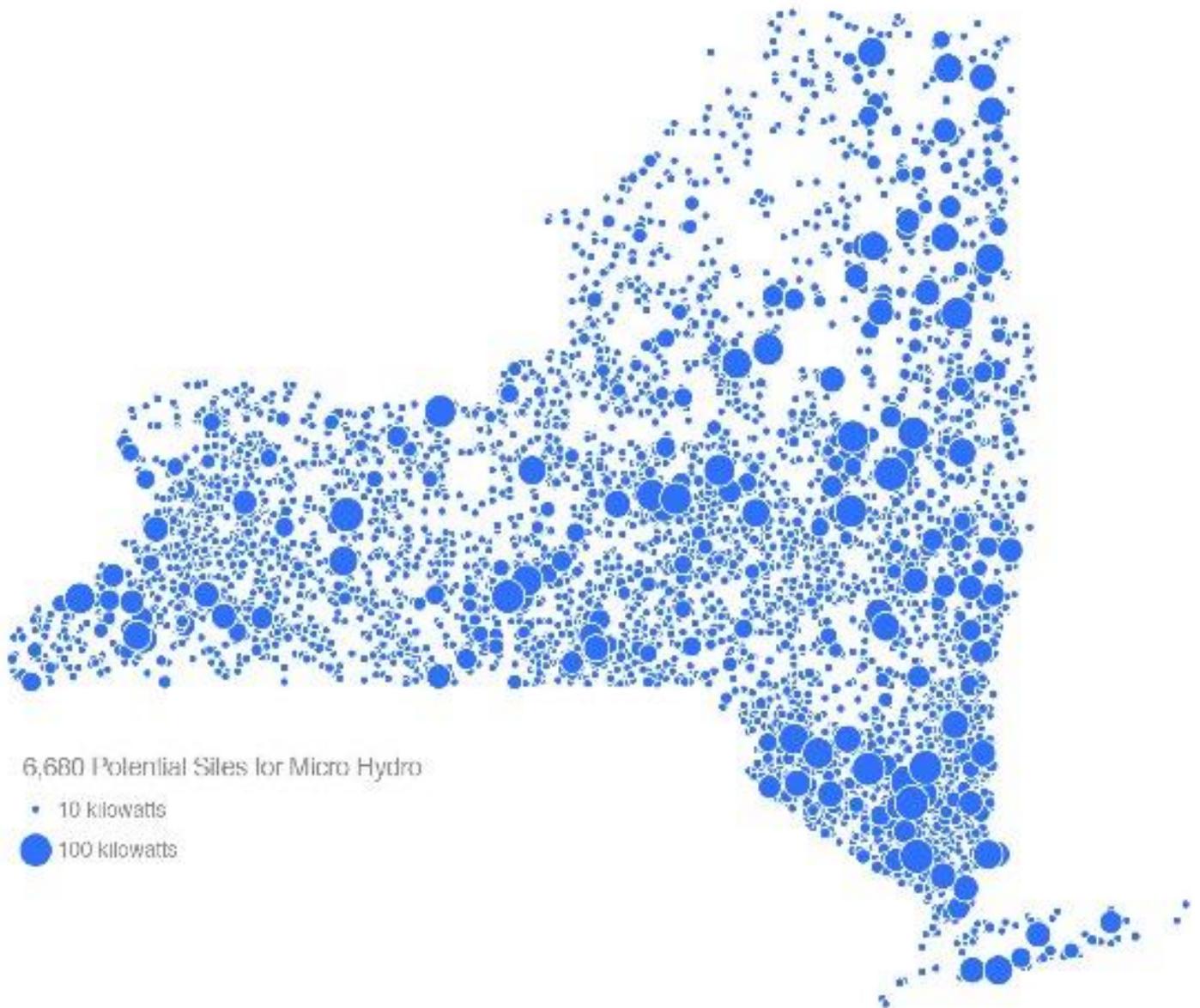


Micro Hydro Macro Value

NYSERDA College Campus Challenge Grant

A Report on the Development of Financial Models Ownership Model Description



Prepared for

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I. Introduction

This report pertains to the investigation and description of three financing models for funding the development, implementation and operation¹ of micro hydropower on existing non-powered dams (NPDs) in New York State. The audience for this report is hydro site owners (individuals, municipalities or other organizations) and renewable energy developers interested in realizing the potential for development of new microhydro resources in New York.

