
HydroPower Policy Report

Carnegie Mellon University

New Technology Commercialization Project Class



Sheyda Demoei

Tony Fatula

Chris Kim

Michael Wu



CUBE HYDRO™
PARTNERS

Carnegie Mellon University

Department of Engineering and Public Policy
Pittsburgh, PA

Course: Strategy Topics: New Technology Commercialization: Public Policy Strategy

Project Sponsor: Kristina M. Johnson, CEO, Enduring Hydro, LLC

Faculty Advisor: Dr. Deborah D. Stine

Project Team: Sheyda Demooei, Tony Fatula, Chris Kim, Michael Wu

Report Design: Sheyda Demooei

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ACKNOWLEDGEMENTS

We wish to express our special thanks to the following people for their constant support through our project:

Kristina M. Johnson - CEO @ Enduring Hydro, LLC

Dr. Deborah D. Stine - CMU Professor of the practice, Engineering & Public Policy

David Dzombak - CMU Professor & Department Head, Civil & Environmental Engineering

Executive Summary

Throughout history, the United States has mined, refined, and used natural resources like oil and coal to create energy and provide electrical power to buildings and homes across the country. While these natural resources have, for the most part, been found in abundance and are relatively cheap for the consumers, they have undoubtedly had a negative impact on the environment and the earth's ozone layer. In many regions, and Western Pennsylvania in particular, the presence of coal burning power plants are heavily present. Over time, with these countless power plants injecting carbon emissions into the environment, we as a society have reached a tipping point of sorts in realizing that these methods cannot continue. The need for finding sustainable resources that are environmentally friendly is at an all time high. Additionally, in the case of crude oil, many of these resources bring with them multiple layers of political and economic complexities because the United States has had to start importing them from foreign nations.

One clean and sustainable alternative to coal and oil is water; more specifically, using our rivers to generate hydroelectric power that can be distributed across the grid in the same manner as coal based electricity, but in a more favorable manner to the environment and our future. While solar based energy has exploded over the past ten years, as well as wind based energy, the use of hydroelectricity has lagged behind. The opportunity that hydropower has is twofold: first, the hydro sector can use the success of solar and wind to increase the awareness of how successful these sustainable resources can be. Second, since these green sources have entered the market, the United States government has become far more favorable and goal oriented in reducing the carbon emissions in all areas as well as implementing policy specifically focused on helping the market embrace sustainable sources and give them the best opportunity to succeed.

Executive Summary

However, hydropower still faces a non-market obstacle in its road to reaching its full capabilities in providing electricity. A large majority of the dams in the United States are under the control of the United States Army Corps of Engineers, which as a government entity cannot enter in to a public private partnership and accept private equity without approved legislation. As it currently stands, there is no legislation which specifically prevents these partnerships from forming; but there is also no legislation that explicitly lays out governing rules and allows private equity to be applied to government dam facilities. With the presence of rivers throughout the United States, as well as companies like Cube Hydro partners willing to inject large amounts of private equity to outfit existing dam systems with hydroelectric technology, there is no better time than now for companies like Cube Hydro to try and influence policy and push their electric producing technology to the forefront of sustainable energy.

There are multiple pieces of active legislation that Cube Hydro can use to help shape potential legislation in the future; namely the Military Housing Privatization Initiative and the Hydropower Regulatory Efficiency Act of 2013. This report examines the hurdles that have prevented hydropower from scaling as fast as it should, and proposes new public policy that will tackle the issue and potentially allow hydropower to eventually play a more significant role in power generation.

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Introduction

Hydropower is a clean, renewable energy that is underutilized, holding only 7% of the total electricity generated in the United States. [1] Building new dams is an obvious yet inefficient solution to creating more hydropower; to scale hydropower quickly by adding hydropower facilities or even improving upon existing hydropower systems would be a much more logical approach. Unfortunately, legislation or the lack thereof has inadvertently dispersed the appropriate funds necessary to add hydropower quickly onto the grid. By introducing the proper policy one can hope to see in the future hydropower make a significant contribution in generating power.

Technology Overview

I. Hydropower

Hydropower is electricity generated by taking advantage of the energy in moving water. Water flows through a penstock (or pipe) to push blades within a turbine. These blades spin a generator to create electricity. There are three types of systems for generating hydropower: Impoundment, Diversion, and Pumped Storage.

