanutility.com/state-directory/nebraska.

State	Utility Eligible for Submetering				Description/Sources
	Electricity	Natural Gas	Water Wastewater	Other	
					Example: If a landlord meters or otherwise measures the consumption of electricity on the pertinent property and charges tenants an additional amount based on the actual usage, the landlord is selling electricity to third parties and is operating as an electric power supplier. This would include rental properties such as apartment complexes, duplexes, and mobile home parks.[128] 2) **Lincoln Energy Services Regulations.** Electric service purchased by a Customer is for the sole use of the Customer in and upon the premises to which such service is supplied. Customers are prohibited from reselling energy as well as rendering a bill on a metered basis to lessees, tenants, and others. Existing submetered facilities can remain as is if the end user does not pay more for electric consumption than the applicable LES rate. Violations may result in legal recourse.[129] 3) **Omaha Utility District Regulations.**[130] New submeters are prohibited. Single-Family Residential. Each individual single-family residence shall have its own meter. Submetered service from another metered line is prohibited. Water lines shall not be extended to another residence or place of business.

[128] Nebraska Power Review Board Regulations Title 12. https://powerreview.nebraska.gov/sites/powerreview.nebraska.gov/files/doc/Guidance%20Documents%20Policy%2012%20-%20%285-31-19%29_1.pdf.
[129] Lincoln Energy Services Regulations. http://www.les.com/pdf/rates/service-regulations.pdf.
[130] MUD Omaha, Water Regulations. https://www.mudomaha.com/sites/default/files/Water%20Rules%202016.pdf.

Region 8

State	Utility Eligible for Submetering				Description/Sources
	Electricity	Natural Gas	Water Wastewater	Other	
CO	Y (1,3,6,9)	Y (2) N (8)	Y—Municipalities (4,5,7,10)		"The properties that are served by a private water company are not regulated. The practices of the properties served by municipal providers are subject to specific rules and restrictions. "The Colorado Public Utilities Commission does not regulate billing systems of the property managers, mobile home parks, or condominiums as long as the total amount collected from the residents is not greater than the total utility bill for the whole complex. "When it comes to submetering programs, the state of Colorado has one of the highest penetration rates in the western region. This is in large part due to most water districts in the state raising water rates and implementing tiered rate structures. As a result, more and more property owners are opting to implement submetering and RUBS programs."[131] 1) **Code of Colorado Regulations, Rules Regulating Electric Utilities 4 CCR 723-3, 3803. Exemption Requirements.** "Check-Meters" defined as a meter or other device used to measure electric consumption by an end user. Tenants can be check-metered if it is used solely to reimburse the master meter owner by means of an appropriate allocation procedure, and the master meter owner cannot receive more funds than the actual amount billed. 2) **Code of Colorado Regulations, Rules Regulating Gas Utilities and Pipeline Operators 4 CCR 723-4, 4803. Exemption Requirements.** "Check-Meters" defined as a meter or other device used to measure gas consumption by an end user. Tenants can be check-metered if it is used solely to reimburse the master meter owner by means of an appropriate allocation procedure, and the master meter owner cannot receive more funds than the actual amount billed. 3) **Code of Colorado Regulations, 723-3-14(d).** Submetering, described as the resale of electricity by a master-metered customer, is prohibited. Check-metering is permitted provided tenants are not charged more than the cost of the service. 4) **2019 Denver Amendments to the 2018 Edition of the ICC Plumbing Code, 401.3.2 Metering.** Individual units shall be metered for water for usage to be recorded and billed. Applies to new construction. Exemption for central domestic central water heating system.

[131] Banyan Utility. 2024. Colorado. https://banyanutility.com/state-directory/colorado.