The potential to develop new hydropower capacity must be joined with an understanding of the associated environmental risks and a commitment to the strictest performance and mitigation standards. This report posits, as American Rivers has stated, that “a high level of environmental performance and the costs of achieving it are not an “obstacle” to development but a fundamental and necessary component of it.”² New York’s microhydro potential would best be evaluated and developed as part of a larger system or basin scale approach that first examines the need for dam removal where warranted. Planning and managing microhydro at the system scale (“Hydropower by Design”), as recommended by The Nature Conservancy, is the best way to reduce negative impacts and strategically balance objectives for clean energy and healthy rivers.³

The three models discussed in this report are **Ownership, Power Purchase Agreement (PPA)**, and **Community Distributed Generation (CDG)**. These three models are distinguished by who uses the electricity, who operates the site, who markets the electricity, and how the electricity is marketed.

Table 1 - Financing Models for Microhydro

	Ownership	PPA	CDG
Facility Owner	Site Owner	Site Owner or other entity	Site Owner or other entity
Grid Connection	Possible (can be off-grid)	Possible (can be off-grid)	Necessary
Electricity Consumer	Site Owner	Offtaker (different entity from facility owner)	A group of utility customers in same utility territory and NYISO zone
Electricity Marketing	No marketing	No marketing	Facility operator or Subscriber Management Organization
Contract Duration	Facility Lifespan	Facility Lifespan	A defined term in months or years

¹ The operational aspects of microhydro development are not examined in depth in this report, however Bard College’s [Microhydro NY – Operations](https://microhydrony.org/category/operations/) web page has resources to assist a site owner in understanding the technical potential of their resource. <https://microhydrony.org/category/operations/>

² See American Rivers “Is Hydropower Clean Energy?” <https://www.americanrivers.org/threats-solutions/energy-development/hydropower/>.

³ The Nature Conservancy, A Better Way to Harness the Power of Rivers. <https://global.nature.org/content/power-of-rivers>

The Ownership model requires a scenario where an electric customer (referred to as an “oftaker”) owns property that is suitable to develop microhydro generation and that same customer has enough electric consumption need (referred to as “load”) to use all of the electricity generation on-site. This model is the choice for simple customer-sited, net metered projects that make use of the New York State Energy and Research Development Authority (NYSERDA) Customer Sited and Large-Scale Renewable solicitations to receive Tier 1 renewable energy credits (RECs).⁴ The value that can be obtained under traditional net energy metering or a NYSERDA contract under either solicitation may be the best option for some portion of the microhydro potential identified by this project.

For this model, the project may:

- Be developed completely off grid, with no interconnection to the distribution utility.⁵
- Be “behind-the-meter”, where the project is wired to the load on site and has an interconnection agreement with the utility for net metering.^{6 7}
- Opt to participate in “remote net metering” if they own multiple locations (and electricity meters). In this instance, one site would generate electricity and be interconnected to the grid and that generated electricity would cover the load at multiple sites. Note that under remote net metering all site utility accounts must have the same customer name and be within the same distribution utility territory as the account attached to the generation source.

In all cases with the Ownership model, the same entity that owns the generation source also owns the electrical load being served.

The PPA model is suitable where the generation source is owned and/or operated by one entity, and the oftaker with load is a different entity. With a PPA, an oftaker entity purchases the energy output from the generator entity and the revenue from the energy sale is used to finance the construction of the project, sometimes by a third-party investor. This model works for microhydro where a site with the potential for hydro development is physically adjacent to a load source or near enough that physical wiring is feasible – but the owner of the generation source and the owner of the load are not the same entity. This model may:

- be an off-grid project, which means that an interconnection agreement with the distribution utility is not necessary.
- be able to use remote net metering if they own property with microhydro potential and load in a separate location, but they wish for someone else to construct, own and operate the hydro project and sell them the output.

⁴ The New York State Clean Energy Standard includes a Renewable Energy Standard with Tier 1 RECs for eligible generation installed after January 1, 2015. <https://www.nyserdera.ny.gov/All-Programs/Programs/Clean-Energy-Standard/REC-and-ZEC-Purchasers>.

⁵ Without additional batteries, there is no back-up power in this scenario.

⁶ Phase 1 NEM is available under Public Service Law (PSL) § 66-j and 66-l until Jan 1, 2020. The NYPSC is working on a proposal to replace it which may include the continuation of NEM. Phase One NEM is similar to statutory NEM, but key differences are that the term is for 20 years, excess credits are not cashed out each year and instead continue accumulating, and excess credits remaining after the 20-year term expires are forfeited.