- ❖ **Impoundment:** Water from the ocean, river, or rainfall is stored in a dam then released into the penstock based on the amount of electricity needed. Wicket-gates are installed within the turbine to control the flow of water pushing against the blades, which in turn control the amount of electricity generated.
- ❖ **Diversion:** The force of the current from a running river spins the blades within the turbine directly, generating electricity in the process. The amount of electricity generated hence is dependent on the condition of the river.
- ❖ **Pumped Storage:** Water is stored in two reservoirs, one of higher elevation and the other of lower elevation. When electricity demand is low, water is pumped from the lower reservoir to

higher reservoir. When electricity demand is high, water is released from the higher to lower through a turbine to generate electricity. [2]

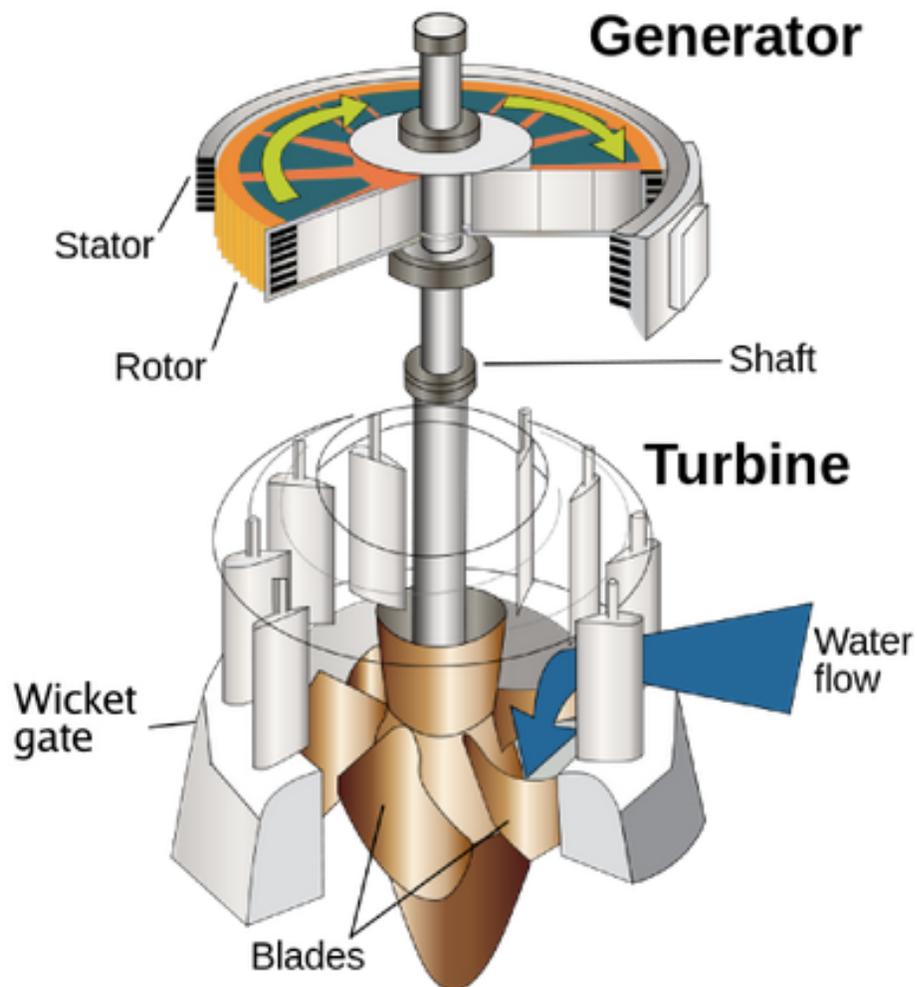


Diagram of a Water Turbine. Water flow spins the blades which in turn spins the shaft, causing the rotor and stator to generate electricity. [3]

Hydropower boasts several advantages:

- ❖ Since hydropower is generated by water, there is no pollution.
- ❖ Because water is everywhere, states do not have to rely on fuel from other states or countries.
- ❖ Hydropower is a renewable energy source as they evaporate and condensate through the water cycle; hydropower can thus be used over and over again.
- ❖ Because hydropower does not require complex processes to generate, it is a great source of backup power during power outages. [4]

II. Enduring Hydro

Enduring Hydro is a company that aims to identify, acquire, and establish or re-establish hydropower facilities at dams in order to make hydropower a bigger energy source. Enduring Hydro prides itself in state-of-the-art hydropower technology and seamless implementation of project plans, including:

- ❖ robust systems that are cost-efficient to not only construct but also maintain. [5]
- ❖ “environmentally sensitive technology and tools, such as fish-safe turbines and habitat-friendly design.”¹
- ❖ Elaborate primary failure mode analysis (PFMA) as required by the FERC and USACE [5]
- ❖ Maintaining frequent communication between all involved parties through:
 - SharePoint site for project documents, permits and approvals.
 - Weekly telecommunications meetings to review design, regulatory approval, construction, schedule and safety.
 - Monthly executive project team meetings to review quality, schedule and budget.
 - Use of the USACE DrCHECKS system for design reviews, comments and resolution.
 - Periodic calls with USACE Pittsburgh District, the USACE Hydroelectric Design Center, and the USACE Risk Management Center.
 - E-mail to the appropriate entities that clearly addressed issues/requirements.”²

¹ Enduring Hydro, "Go Hydro." Accessed March 23, 2015 from <http://www.enduringhydro.com/go-hydro/>

² Kurka, M., Garner, M., & Retzlaff, S. (n.d.). Energizing Investments in Hydropower. Retrieved April 24, 2015, from <http://themilitaryengineer.com>

Challenges & Opportunities

I. Opportunity For Hydropower

According to the U.S. Energy Information Administration, 4058 billion kilowatt-hours of electricity was generated in 2013. How electricity was generated broke down as follows:

- ❖ Coal 39%
- ❖ Natural Gas 27%
- ❖ Nuclear 19%
- ❖ Hydropower 7%
- ❖ Other Renewable 6%
 - Biomass 1.48%
 - Geothermal 0.41%
 - Solar 0.23%
 - Wind 4.13%
- ❖ Petroleum 1%
- ❖ Other Gases < 1%

This makes up of 67% of electricity generated from fossil fuel, 19% from nuclear energy, and 14% from renewables. Even though hydropower makes up nearly 50% of all renewables, it only generates about 7% of the total electricity generated. [1]

There are around 80,000 dams in the United States but only 2,400 of them (around 3%) are used to generate hydropower. [6] There is hence a lot of potential for hydropower to make an impact in electricity generation should even only a portion of the remaining 97% can generate hydropower. Since building a completely new dam is cost-ineffective, the most efficient way to quickly add hydropower to the grid is to revamp existing hydropower facilities that are performing poorly. Companies such as Enduring Hydro, LLC and Missouri River Energy Services are two companies working to add hydropower to existing dams.

Of the top 100 biggest non-power dams, 81 are owned by the USACE. According to the 2014 Sustainable Energy in America Fact Book, converting all of these into dams that do generate electricity will provide an extra 8GW of power. This is nearly 25% of the total amount of electricity generated by hydropower and nearly half of the USACE's hydropower capacity in 2013. [7] The potential hydropower that can be generated from USACE dams is thus enormous.

Furthermore, "[the] Department of Interior in late March released an internal study showing it could generate up to 1 million megawatt hours of electricity annually by adding hydropower at 70 of its existing facilities in 14 Western states: Colorado, Arizona, Montana, Texas, California, Nevada, Oregon, Washington, Wyoming, New Mexico, South Dakota, Idaho, Nebraska and Utah."³

II. Opportunity For Enduring Hydro

The USACE owns 694 dams [8], 75 of which are hydropower facilities that generate a rated capacity of 20,475MW [9]. However, many of these dams are not operating at full capacity due to years of neglected maintenance. [10] Aside from the obvious yet difficult solution of building new hydropower facilities, should current USACE hydropower plants be rehabbed or even expanded, approximately 4,645MW of power can be put on the grid, equivalent to 1.2 million powered US-homes. [11]

II. Non-market Challenges

There are several non-market challenges in a hydropower project, whether it be building a dam or upgrading an existing plant.

What is the environmental impact?

- ❖ Fish and other organisms caught in water turbines are often injured or killed.
- ❖ Because reservoirs tend to have stagnant bodies of water, sediments and nutrients tend to build up and promote growth of algae and water weeds. If left uncontrolled, these can alter the ecosystem within the reservoirs.

³ DeBruin, L. (2011, May 11). US seeking private funds to build Utah hydropower. Retrieved March 23, 2015, from <http://www.businessweek.com/ap/financialnews/D9N584400.htm>

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- ❖ If reservoirs do not release enough water downstream throughout the year, the rivers downstream may dry out and harm the surrounding habitat.
 - ❖ Carbon emissions come with constructing and decommissioning new hydropower plants. [29] Underwater vegetation decomposition when a hydropower plant's reservoir is flooded also contributes to emissions. In addition to methane, carbon-dioxide emissions from these hydro plants can range from 0.01 to 0.5 pounds of carbon-dioxide equivalent per kilo-watt hour. At high emissions, this may exacerbate global warming. [12] However, this emission declines over time, and thus largely reduced when considering older dams which have already undergone periods of gas emissions. [30]

What are the regulations for a hydropower project?