State	Utility Eligible for Submetering				Description/Sources
	Electricity	Natural Gas	Water Wastewater	Other	
					5) **Westminster, Colorado, Municipal Code, 8-7-4.—Specifications.** New developments must be submetered for water other than single-family detached or attached homes. 6) **Colorado Springs Utilities Rules and Regulations.** Submetering, for the purpose of resale of a service, by a Master Metered Customer of Utilities is prohibited. However, a Master Metered Customer may install their own check-meter. 7) **Colorado Springs Utilities Water Service Regulations.** Requirements and regulations for water submetering. 8) **City of Trinidad, Colorado, Municipal Code Gas Tariff.** Natural gas submetering is not permitted. 9) **City of Loveland Power Regulations.** Submetering is allowed, but customers will provide all equipment. 10) **City of Aurora, Colorado, Water Efficiency Plan.** Special rebates and incentives for water submetering.
MT	Y (1,2)	Y (2)	Y (2)		"The owners and property managers of the multiple occupancy buildings are allowed to use ratio utility billing system (RUBS) or submetering to generate utility bills for electricity and natural gas. The only exception is that the subscribers of Northwestern Energy are not allowed to use ratio utility billing system for the buildings that were built after 1981. "Water and trash billing is not regulated provided the fees and charges are reasonable."[132] 1) **Public Service Regulation, Chapter 38.5, Utility Division, 38.5.1602 Prohibition of Master Meters.** New buildings must have electric usage delivered to individual meters except for hotels, motels, hospitals, dormitories, and other transient lodging, or where the cost exceeds the long-run benefits. 2) **Public Service Commission Montana, Fact Sheet: Landlord Submetering.** The PSC does not consider a landlord a regulated utility in the event of submetering water, electricity, or gas, provided the landlord does not receive a profit from submetering, or that utilities are included in rent. It states that "there are no statutes or rules on this policy (except the landlord does meet the definition of public utility)."
ND	Y (1,2)	Y (2)			"Submetering and master-metering (RUBS) rental residential dwellings are permitted in the state of North Dakota when billing tenants for utilities. The rental unit owners and managers are not subject to the Public Service Commission regulations.

[132] Banyan Utility. 2024. Montana. https://banyanutility.com/state-directory/montana.å

State	Utility Eligible for Submetering				Description/Sources
	Electricity	Natural Gas	Water Wastewater	Other	
					"According to the North Dakota Administrative Code, electric service furnished by a public utility under established rate schedules shall not be resold or submetered by a customer unless the rate schedule under which the customer receives service specifically so provides."[133] 1) **North Dakota Administrative Code § 69-09-02-15, Standards of Service—Electric.** Electric service furnished by a public utility under established rate schedules shall not be resold or submetered by a customer unless the rate schedule under which the customer receives service specifically so provides. 2) **North Dakota Administrative Code § 69-09-01-11, Standards of Service—Gas.** References submeters and approved charges approved by the PSC.
SD					"Ratio utility billing system (RUBS) and submetering are not regulated by the Public Service Commission in South Dakota. Therefore, the landlords and the property managers are allowed to provide their tenants with utility billing services. "It is recommended that the terms of the rental agreement specify who is responsible for the utility charges."[134] 1) **South Dakota Administrative Rule 20:10:26:03 Individual Meter—When Required.** Individual gas or electric metering is required for new multiple-occupancy buildings and new mobile home parks and trailer courts, and in substantially remodeled or renovated buildings. 2) **South Dakota Administrative Rule 20:10:26:04 Individual Meter—When Not Required.** Provides some conditions where individual meters are not required. 3) **South Dakota Codified Laws Chapter 49-34B.** Definition of master meter systems for natural gas. 4) **Northwestern Utilities South Dakota Gas and Electric Rate Schedules.** All buildings, mobile home parks, and trailer courts for which construction was begun after June 13, 1980, shall be metered separately for each residential or commercial unit, with the exception of hospitals; nursing homes; transient hotels and motels; dormitories; campgrounds; other residential facilities. Exceptions can be granted by the Commission. 5) **City of Sioux Falls Municipal Code Chapter 10.** Procedure for securing master meter exemptions for water service.

[133] Banyan Utility. 2024. North Dakota. https://banyanutility.com/state-directory/northdakota.
[134] Banyan Utility. 2024. South Dakota. https://banyanutility.com/state-directory/southdakota.