⁷ In this scenario, the utility provides backup power and supplies energy during times when the hydrosystem produces less than is being used on-site.

What makes it a PPA is the fact that the offtaker is purchasing electricity from a separately owned generation source.

The CDG model is a regulatory program⁸ that allows a host generator with qualifying on-site distributed generation to allocate energy output to retail customers who sign a subscription agreement. The host and customers must be in the same utility distribution territory and New York Independent System Operator (NYISO) zone. The utility facilitates the application of generation output credits on the subscriber's electric bill, and the CDG host bills the subscriber for the credits applied the subsequent month. This model works best for a hydro host where interconnection to the distribution utility is feasible and the host is willing to market directly to retail customers, bearing the risk of managing a subscription business with monthly billing. CDG is not a long-term contract with a single offtaker. Instead, it is an arrangement where the generation output of a project is allocated to a group of subscribers (utility customers) who may come in and out of the program during its lifetime. In the CDG model, the risk of not having enough subscribers to allocate generation output is born by the CDG host and mitigated by effective marketing and continuous solicitation of new subscribers.

⁸ Established by the New York Public Service Commission (NYPSC) Proceeding on Motion of the Commission as to the Policies, Requirements and Conditions for Implementing a Community Net Metering Program, Case 15-E-0082.

II. Ownership Overview

After determining the environmental impact and appropriateness of developing hydropower, a property owner who wishes to develop a microhydro project will need to choose the right economic model to make their hydropower project a reality.

The first and simplest economic model to consider is the ownership model, where the property owner with developable hydro potential purchases all system equipment and pays for construction, maintenance and operating costs associated with planning and installing the system or consults with a hydropower developer. An owner considering this model may pay cash for these costs, or take out a loan, find grants, or purchase the system from a developer over time using lease-to-own financing. These structures are discussed in greater detail in the sections below (see Section III).

The ownership model assumes the following:

1. The site is environmentally appropriate, and the dam (if applicable) is safe for development;
2. The owner of the site plans to use the electricity output themselves (on-site or at remote property that they also own);
3. The owner has the cash or financing tools to pay for the development.

This ownership model is the choice for simple customer-sited, net metered projects.

Projects using this model may see value in leveraging traditional net energy metering through their utility. **Net metering** is a billing mechanism that credits owners of distributed energy resources for the electricity they add to the grid. Similarly, property owners with off-site energy consumption might want to consider remote net metering (see below). Owners may also look to government entities, such as the New York State Energy Research and Development Authority (NYSERDA), and other non-profit organizations for grant and incentive opportunities to support project implementation.

Where appropriate, microhydro projects may make use of the New York State Energy and Research Development Authority (NYSERDA) Customer Sited and Large-Scale Renewable solicitations to receive Tier 1 renewable energy credits (RECs) as a small supplementary revenue stream.⁹ The value that can be obtained under traditional net energy metering or a NYSEERDA contract under either solicitation may be the best option for some portion of the microhydro potential identified by this project. The associated billing mechanism credits owners of distributed energy resources for the electricity they add to the grid. Property owners with off-site energy consumption might want to consider Remote Net Metering (see below).

Property owners interested in defecting from the grid could consider an off-grid hydropower system. (See Off-Grid section below.)

Ownership and Remote Net Metering in New York

A potential New York microhydro project may involve a situation where the desired location for the generation source is not close enough to feasibly physically connect to the meter where the owner

⁹ For example, a 45 kW project that generates 200,000 kWh per year may anticipate generating as many as 200 RECs per year. The 2018 price for Tier 1 RECs was \$17.01/MWh which would result in \$3,400 in revenue if they were procured at that price by NYSEERDA.

wishes to use the energy output. In this instance, the project may be a good candidate for **remote net metering** (RNM). RNM allows a project built on one site to allocate the energy output to receiving accounts in the same service territory, where all the accounts involved (host and receiving accounts) are owned by the same customer.

RNM is based on net metering, which allows electricity customers who generate some or all of their own electricity to send excess energy to the grid and receive energy from the grid when their load exceeds their on-site system generation. Net metering is really a billing construct required by law in New York State, which obligates the electric utility to value the generation you make on-site according to net metering rules. RNM is an enhancement of traditional net metering, with the only major difference being that the energy system is off-site instead of on-site. Energy generated off-site is applied to the load at the customer's utility meter where they consume power, so long as both the generator and consumer meters are owned by the same customer and are within the same utility territory.