“A hydroelectric project must be licensed or exempted from licensing by the Federal Energy Regulatory Commission if the project is or will be:

- ❖ Located on a navigable waterway of the U.S.;
- ❖ Occupying U.S. lands;
- ❖ Utilizing surplus water or water power from a U.S. government dam; or
- ❖ Located on a body of water over which Congress has Commerce Clause jurisdiction, project construction occurred on or after August 26, 1935, and the project affects the interests of interstate or foreign commerce.”⁴

To encourage the development of hydropower plants in light of this regulation, the “Hydropower Regulatory Efficiency Act of 2013”:

- ❖ Exempts certain hydropower plants from license requirements.
- ❖ Loosened the size limit of dams by defining small hydropower plants as ones that do not exceed 10,000 kilowatts of capacity.
- ❖ Investigates the practicality and efficiency of a two-year licensing process for dam development projects.[13]

Despite these efforts and even though licenses are valid for 30 to 50 years, getting the proper license to begin with can be a cumbersome process.

⁴ Hydropower Applications for Original Licenses. (2015, March 4). Retrieved March 23, 2015, from <http://www.ferc.gov/industries/hydropower/gen-info/licensing/app-org.asp>

What are some issues with controlling dams online?

It is absolutely economical for parties to be able to control dams and organize information on hydro plants remotely through the internet. Unfortunately, this opens up opportunities for cyber-attacks and brings up the question of cyber security. In 2013, it was suspected that Chinese hackers infiltrated sensitive army database which contains information on every major dam in the United States. [14]

However, the biggest non-market challenge for Enduring Hydro is presented in the following question:

What actions, if any, should Enduring Hydro take to help establish public private partnerships in order to allow government owned government operated dam sites the access to private resources and upgrade current dam facilities with hydroelectric technology?

In many cases, the government does not give the development of hydropower plants the priority, meaning it is hard for these projects to receive the proper funding. A solution to this would be for the local or federal entities (such as the USACE) to use private funds for these projects. However, the complexities and challenges mentioned above have investors thinking twice before undertaking a big hydropower project. Furthermore, plants built by both federal and private funding may cause conflicts over ownership. [15][16] This solution is also further complicated given the fact that there is currently no legislation that outlines the steps a private company should take to use its own funds to reinvigorate an existing federal hydropower facility.

The funds are there in the private sector; “52% of hydropower generation is owned by the Bureau of Reclamation, Army Corps of Engineers and other federal entities, ... [the] other 48% is owned by private and public utilities, municipalities and others.” [17] The challenge now is to tap into these funds to quickly add more hydropower to this modern age.

Public Context & Forum

The main crux of the issues facing Cube Hydro involve the current policy, or lack thereof, that clearly lay out any current legislation surrounding the refurbishment of government owned and operated dam facilities with hydroelectric technologies. On one hand, the current status quo of legislation proves to be challenging to Cube Hydro in the sense that there is no current legislation that allows public private partnerships to form around the retrofitting of hydropower dams. However, the opportunity is also provided by the fact that there is no current legislation that explicitly prevents these P3s to potentially form, giving Cube Hydro a chance to potentially swing legislation in its favor.

In addition to the current legislative status quo, it is also important to recognize what actions Cube Hydro has already taken; essentially, a status quo of the current action. Thus far, Cube Hydro has been able to outfit privately owned dams like Mahoning Creek with this new technology with great returns and levels of success. [18] Also, they have been active in laying out their future in the privately owned dam sector, as Cube Hydro has recently purchased ten river based hydroelectric facilities with the ultimate plan of expanding not only their portfolio, but also the amount of hydroelectric energy that is produced.[19] So far, all of the tangible hydro projects completed by Cube Hydro have been on private dam facilities; however, they have actively reached out to organizations like the U.S. Army Corps of Engineers to try and form a P3 in order to exploit any of the many potential hydro facilities owned by the Army Corps.

