



February 16, 2016

Internal Revenue Service  
CC:PA:LPD:PR (Notice 2015-70)  
Room 5203  
P.O. Box 7604  
Ben Franklin Station  
Washington, DC 20044

**Re: Comments on the definition of qualified property for purposes of the energy credit under Code section 48**

To Whom It May Concern:

The National Hydropower Association (NHA) is pleased to submit comments in response to Notice 2015-70, issued by the Department of the Treasury and the Internal Revenue Service (IRS) on October 26, 2015, requesting comments on how to define “energy property” for purposes of the energy credit under Internal Revenue Code section 48 (§48).

NHA is the national trade association for the U.S. hydropower industry. Our mission is to promote the growth of clean, affordable U.S. hydropower. We seek to secure hydropower’s place as a climate-friendly, renewable and reliable energy source that serves the nation’s environmental, energy, and economic policy objectives. NHA represents more than 220 companies in the North American hydropower industry, from Fortune 500 corporations to family-owned small businesses. Our members include both public and investor-owned utilities, independent power producers, developers, manufacturers, environmental and engineering consultants and other service providers.

The Treasury Department and the IRS requested comments on issues that should be addressed in proposed regulations on the definition of certain types of property under §48. Specifically, the Treasury Department and the IRS requested comments that address the following:

- (1) Whether only property that actually produces electricity may be considered energy property or whether property such as storage devices and power conditioning equipment may also be considered energy property.
- (2) Whether dual-use property should qualify for the credit and, if so, under what circumstances it should qualify. If it should qualify, what portion of the basis of dual use property should be taken into account in computing the energy percentage.
- (3) Comprehensive definitions of the property described in Section 3 of the notice.
- (4) Definitions of terms such as storage devices, power conditioning equipment, transfer equipment, and other property commonly used in conjunction with property described in Section 3 of the notice, as well as definitions of parts related to the functioning of these items.
- (5) The need for other energy-related definitions.

Notice 2015-70 requested comments only with respect to the definition of property used in connection with the specific technologies set forth in §48 (i.e., solar, geothermal, fuel cells, microturbines, combined heat and power, and small wind property). However, renewable energy projects that are eligible for the Code §45 production tax credit (PTC) for electricity produced from renewable sources (e.g., wind, hydropower, biomass, geothermal, among others) are permitted to elect the §48 investment tax credit (ITC) in lieu of the §45 PTC. Thus, §48 energy property inherently includes “qualified hydropower facilities.”

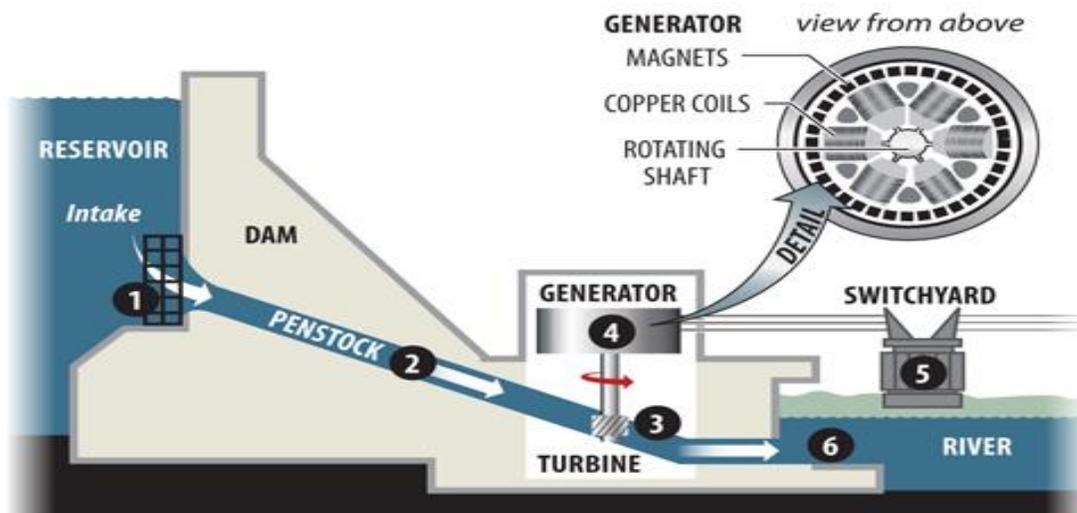
For purposes of both Code §§45 and 48, a “qualified hydropower facility” means any facility providing “incremental hydropower production” attributable to efficiency improvements or additions to capacity for which construction starts before January 1, 2017.