Under New York's RNM rules, the account to which the renewable energy system is connected is called the Host Account and must be a commercial or a farm account, which means that residential customers cannot take advantage of remote net metering as the host turbine site.¹⁰ A microhydro site can be developed by setting up a new commercial account as the host, with the receiving account holder applying for the commercial host meter in their name. (For situations where a generation source is interested in sharing their output with different customers in the same service territory see the CDG model description.)

Off-Grid Hydropower System

An alternative to a grid-connected system is to design the hydropower system to match the on-site load, and directly wire the system to the buildings using the power and energy – with no connection to the distribution utility. This is referred to as an “**off-grid**” configuration. Here, the buildings using the power and energy need to be located in close proximity to the hydropower generation site. This is because the further away the generation source is from the site of consumption, the higher the cost is to directly wire the system to the load. One example of a configuration where an off-grid hydropower system may work is an old mill or factory building that may be redeveloped for a new purpose and that is already located close to their dams.

The benefits of an off-grid system can include:

- No interconnection costs (studies, wires, meters)
- No utility meter readings
- Independence from grid-failures / power outages
- 100% renewable energy
- Energy autonomy
- Potentially reduced permitting requirements (and cost) if non-federal oversight¹¹

¹⁰ See <https://www.nyserda.ny.gov/Researchers-and-Policymakers/Power-Generation/Net-Metering-Interconnection>

¹¹ To find out if your project falls under federal jurisdiction of the Federal Energy Regulatory Commission, file a Declaration of Intent. The FERC provides a simple template and more information on their website: <https://www.ferc.gov/industries/hydropower/gen-info/comp-admin/jur-deter.asp>. Alternatively, for more information on microhydro permitting, see <https://microhydro.org/category/legal/>

The disadvantages of an off-grid system can include:

- Dependence on local equipment / No grid as back-up
- Need for on-site back-up power
- Oversized system to meet power demands / Increased system cost
- Grid is not balancing use patterns
- Additional wiring necessary

While off-grid systems promise greater autonomy and independence from the local utility grid, they most likely come at a higher cost to provide the same standard of electricity availability. Customers who are willing to compromise and adjust their habits and use patterns to the available electricity, could save significantly by going off-grid.

It is also possible to connect to the new microhydro system by wiring directly and not interconnecting it to the utility, while also still keeping a utility account for back-up power to the buildings that are wired to the system. This can work whether the building already had an electric meter in place before the owner decides to develop a microhydro system and directly wire it, or if the owner decides to apply for new service at the building. If it is the latter, and the utility has not previously served that building, there will be additional costs to establish service which will vary depending on how close the building is to the distribution wiring system, and the anticipated back-up demand of the building(s).

III. Ownership Economics and Structures

In the ownership model, the owner of a site with hydropower potential can have two roles: either being the actual owner (Cash Financing, Debt or Loan Financing), or being a lessee (Lease to Own, Capital Lease, Operating Lease). In either way, the site owner will be sole customer of the on-site generated hydropower.

Cash Financing

With cash financing, the cost of construction, permitting and all other costs is entirely up-front, and the financing occurs on the owner's balance sheet. The owner receives 100% of available incentives, including the possibility of a 30% tax credit (if the federal Production Tax Credits are extended by Congress for Hydropower).¹²

With cash financing there are no monthly payments and the energy output is essentially free. The electricity generated is usable by the owner on-site (or metered to remote sites if RNM is used). 100% of the value of the system is appreciated by the owner. The system maintenance and operation including compliance requirements related to environmental standards, dam safety, and other regulatory requirements can be contracted out to a service provider. The owner can also enjoy the benefits from a REC contract with NYSERDA, the value of which was \$17.01/MWh for Tier 1 RECs in 2018.¹³

¹² A summary of the "Tax Extender and Disaster Relief Act of 2019" is available at: [https://www.finance.senate.gov/imo/media/doc/Tax Extender and Disaster Relief Act of 2019 Summary.pdf](https://www.finance.senate.gov/imo/media/doc/Tax%20Extender%20and%20Disaster%20Relief%20Act%20of%202019%20Summary.pdf)

¹³ NY RECs are procured by NYSERDA on a quarterly schedule – more information is available at: <https://www.nyserda.ny.gov/All-Programs/Programs/Clean-Energy-Standard/REC-and-ZEC-Purchasers/2018-Compliance-Year>