I. Potential Policy Options

When determining what potential policy options to undertake, the most basic evaluation we conducted was to compare the status quo to two broad policy options that were different than the status quo. Our group evaluated the following options: Status Quo, Allowing P3s to form with little/no regulation, and Allowing P3s to form with higher levels of regulation. These policies were then evaluated against the following criteria: Efficiency, Effectiveness, Equity, and Ease of Political Acceptability. The evaluation and exploration of this comparison will be discussed at further length in

future sections of this paper; however, it is important to note that our evaluation yielded a decision that it is best to allow P3s with higher levels of regulation.

II. Policy Forum

As stated previously in this section, there is currently no legislation that either prevents or allows Public Private Partnerships from forming to install hydroelectric technologies at already existing dam sites. The opportunity for influencing change, while high, could be most effective with the targeting of specific groups to encourage change. Our group determined that there are three key decision makers within the policy forum of potential legislation that favors the stance of Cube Hydro: United States Congress Committee on Natural Resources, the U.S. Army Corps of Engineers Leadership, and the Senate and House committees of Energy.

The role of the United States Congress is to “make laws that influence our daily lives. It holds hearings to inform the legislative process, conducts investigations to oversee the executive branch, and serves as the voice of the people and the states in the federal government.”[20] Taking this basic description into account, Congress is the obvious key target for any proposed legislation. However, Congress is a very large entity, so it would be much more beneficial for Cube Hydro to focus on a specific committee to have the greatest chance of influencing legislation. The House Committee on Natural Resources “considers legislation about American energy production, mineral lands and mining, fisheries and wildlife, public lands, oceans, Native Americans, irrigation and reclamation.”[21] Legislation that is favorable to the interests of Cube Hydro, and the overall proliferation of hydroelectric energy, will never come to fruition without congressional action. Having a committee like Natural Resources as an ally will assuredly help the process of making any improvements in legislation that favor Cube Hydro. Therefore, Cube Hydro should focus most of its energies on targeting Congress through education, legal, and lobbying type efforts.

As previously stated, a very large portion of the dams in the United States that possess hydro capabilities but are currently not exploiting the capability, are property of the U.S. Army Corps of Engineers. The Army Corps would most likely be receptive to forming a partnership with Cube Hydro, based on their recent actions in regards to hydro power. In March 2015, the Departments of Energy, Interior, and Army for Civil Works announced an extension to a previous agreement to advance the

development of hydropower for the next five years.[22] While this agreement is not tied specifically to the USACE, it includes another department within the U.S. Army as well as government agencies. This agreement shows that many agencies are committed to developing hydropower, but currently just amongst other government agencies.[23] Two things that Cube Hydro can provide to an agreement like this are the advanced technologies that have already been implemented at places like Mahoning Creek, as well as private sector money. Often times, projects that are funded by the government are slow to develop.

The third target group for Cube Hydro are the Senate and House Committees on Energy. Having legislators who have been assigned to these particular committees in line with the ambitions of Cube Hydro could provide huge returns for shaping future policy. These committees have specific subcommittees within them that help shape and introduce legislation for pointed areas. For example, the House Energy & Commerce Committee contains subcommittees on Energy and Power, as well as Environment and the Economy.[24] These committees are in addition to the House Committee on Natural Resources that was discussed earlier. Clearly, these committees within the Senate and House will be key decision makers, and should be targeted with any proposed changes or additions to standing legislation brought forward by Cube Hydro.

III. Legislation Models

While there currently is not any active legislation either allowing or preventing the forming of P3s for hydroelectric generation, there are two previous approved articles of legislation that Cube Hydro can use as a model and potentially a vehicle to induce change for hydropower generation.

First, the Military Housing Privatization Initiative (MHPI) was included in the National Defense Authorization Act of 1996. [25] This initiative allowed branches of the military (Army, Navy, Air Force, etc.) to partner with private companies, accept private equity, and form public private partnerships in order to renovate existing facilities on military installations.[26] While housing renovations are far from the same as generating and commercializing hydro electricity, the basic tenants of the MHPI can serve as a model for Cube Hydro. In addition to the verbiage within the actual legislation that allows these military agencies the freedom to operate within P3 standards, Cube Hydro can present figures that show how efficient and economic a public private partnership can be. From its

approval in 1996, to the end of 2012, “193,000 family housing units were privatized compared with 53,000 government-owned units.[27] The MHPI results show that not only can a public private partnership work, but it is an example of a P3 that is thriving and should be emulated by others in the future. The MHPI continues to this day, and as it nears its 20th year in action, its structure and legislative layout should serve as a framework in Cube Hydro’s attempt to overhaul the hydroelectric power generation sector.