State	Utility Eligible for Submetering				Description/Sources
	Electricity	Natural Gas	Water Wastewater	Other	
					6) **City of Belle Fourche South Dakota Municipal Code Chapter 13.08.** Water service for multi-unit buildings and campgrounds is required to be master metered
UT	Y (1)	Y (1)	Y (1)		"In Utah the regulations are lacking when it comes to owners of residential rental units billing their tenants for utilities. It may be necessary to obtain a business license from the Division of Public Utilities and be subjected to inspections. The rental contract should clearly define the responsibilities of the parties paying for the utilities."[135] 1) **Utah Administrative Code R746-210-1 Public Utility Regulatory Policy Act Standards for Master-Metered Multiple Tenancy Dwellings.** Adopts the standards of PURPA where possible. R746-210-2 lays out exceptions. 2) **Utah Administrative Code R746-210-5. Submetering as an Alternative to Individual Metering.** States that submetering is not an acceptable alternative to direct metering because submetered customers are not a regulated utility. 3) **Rocky Mountain Power Electric Service Regulation No. 7 State of Utah.** Individual metering required with some exceptions in multifamily buildings. With the exception of grandfathered accounts, submetering is not allowed.
WY					There is limited guidance on utility submetering in Wyoming. References below are not applied to the chart categories as a result. 1) **Wyoming Statutes, Title 37.** Public Utilities. 2) **Wyoming Community Development Authority, Affordable Rental Housing Compliance Manual, January 1, 2018.** Notes that the Wyoming Affordable Housing Plan does not allow submetering. 3) **Wyoming Public Service Commission Rules § 246 via Powder River Energy Regulations.** The practice of reselling a utility commodity by a person to his tenant is not permitted within the certificated area of any utility company when such practice is specifically prohibited by a tariff; no gas or electric utility shall provide master metered service to mobile home parks. 4) **Dominion Energy Natural Gas Tariff.** No submetering of natural gas to mobile home parks.

[135] Banyan Utility. 2024. Utah. https://banyanutility.com/state-directory/utah.

Region 9

State	Utility Eligible for Submetering				Description/Sources
	Electricity	Natural Gas	Water Wastewater	Other	
AZ	Y (1,2)	Y (1,2)	Y (1–4)	(5–8)	State regulations permit the submetering of electricity, natural gas, and water in multifamily buildings. A landlord who operates only in a cost recovery mode and does not charge more for services than what the utility provider charges them is not considered to be public utility by the Arizona Corporation Commission. "Arizona requires all large providers located in an Active Management Area—areas with a heavy reliance on mined groundwater—to meter all water deliveries to municipal service connections on its systems. The only exceptions are connections to construction users, dwelling units in individual multifamily units, mobile homes using master meters, and fire service connections. Providers not located within an Active Management Area are not required by the state to meter water delivery." [136] 1) **Arizona Revised Statutes Annotated § 33-1314.01.** A landlord may charge separately for gas, water, wastewater, solid waste removal, or electricity by installing a submetering system or by allocating the charges separately through a ratio utility billing system. Landlords may recover the charges by the utility provider plus an administrative fee for actual administrative costs only. No additional charges can be imposed. Rental agreements must indicate which utilities are charged separately and state the administrative fees with submetering. 2) **Arizona Revised Statutes Annotated § 33-2107.** Outlines permissible fees charged for administrative costs. 3) **Arizona Water Metering Overview.** Frequently Asked Questions concerning submetering. 4) **Sierra Vista, Arizona, Code § 151.16 (2013).** Requires all new multifamily developments with more than four units to provide submetering, with some exceptions for low-income housing units, alternate water savings approaches, and ratio utility billing systems. 5) **Arizona Administrative Code, Corporation Commission—Fixed Utilities, Title 14, Chapter 2, Article 2, R14-2-205.** Master Metering, Disallows electrical master metering in mobile home parks and apartment buildings unless under certain circumstances. 6) **Arizona Administrative Code, Corporation Commission—Fixed Utilities, Title 14, Chapter 2, Article 3, R14-2-305.** Master Metering, Disallows natural gas master metering in mobile home parks. 7) **Arizona Administrative Code, Title 14, Chapter 2, Article 4, § R14-2-408.** The Arizona Corporation Commission's Rules on Water requires all water delivered by a regulated water utility to be billed on the basis of metered volume sales.