Debt or Loan Financing

With debt or loan financing, the owner is simply borrowing cash to pay the upfront costs of construction. The owner may write off interest payments on their taxes and use the depreciation benefits of the asset as a tax benefit. 100% of available incentives go to the owner, including any REC benefits¹⁴ available with a NYSERDA REC contract. The upfront payment is usually very low and monthly loan payments are determined at the time of the loan, typically with a fixed rate or escalator that ensures the lender their desired return. There may be the possibility of a balloon payment at the end of the loan term. The loan agreement may also provide the ability to pre-pay before the end of the term. 100% of the value appreciates to the system owner and the system maintenance, operation and regulatory management can be contracted out to a service provider.

Lease to Own

In a lease-to-own financing agreement the lessee will make little or no down payment towards the generation source, similar to a Power Purchase Agreement (PPA) structure. The lessee pays only a small portion of the system cost at the outset, and then makes fixed lease payments over time. The lessee does not actually own the system until the end of the lease term, when all the lease payments have been made and ownership transfers from lessor to lessee.

The two most common types of leases are the capital lease and the operating lease. These lease structures have different impacts on an organization's accounting, according to generally accepted accounting principle (GAAP) rules.¹⁵

Capital Lease

Capital leases keep the asset involved on the company's balance sheet and eventually involve a transfer of ownership rights at the end of the lease term. Capital leases are counted as debt. They depreciate over time and incur interest expense. A capital lease involves one or more of the following characteristics:

- There is an ownership transfer to the lessee at the end of the lease.
- The lease contains a bargain purchase option.
- The lease life exceeds 75% of the economic life of the asset.
- The present value of the lease payments exceeds 90% of the fair market value of the asset.

GAAP rules require companies to treat leases as capital leases if they meet any of the above conditions. If none of these conditions are met, the lease must be classified as an operating lease.

Operating Lease

An operating lease is a contract that allows for the use of an asset but does not convey rights of ownership of the asset. Operating leases are similar to renting, where ownership does not transfer

¹⁴ For example, a 45 kW project that generates 200,000 kWh per year may anticipate generating as many as 200 RECs per year. The 2018 price for Tier 1 RECs was \$17.01/MWh which would result in \$3,400 in revenue if they were procured at that price by NYSERDA.

¹⁵ For more information on these lease structures see:

<https://corporatefinanceinstitute.com/resources/knowledge/accounting/capital-lease-vs-operating-lease/>

between the parties. An operating lease is a way to finance a microhydro project, where the leased project and associated liabilities of future rent payments are not included on the balance sheet of the lessee. The lease payments are treated as operating expenses and are expensed on the income statement, thereby impacting both the operating and net income of an organization.

With an operating lease, the lessee who wishes to consume the generation will pay an upfront payment to the microhydro developer as well as static monthly payments that were negotiated in the lease. The lessee can write off the entire lease payment on their taxes, but there is no depreciation available for an operating lease. Incentives are typically exploited by the lessor, and not the site owner. There are usually pre-payment options and/or penalties in the lease as well. There may be a balloon payment. The lessee usually is not allowed to pre-pay the lease but will have an option to buy or return the system at the end of the lease term. The price of the final purchase is defined as “fair market value” according to IRS definitions. There is no capital appreciation available to the lessee until the system is purchased at the end of the lease. As with the cash and loan models, the lessee will typically contract out with a service provider for maintenance, operation costs and regulatory management, but often these costs are factored into the monthly lease amount. The RECs are usually owned by the lessor, and the site owner doesn’t have rights to the RECs until after the system is purchased at the end of the lease term.

Tax-Exempt Site Hosts

With rising electricity prices and increasing awareness about energy consumption and GHG impacts, tax exempt organizations, such as schools, churches, local governments, libraries, and more, are increasingly interested in green energy solutions. While, the financial stability and cost savings appeal to these groups, it is often the opportunity to be a good steward of the earth’s resources and to educate communities about clean energy that aligns with the mission of many tax-exempt organizations, solidifying their commitment to pursue renewable energy.

Tax-exempt site hosts have the option of using their balance sheet to finance the project, or if they are a municipality, they can issue low-cost tax-exempt municipal bonds. Another alternative is a tax-exempt lease, where the lease payments are exempt from tax.