Currently, the U.S. hydropower fleet is composed of almost 2,200 individual plants with a total capacity of approximately 80 gigawatts. These plants provide roughly 7 percent of all U.S. electricity generation and close of half of all renewable generation – making hydropower the single largest provider of renewable electric power in the nation<sup>1</sup>. These figures do not include the additional 42 hydropower pumped storage plants with approximately 22 GW of capacity – projects that make up almost 97 percent of utility-scale energy storage in the U.S. today<sup>2</sup>.

These comments are offered to provide you with background on hydropower technologies for purposes of potential regulations under §48. These include conventional hydropower, pumped storage, marine and hydrokinetic, and conduit hydropower systems.

### Conventional Hydropower Technology

The following is an illustration of the basic components of a typical conventional hydropower facility.



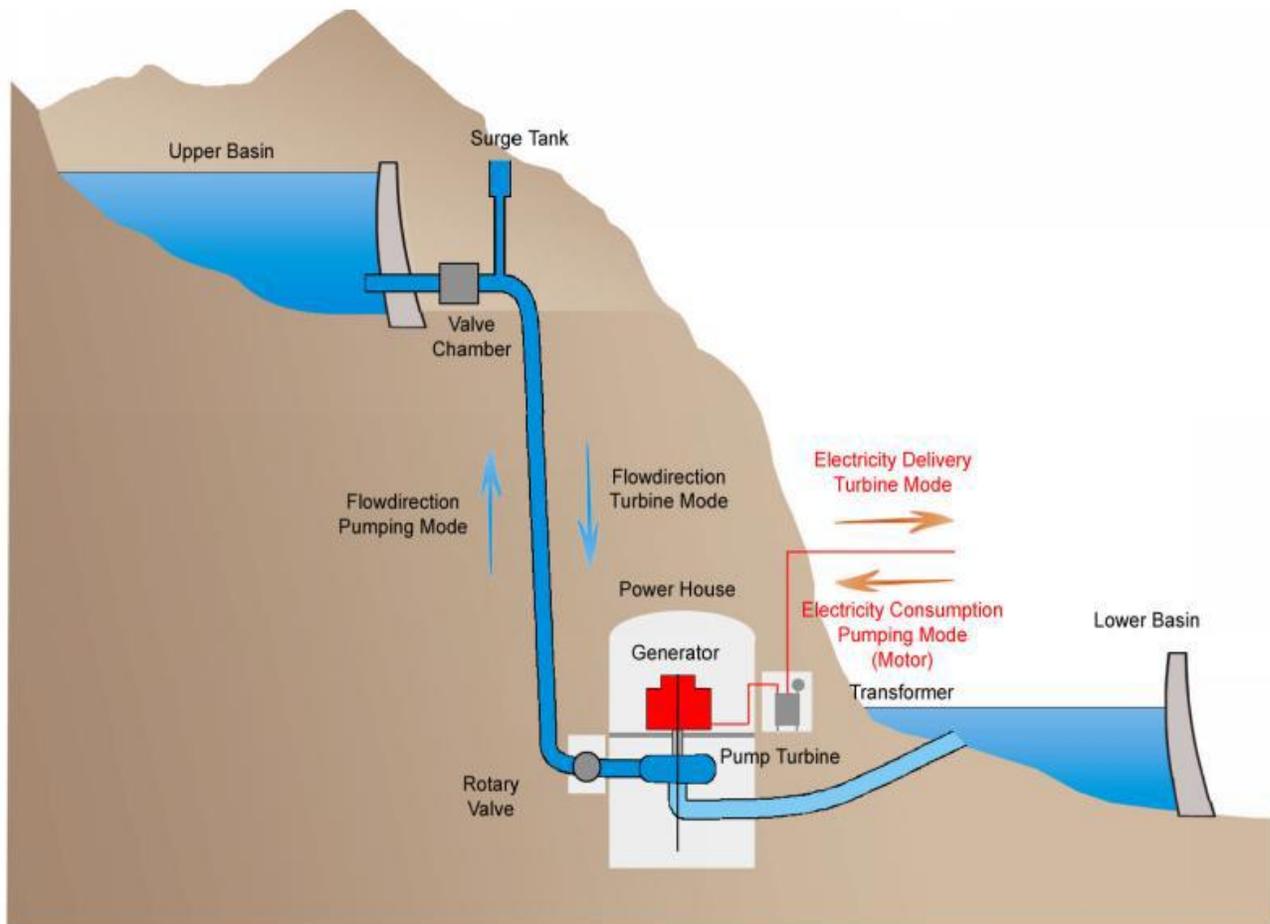
1. Water in a reservoir behind a hydropower dam flows through a large intake structure, which filters out debris.
2. The water travels through a large pipe, called a penstock.
3. The force of the water spins a turbine which is connected to a generator.
4. Inside the generator, the shaft spins coils of copper wire inside a ring of magnets. This creates an electric field, producing electricity.
5. Electricity is sent to a switchyard, where a transformer increases the voltage, allowing it to travel through the electric grid.
6. Water flows out of the turbine into the downstream river.