[136] Banyan Utility. 2024. Arizona. https://banyanutility.com/state-directory/arizona.

State	Utility Eligible for Submetering				Description/Sources
	Electricity	Natural Gas	Water Wastewater	Other	
					8) **Arizona Corporation Commission—Commission Rules on Wastewater.** Overall wastewater rules for Arizona.
CA	Y (1–5)	Y (1–5)	Y (6,7)	(8–19)	State regulations permit the submetering of electricity, natural gas, and water in multifamily buildings. California submetering regulations specify the types of meters to be installed, licensing of installers, and allowable fees. As of January 1, 2018, California State Senate Bill 7 (SB 7) required water submetering in all new-construction multifamily dwellings. The goal of SB 7 is to hold tenants accountable for water usage and encourage conservation while providing consumer protection. Further water rulemaking is possible as long as any new rules are at least as stringent as what is in the new code section. (See Article 5. § 537.3 (c) of SB7 regarding Multiunit Structures.) 1) **California SB 7 Law.** Requires new multifamily construction after 1/1/19 to be submetered. Lays out guidelines on technical standards and utility billing standards. 2) **California Civil Code § 798.40.** Requirements for utility submetering systems regarding billing periods, posting of rates, and relevant contact information. 3) **California Public Utilities Code § 739.5.** Requires the master-meter customer to charge submetered users the same rate as that from the utility. Requires the corporation furnishing service to the master-meter customer to establish uniform rates that will provide a sufficient differential to cover the reasonable average costs to master-meter customers of providing submeter service. These costs shall not exceed the average cost that the corporation would have incurred in providing comparable services directly to the users of the service. 4) **California Business and Professions Code § 12240.** Requirements for submetering fees for marinas, mobile home parks, recreational vehicle parks, and apartment complexes. 5) **California Public Utilities Code 12821.5.** Master-meter customer is responsible for maintenance of submetering system and must provide itemized bills to customers. 6) **California Water Code, § 525 through § 527.** California has generally required utility water meters for all new water service connections installed since 1992. Over time, this requirement has extended to all existing water service connections; some urban water suppliers have until Jan. 1, 2025, to comply. Charges for any customer with a metered connection must be based on the actual volume of water delivered, as measured by the water meter. Allows the water companies to recover their related costs through rates, fees, or charges. 7) **California Public Utilities Code 2705.5.** Administrators of a water submetering system are not subject to public utility regulations provided that water is charged at the same rate as provided by the utility.

State	Utility Eligible for Submetering				Description/Sources
	Electricity	Natural Gas	Water Wastewater	Other	
					8) **San Diego Water Submetering Ordinance.** Requires water submeters in new multifamily buildings when replacing interior piping. Provides certain exemptions and lays out requirements on fees. 9) **San Francisco Water Submetering Frequently Asked Questions.** 10) **City of Santa Barbara Water Ordinance Report.** Regulations for private submetering. 11) **MeterNet—Guide to Water Sub-meters in California.** Overview of rebates and requirements for various water districts. Various Small Cities & Water Districts require prior approval to install submeters. 12) **California Division of Measurement Standards Title 4 Division 9 Field Reference Manual.** Submeter specifications and testing procedures. 13) **PG&E Gas Rule 18: Supply to Separate Premises and Submetering of Electric Energy.** 14) **California Water Code—Division 1—Chapter 8—ARTICLE 5. Multiunit Structures—§ 537.** Owners of multi-unit buildings shall install water meters. 15) **Corona Municipal Code, Title 13.** Requirements for separate water service. 16) **San Diego Gas & Electric Company Tariff, Rule 24, § (B)(1)(d).** Gas submetering for select customers. 17) **Richmond Fair Rent Ordinance.** Individual metering for water. 18) **Regulations for Chapter 17.23 Including Apartment Rent Ordinance.** San Jose City Council voted to require utility charges to be included in the rent charged for rent-stabilized apartments under a ratio utility billing system. 19) **San Diego Municipal Code, Chapter 14.** Water submeters required for new construction.
HI	Y (1)	Y (1)	Y (1)	(2,3)	State regulations permit the submetering of electricity, natural gas, and water in multifamily buildings. Submetering is allowed provided the owners do not profit from billing the tenants for utilities. 1) **Administrative Rules Chapter 6-60-5.** Defines master metering as service to multifamily accommodations through one meter on a single premise where individual tenants are not submetered. Requires individual metering of utilities in newly constructed apartments. 2) **Honolulu Water Submetering.** Guidelines for residential and irrigation water submetering. 3) **Hawai'i Energy Submetering Incentive Program.** Hawai'i Energy submetering eligibility requirements.
NV	Y (1)	Y (1)	Y (1)	(2–6)	State regulations concerning the submetering of electricity, natural gas, and water in multifamily buildings could not be located. Landlord-tenant laws imply submetering as a possibility.