IV. Advantages of Ownership

The advantage of the ownership model is its simplicity, relative to the other financing models. Assuming the site owner has the cash to pay for construction or can find other means of financing, the ownership model allows the site owner to use the output exactly as they wish, to satisfy their environmental goals immediately. It can also be a hedge against escalating energy prices, which are volatile and can fluctuate unpredictably. Self-financing a micro hydropower project allows the site owner to always know what their electricity will cost and exactly where it is coming from.

Another advantage of the ownership model is the broad applicability; the goal is matching generation and consumption by design. The amount of water necessary to power a single home can be minimal – small streams that flow continuously throughout the year can be enough to satisfy limited energy needs and can be combined with battery backup. Additional flow volumes could incentivize the site owner to switch from propane fueled heating or cooking to electric.

V. Responsibilities of Ownership

The responsibilities of owning a micro hydropower plant are not insignificant. The site owner must understand the environmental impacts of hydropower generation and be prepared to mitigate and address environmental issues as they arise. The operations of a microhydro plant are not necessarily complicated, however like any other electricity generation source, the plant must be operated safely. Because hydroelectric impacts natural waterways, the owner of a generation plant is subject to regulatory oversight. A site owner must be comfortable navigating the regulatory, permitting and dam safety requirements of their facility, and must be prepared to meet the ongoing demands of inspections, system monitoring and reporting requirements that may be imposed by federal or state agencies. These responsibilities can be handled by a service contract with a qualified hydroelectric company or developer.

VI. Ownership Model FAQ

How much electricity do I need to fully offset the consumption in my home?

This depends on:

- the size of your home,
- quality of building envelope
- the number of inhabitants and their use patterns,
- the degree of electrification of your home (electric heating, electric cooking, electric warm water), and
- the energy efficiency (also age) of your appliances and devices.

Efficient single family homes use about 300 kWh per month while others use 800 kWh and more per month. Efficient homes could offset their energy use with a (grid-connected) hydropower system as small as 800 Watts. We recommend obtaining an assessment your home's electricity needs and consider energy efficiency upgrades as part of the hydropower design process. Check your current utility bill to see how you rank and to see if there is room for improvement.

Be aware that off-grid systems not only need to satisfy the home's energy needs, but also its power needs!

How much power do I need to fully offset the use in my home?

The power needs of your home depend on the same factors as your electricity (or energy) needs, but the use patterns play an increased role. For example: For a single 20-Watt light bulb to be operated, an off-grid hydropower system has to provide a power of 20 Watts; so if you have five of these 20-Watt bulbs located in 5 different rooms of your home, and you tend to switch them on and off when entering or leaving a room, in the ideal case your home could be supplied by a 20-Watt hydropower system; but if all 5 of the bulbs are switched on by the same switch, a potential hydropower system will need to be 5 times as large to provide the necessary power. In other words: the power demand depends on how many (and which) appliances and devices you intend to use simultaneously: running the washing machine, the dryer, the toaster oven, the TV and lights at the same time creates a higher power demand than staggering the use of these appliances.

With an on-grid hydropower system, these power spikes (created by simultaneous use of appliances) are covered by the utility, but an off-grid system needs to balance them directly or with the help of a battery system. We recommend obtaining an assessment your home's power needs and consider energy efficiency upgrades as part of the hydropower design process.

Do I need to interconnect with the electricity grid?

The answer depends on your project's goals, the environmental setting and how close your micro hydropower site is to the meter where your electricity is consumed. To use net energy metering or remote net energy metering, you will have to interconnect the hydropower system with the electricity grid. If you are considering defecting from the grid, you can configure your project off-grid – without interconnecting with the electricity grid.

Should I buy or lease my system?

There are many factors to consider when deciding whether to purchase your system outright or lease it. These factors relate to your project economics, your creditworthiness, your willingness to assume responsibility for a microhydro project as well as your appetite for tax credits (if applicable).

First you need to look at the total cost of the system. Ownership requires the up-front capital cost of designing, permitting and constructing the project. If you do not have the cash, you mitigate the up-front costs by taking out a loan. With a loan, you are the owner, but you are borrowing money from a bank to pay the capital cost of the system. A loan is simply financing, just like purchasing an automobile with a loan. It allows you to take advantage of all the savings associated with your own renewable energy generation source. If in effect, the federal renewable energy tax credits, such as the investment tax credit (ITC) may allow an owner of a system to use 30% of the value of the system as a tax credit, which works for individuals who have tax liability they would like to reduce with tax credits.