<sup>1</sup> 2014 Hydropower Market Report, Department of Energy, Office of Energy Efficiency and Renewable Energy, Wind and Water Power Technologies Office, Executive Summary, P. V.

<sup>2</sup> 2014 Hydropower Market Report, Executive Summary, P. VIII.

## Pumped Storage Technology

The following is an illustration of the basic components of a typical pumped storage facility:



Pumped storage is an essential solution for grid reliability, providing one of the few large-scale, affordable means of storing and deploying electricity. In the U.S. today pumped storage makes up 97 percent of the energy storage capacity. Pumped storage projects store and generate energy by moving water between two reservoirs at different elevations. At times of low electricity demand, like at night or on weekends, excess energy is used to pump water to an upper reservoir. During periods of high electricity demand, the stored water is released through turbines in the same manner as a conventional hydro station, flowing downhill from the upper reservoir into the lower through a turbine to generate electricity. The turbine is then able to also act as a pump, moving water back uphill.

Pumped storage is one of the most cost-effective utility-scale options for grid energy storage, acting as a key provider of what is known as ancillary services to support the integration of renewable resources into the electric grid. Ancillary services include network frequency control and reserve generation – ways of balancing electricity across a large grid system. With an ability to respond almost instantaneously to changes in the amount of electricity running through the grid, pumped storage is an essential component of the nation's electricity network.

The U.S. has approximately 22GW of pumped storage capacity today, with facilities in every region of the country. Developers have proposed an additional 31GW, primarily in the West, to support the increasing amount of variable generation that is coming online.

## Marine and Hydrokinetic

Through NHA's Marine Energy Council, NHA unites technology developers, academic institutions, consultants, component suppliers and service providers representing the wave, tidal, ocean current, and riverine sectors and focuses attention on the potential growth opportunities of emerging technologies, share information among industry members, and provide a forum in which to discuss the various challenges ocean, tidal, hydrokinetic and emerging water technologies face.

Wave and tidal power technologies represent a huge opportunity to create reliable, clean energy. These technologies are currently in various stages of research, development and deployment. The unceasing movement of ocean waves creates a continually available and predictable power source that has an estimated technical potential in the U.S. of 90GW. Among other benefits, oceans are close to major population centers that need electricity most, while the potential wave power installations have a low visual impact and no fuel costs.

With a range of innovated technologies under development, wave power energy conversion devices can capture energy located on the ocean shoreline, near the shore or floating offshore. Technologies in development include:

- Point absorber technologies use a float that sits on top of the waves, generating electricity via an attached, moored conversion device.
- Attenuators are long floating structures located parallel to the direction in which waves are traveling. When waves cause the water to rise and fall to different heights along the structure, it flexes and those flex points are connected to hydraulic pumps or other converters that capture the energy.
- Overtopping technologies have been tested both for onshore and offshore applications. A reservoir is filled as waves deposit water, which is then released, driving a turbine or other conversion device.

While wave technologies capture energy from individual waves, tidal technologies tap into the predictable ocean tides, while other hydrokinetic technologies can capture the energy in natural river flows. Tidal barrages, undersea tidal turbines and other technologies are currently under development, particularly in areas with high tidal ranges – the difference in water levels between low and high tide – which are ideal for this type of marine hydropower.