State	Utility Eligible for Submetering				Description/Sources
	Electricity	Natural Gas	Water Wastewater	Other	
					Based on discussions with PUC staff, in the absence of specific state laws specifically discussing submetering, Nevada tacitly allows the submetering of electricity, natural gas, and water. The rental contract should specify who is responsible for the payment of utility bills. 1) **Nevada Revised Statutes, Title 10, Chapter 118A—Landlord and Tenant Dwellings.** Leasing language must specify who is responsible for utilities and implies submetering is permissible. 2) **Nevada Revised Statutes 704.** Regulation of Public Utilities Generally. 3) **Nevada Revised Statutes 704.940 (1) & (4).** Mobile Home Parks—Landlords prohibited from charging tenants more for utilities than what Is billed by the utility. 4) **Nevada Revised Statutes 704.940(3), (4), (5).** Mobile Home Parks—Landlords prohibited from billing tenants for common area costs for water. 5) **NAC 704.980 to 704.991.** Mobile Home Parks—Guidelines on establishing service charges for submetered tenants. 6) **PUCN Mobile Home Park Guide.** Mobile Home Parks—Guidelines where mobile home parks are equipped with submeters or RUBS approach.

Region 10

State	Utility Eligible for Submetering				Description/Sources
	Electricity	Natural Gas	Water Wastewater	Other	
AK			Y (1)		"Landlords are not prohibited from billing tenants for electricity, gas, and trash through the use of the ratio utility billing system (RUBs) or submetering. "A provisional or traditional certificate from the Regulatory Commission of Alaska (RCA) is required for apartment owners providing water or wastewater service to the tenants. "The lease must specify the rights and obligations of the landlord and tenants."[137] 1) **Alaska Statute (AS) 42.05.221 and RCA Regulations.** RCA Provisional Certification is required for submetering water and sewage. 2) **AAC Chapter 52: Operation of Public Utilities.** General regulations of electricity and natural gas metering, but no specific guidelines on submetering. 3) **3 AAC 50.200. Individual electric meters.** States that electric utilities shall install an individual meter to measure the energy consumption attributable to each residential and commercial unit in a multiple-occupancy building and each mobile home unit in a mobile home park if construction of the building or mobile home park was begun after December 31, 1982, with some exceptions.
ID	N (1)				"Privately owned utilities are regulated by the Idaho Public Utilities Commission. Those regulations do not apply to submetering or ratio utility billing system (RUBS). In general terms, ratio utility billing system is not allowed for electricity billing. The lease contact should clearly specify who has the responsibility of paying for utilities. If a master metering system (RUBS) is used in the multifamily complex, the owner must inform the new tenants about the shared meters before the lease or rental agreement is signed."[138] 1) **IDAPA 31.26.01 Master metering Rules for Electric Utilities.**[139] Master metering is prohibited after 1980 except for mobile home parks.
OR	Y (1,2,3)		Y (1,2,3,4)		"A landlord in Oregon could charge the tenants for utilities no more than what the utility providers are charging the property. All the fees and the methods used for calculating the bills have to be disclosed to the residents. The use of submetering and ratio billing systems (RUBS) is permitted in

[137] Banyan Utility. 2024. Alaska. https://banyanutility.com/state-directory/alaska.
[138] Banyan Utility. 2024. Idaho. https://banyanutility.com/state-directory/idaho.
[139] IDAPA 31.26.01 Master Metering Rules for Electric Utilities. https://adminrules.idaho.gov/rules/current/31/312601.pdf.