If you don't have the cash and do not want to take out a loan you can consider a lease-to-own model. Or, you can also lease a system with no plan to transfer ownership at the end of the lease. With a lease, you are not the owner of the system, you are just paying the leasing company for a long term (usually 20 years). If you choose to lease-to-own, then the ownership of the system will transfer to you at the end of your lease term. The lease allows you to make an environmentally friendly choice without bearing the responsibility of owning a system, while reducing your electricity bill and using a predictable monthly payment structure based on a kWh rate that is established at the beginning of the lease term.

A lease versus loan have some things in common. For example, the environmental benefits are the same and monthly payments are typically structured to be less than your current electric bill.

If you have the resources available and have the tax appetite for tax credits, and/or are willing to take out a loan, then all things else being equal, owning your system even if it is financed with a loan is a preferable choice.

What questions should I ask if I am considering owning?

1. Do you want the responsibility to own or do you prefer that someone else deal with the responsibilities?
2. Do you have the cash to pay the up-front costs?
3. Are you able to benefit from tax credits, if applicable?

4. Are you willing to spend cash reserves or take out a loan? Is your credit strong enough to get a loan?

Under what circumstances does a loan make sense?

1. You are comfortable owning and maintaining the system yourself or hiring a company to deal with maintenance but still being the ultimate responsible party for the microhydro plant.
2. If federal tax credits are available, your tax bill is larger than the tax credits you will get from the system.
3. You are comfortable taking out a loan and have a good credit rating.

How does leasing work?

A lease is an agreement with a company that owns the system. You enjoy the electricity from the system for the length of your lease. If you choose to lease your system, you are paying only a small portion of the system cost at the outset, and then making fixed lease payments over time to the system owner, a hydro developer company. You may choose to lease to own, but you do not actually own the system until the end of the lease term, when all the lease payments have been made and ownership transfers from Lessor to Lessee.

Leasing is an excellent choice if tax credits are available, but your tax bill is less than the value of the tax credit for your system. It is also ideal if you don't want to pay any up-front cost or take out a loan, or if your credit score is below 650.

Who handles the environmental assessment, the permitting and coordination with local, state and federal agencies?

In most cases, a site owner would want to hire a hydropower developer to assist in the environmental and site assessment, facility design and permitting – regardless of whether the site owner ultimately wants to lease or directly own the hydropower system. The developer would act as an agent for the site owner and coordinate with all relevant resource agencies and stakeholders to ensure a successful permitting procedure. For more information on microhydro permitting, see <https://microhydrony.org/category/legal/>

Who repairs and maintains the system if I lease it?

The company that owns the system will be responsible for any repairs. The responsibility to pay for additional repair costs will be defined by the lease. A lessee should be aware of these responsibilities before agreeing on a lease.

What happens at the end of a lease term?

Some providers will offer a renewal term, perhaps on an annual basis for a period of additional years. You may also have the option to purchase the system at fair market value, which requires an independent valuation.

Can you terminate the lease and require the hydro company to remove the system?

This depends on the term of the lease, but is a fairly common provision. A lessor should request this option before signing the lease, to give themselves the flexibility to make this choice in the future.

Do I need to own my home to qualify for a microhydro lease?

Yes. If you are looking to install a microhydro plant where you live, but you do not own the property, then leasing is probably not for you. The lessor or owner of the system will require the owner of the property to grant access and other rights, which typically cannot be conveyed by a non-owner.

What happens to my lease if I sell my property?

Often a lease will allow you to transfer your monthly lease payments to the new property owner, as long as they meet the lease holder's credit criteria. You may also have the option of purchasing the system outright or having the property buyer do so.

What is a payment escalator?

Most leases have an implied interest rate, referred to as a payment escalator. This may run from 0% to as high as 4%. If you sign a lease with a 3% payment escalator and your first payment is set at \$100/month in the first year, then in the second year your payment will increase to \$103/month. Every year after your payments will continue to increase by 3%. The escalator is still likely to reflect a savings when compared to residential utility rates, which increased an average 15% in the United States between 2008 and 2018.¹⁶

Some leases may be structured with a fixed payment for the full term, but the initial years payments may be a little higher. In future years that amount will seem lower compared to utility rates which will likely go up significantly.

Do you get to use rebates and tax credits with a lease?

No, the owner of the equipment uses rebates and tax credits.

¹⁶ Energy Information Administration, <https://www.eia.gov/electricity>