Simple tidal energy technologies like tide mills have been used for hundreds of years, but new technologies in this area offer great promise for wider deployment. Among them are:

- Barrage technology funnels water delivered ashore by tides into an estuary, and that water is then emptied and sent through turbines to generate power.
- Tidal stream generators use water to power turbines in the same way that wind turbines generate power from moving air.
- Instream hydrokinetic technology uses the natural river flow to generate electricity without using dams.

## Conduit Hydropower

In conduit hydropower, existing tunnels, canals, pipelines, aqueducts and other manmade structures that carry water are fitted with electric generating equipment. Conduit projects often qualify as small hydro and are able to extract power from water without the need for a large dam or reservoir. Conduit projects are efficient, cost-effective and environmentally friendly, as they are able to generate electricity from existing water flows, exploit synergies with infrastructure already in place and often requiring less of a capital investment.

## **Comments**

To begin, we believe it is important to note that NHA supports an extension of the §45 PTC beyond its current expiration at the end of 2016. Since 1992, the PTC has been supported by both political parties and has helped grow the country's renewable energy production to where it is today. However, hydropower technologies were only included in the PTC in 2005 and marine and hydrokinetics in 2008. Hydropower continues to count for a majority of U.S. renewable energy production and the PTC is an important policy for expanding hydropower's benefits for American electricity consumers and American industry in the future.

In addition, hydropower receives only half the credit available to some other renewable energy sources under the PTC. That disparity skews investment and job creation away from hydropower projects toward technologies that receive the full PTC – and this competitive imbalance only has been exacerbated by the enactment of the long-term extensions provided for wind and solar tax credits in the Omnibus spending legislation at the end of 2015. Equalizing the tax credit for hydropower with that of other PTC-eligible technologies is also an NHA legislative priority.

Because Notice 2015-70 specifically invites comments on whether property such as storage devices and power conditioning equipment may also be considered energy property, NHA believes that it is appropriate to focus our comments with respect to energy storage in the hydropower context – pumped storage. As a preliminary matter, NHA requests that any regulations issued with respect to §48 should clarify that property used in the context of hydropower pumped storage facilities constitutes energy property for purposes of the investment tax credit.

### **Overview of Current Law**

A taxpayer can claim the PTC with respect to electricity produced at a “qualified facility” within the meaning of §45(d). A taxpayer may also elect, in lieu of the PTC, the ITC for “qualified facilities,” including “qualified hydropower facilities” described in §45(d)(9).<sup>3</sup> A facility (within the meaning of §45(d)) generally includes all components of property that are functionally interdependent. Components of property are functionally interdependent if the placing in service of each of the other components is dependent upon the placing in service of each of the other components in order to generate electricity.<sup>4</sup>

The ITC is available for “energy property,” including tangible property that is an integral part of a qualified facility furnishing electrical energy.<sup>5</sup> Tangible property is used as an integral part of a qualifying activity of electrical generation if the property is used directly in the qualified activity and is essential to the completeness of the qualifying activity performed in the qualified facility by the property.<sup>6</sup> At the election of the taxpayer, §48(a)(5)(A) provides that any “qualified property” that is “part of a qualified investment credit facility” “shall be treated as energy property” and “the energy percentage with respect to such property shall be 30 percent.”

### **Definition of “Qualified Property” for Hydropower Facilities Producing Incremental Hydropower**

As previously noted, §48 energy property includes “qualified hydropower facilities.” A “qualified hydropower facility” means any facility providing “incremental hydropower production” attributable to efficiency improvements or additions to capacity for which construction starts before January 1, 2017. “Incremental hydropower production” for any tax year is equal to the percentage of the average annual hydropower production at the facility that is attributable to efficiency improvements or additions to capacity.

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<sup>3</sup> §48(a)(5)(C)(i).

<sup>4</sup> See Section 4.04 of Notice 2013-29.

<sup>5</sup> Treas. Reg. §1.48-1(a).

<sup>6</sup> Treas. Reg. §1.48-1(d)(4).

The percentage of incremental hydropower added and the facility's baseline must be certified by the Federal Energy Regulatory Commission. This "percentage of incremental hydropower" certified by the FERC is then used to determine the amount of the PTC that can be claimed on the project.