State	Utility Eligible for Submetering				Description/Sources
	Electricity	Natural Gas	Water Wastewater	Other	
					Oregon. The renters have a right to request and inspect the master utility bills. Charging administration fees are not allowed."[140] 1) **2017 ORS 90.532 Billing methods for utility or service charges.**[141] Billing methods including submetering relationships and ratio utility billing between tenants and landlords. Pro-rata billing not allowed for water and sewage services. 2) **2017 ORS 90.536 Charges for utilities or services measured by submeter.**[142] Service charges for submetering of electricity, water, and sewage. 3) **2017 ORS 90.534 Allocated charges for utility or service provided directly to space or common area.**[143] Allocation of charges for provision of service to shared spaces and common areas. 4) **ORS 90.531 to 90.539.** City of Portland—allows for multifamily tenant water submetering.
WA	Y Municipal Determined (1,3,6)	Y (3,6)	Y Municipal Determined (2,6)		"The implementation of RUBS or submetering is allowed as long as the amount of the utility bills is not higher than the actual amount charged by the utility provider company. "Enacted in 2003, Washington's Municipal Water Law requires all municipal water suppliers (public and private water utilities serving at least 15 residential connections) to have meters on all of their service connections by January 2017."[144] 1) **Seattle Municipal Code SMC 21.49.100.G Prohibition of Submetering.**[145] Prohibition of electric submetering for Seattle Power and Light Customers. 2) **Seattle Municipal Code, Title 7, Chapter 7.25, SMC 7.25.040(A).**[146] Water billing and meter reading for submetering in Seattle, **Seattle FAQ.** 3) Gas and electric submetering is regulated by the **Washington Public Utility and Transportation Commission.**[147] Several local jurisdictions have also enacted regulations.

[140] Banyan Utility. 2024. Oregon. https://banyanutility.com/state-directory/oregon.
[141] 2017 ORS 90.532 Billing methods for utility or service charges. https://www.oregonlaws.org/ors/90.532.
[142] 2017 ORS 90.536 Charges for utilities or services measured by submeter. https://www.oregonlaws.org/ors/90.536.
[143] 2017 ORS 90.534 Allocated charges for utility or service provided directly to space or common area. https://www.oregonlaws.org/ors/90.534.
[144] Banyan Utility. 2024. Washington. https://banyanutility.com/state-directory/washington.
[145] Seattle Municipal Code SMC 21.49.100.G Prohibition of Submetering.
https://library.municode.com/wa/seattle/codes/municipal_code?nodeId=TIT21UT_SUBTITLE_IVLIPO_CH21.49SELIDE_21.49.100APCOPR.
[146]Seattle Municipal Code (Title 7, Chapter 7.25, SMC 7.25.040(A).
https://library.municode.com/wa/seattle/codes/municipal_code?nodeId=TIT7COPR_CH7.25THPABIRE.
[147] Guardian Water & Power. 2023. Submetering in Washington State—Important Things to Consider Before Implementing a Submetering System.
https://www.guardianwp.com/single-post/2019/02/24/submetering-in-washington-state-important-things-to-consider.

State	Utility Eligible for Submetering				Description/Sources
	Electricity	Natural Gas	Water Wastewater	Other	
					Electric and natural gas submetering in Washington appears to be permitted as long as electricity is billed at the actual cost to the property and no fees are included in resident bills. 4) **Washington Energy Code** requires newly built apartment communities with central hot water to meter domestic hot water. 5) **Washington's Municipal Water Law.** Requires all municipal water suppliers (public and private water utilities serving at least 15 residential connections) to have meters on all their service connections by January 2017. 6) **City of Auburn—Local Submetering Ordinance.**

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