Other than the statutory provisions cited above, there has been very little guidance with respect to what constitutes a "qualified hydropower facility" besides the Section 1603 guidance issued in 2009 and revised in 2011.<sup>7</sup> That guidance provided that "only property related to the efficiency improvements and additions to capacity to which the incremental hydropower production is attributable can qualify as specified energy property that is eligible for a Section 1603 payment."<sup>8</sup> It further provided that "the eligible basis of a qualified hydropower includes the entire costs of the modification, even though only a portion of the power produced from the modification is attributable to the modification."<sup>9</sup> This conclusion follows from the plain reading of the statutory construct between §§45 and 48(a)(5)(A), whereby "any qualified property" that is "part of a qualified investment credit facility" "shall be treated as energy property" and the "energy percentage with respect to such property shall be 30 percent." If the taxpayer demonstrates the addition of generating capacity and therefore establishes the facility as a qualified facility under §45, then 100% of the basis of the new property that is integral to the facility's qualifying activity, electricity generation, will be energy property and therefore eligible for the ITC (provided such property also satisfies all of the other requirements of §48(a)(5)(D)).

### **Storage Devices**

Notice 2015-70 asks for comments regarding whether "qualified projects" includes storage devices. The legislative history of the energy credit dating back to the Energy Tax Act of 1978 identifies "storage devices" as energy property, recognizing the practical need for the taxpayer to not only generate usable energy, but also to manage the time and manner in which the energy is delivered. The legislative history also references "storage devices" as energy property in terms that contemplate the direct storage of electric energy and thermal energy for later use, such as in the case of water tanks. NHA believes the underlying policy principle similarly applies to system property integral to a pumped storage project that allows the facility to store its primary energy input, water, for a period of time and dispatch the water at a later point in time to provide usable energy.

Guidance issued with respect to Section 1603 payments implicitly acknowledged this general principle when it provided that, "For qualified property that generates electricity, qualified property includes storage devices, power conditioning equipment, transfer equipment and other parts related to the functioning of those items . . ."<sup>10</sup>

NHA proposes that new regulations provide similar tax parity to pumped storage eligible for the ITC based on its function as a storage device. In addition, NHA also notes that, as an alternative basis for ITC eligibility, the pumping and storing of water in an upper reservoir is an integral part for this particular technology of the facility's qualifying activity of generating electricity.

### **Summary of Recommendations and Example**

To summarize, NHA proposes that the new regulations should:

- 1) clarify that the definition of energy property under §48 includes energy storage devices, including pumped storage projects;
- 2) clarify and affirm the application of the integral part rule in the context of qualified hydropower facilities claiming the ITC in lieu of PTC; and

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<sup>7</sup> U.S. Treasury, "Payments for Specified Energy Property in Lieu of Tax Credits under the American Recovery Act of 2009," Revised Apr. 2011.

<sup>8</sup> *Id.* at 14.

<sup>9</sup> *Id.* at 17.

<sup>10</sup> *Id.* at 12.

3) reaffirm that in the case of a facility producing electrical energy from qualified hydropower production, "eligible basis" includes the entire cost of the modification, provided the modification is integral to the qualifying activity of electric generation.

**Example**

NHA suggests the following example be provided in the regulations to articulate the application of the foregoing:

Taxpayer is the owner of a pumped storage project, which pumps water into an upper reservoir when electric demand is low and releases water into a lower reservoir when electric demand is high. Taxpayer upgrades its pumped storage project by installing a new nine-vane reversible pump turbine runner and other equipment that cause the pumped storage project to operate more efficiently and at a higher capacity in both the generating cycle and the pumping cycle. This equipment also allows the facility to store water to generate electricity at a later point in time. The upgrade to the facility is certified by FERC to constitute "incremental hydropower production" attributable to efficiency improvements or additions to capacity.

The pump turbine runner and other property are used directly in the qualified activity of electric generation in that they both generate electricity and store energy for later electric generation. The property is essential to the completeness of the qualified activity of electric generation and is therefore integral to the qualified facility. Accordingly, the property is "qualified property" that is part of a "qualified investment credit facility," and 100% of the property's basis is eligible for the ITC under Code §48.

Thank you very much for taking into consideration the concerns of the hydropower industry as you develop regulations to better define what constitutes energy property for purposes of Code §48.

Sincerely,



Linda Church Ciocci  
Executive Director