While the MHPI is valuable as a previous example of a P3 succeeding, the Federal Hydropower Regulatory Act (FHRA) of 2013 is the piece of legislation that we feel would best serve Cube Hydro’s efforts in inserting an additional provision for the next Hydropower Regulatory Act. In the 2013 version, the Hydropower Regulatory Act details:

“(1) exempts certain conduit hydropower facilities from the licensing requirements of the Federal Power Act (FPA);

(2) amends Section 405 of the Public Utility Regulatory Policies Act of 1978 to define "small hydroelectric power projects" as having an installed capacity that does not exceed 10,000 kilowatts;

(3) authorizes the Commission to extend the term of preliminary permits once for not more than 2 additional years beyond the 3 years previously allowed under Section 5 of the FPA; and

(4) directs the Commission to investigate the feasibility of a 2-year licensing process for hydropower development at non-powered dams and closed-loop pump storage projects.”[28]

The FHRA is a very good step in advancing the practice and regulation of hydroelectric generation. However, it still lacks any concrete passages on the approval or disapproval of organizations establishing a public private partnership. This specific piece of legislation can serve as the vehicle to legalizing P3 activity.

IV. Potential Policy Action Avenues

1. U.S. Army Corps of Engineers Action
2. U.S. Congress Action
3. White House Action

Range Of Outcomes

Option 1: Status Quo

The status quo is likely to be partially effective as Cube Hydro currently has 13 dams in their portfolio. The Effectiveness of this method, therefore, is relatively positive as by purchasing and refurbishing existing hydropower dams, Cube Hydro is adding to the overall MW energy produced through hydropower. However, as the majority of these dams are small and do not produce a significant amount of electricity, the efficiency of this method is negative as it would take a very long time for this route to amount to a significant change.

	Status Quo
Effectiveness	+
Efficiency	-

Option 2: Working With the U.S. Army Corps Of Engineers

Our first alternative is working solely with the USACE. This option is likely to be more effective than the status quo, since the USACE owns 81 out of the top 100 hydropower dams in the United States. We can assume that the USACE is interesting in the idea of reopening and refurbishing existing hydropower dam as they recently renewed a five-year partnership with the Department of Energy and the Department of Interior to advance hydropower [22]. This route would also be very efficient since the ratio of effort versus the achieved outcome will be very small, i.e. less effort required for a large payout. However, the option is not as effective as the USACE currently lacks the necessary funds to repair and maintain existing hydropower dams.

	Status Quo	USACE
Effectiveness	+	-
Efficiency	-	+

Option 3: Working Through Congress

A second alternative is working through congress to add a piece of legislation to an existing authorization act in order to provide specific guidelines for the USACE to be able to accept private funds to re-power existing hydropower-generating dams. This option is very effective, as the guidelines would assist in resolving USACE’s current uncertainty around obtaining private funds. However, since the amount of work required in order to achieve this outcome is higher than the status quo and the first alternative, in comparison to the other two options, the efficiency of this alternative is negative. As mentioned before, accepting funds in order to reopen existing dams runs the risk of not acquiring enough funds to cover maintenance of the dams as well. Without those funds the USACE would not have the necessary funds to maintain the reopened dams. Therefore an amendment or an added section to the Hydropower Efficiency Act of 2013 needs to specify that private companies have to maintain the dams as well as reopening them.

	Status Quo	USACE	Congress
Effectiveness	+	-	+++
Efficiency	-	+	-

Option 4: Working With The White House

A final alternative is shooting for an executive action through the White House. Some committees that may be useful in this alternative are the Office of Science and Technology Policy and the Office of Management and Budget. However, given the short remainder of President Obama’s term in office, as well as the uncertainty of the next administration, the likelihood of achieving this goal is relatively low. Therefore the effectiveness of this alternative is negative. Likewise, since the amount of work and effort required is much larger than the outcome achieved, the effectiveness of this alternative is also negative.

	Status Quo	USACE	Congress	White House
Effectiveness	+	++	+++	-
Efficiency	-	+	-	--

Bargaining Context

In this section we will evaluate the responsiveness and equity of the status quo and the other three alternatives mentioned in the policy forum so that we can predict the outcome of each alternative. Responsiveness measures the degree to which the parties involved in each alternative will facilitate our path towards our end goal. Finally, equity will be broken down into two sections: Public and Competitors. Public equity will contain both the general public and environmentalist groups. Competitor equity will consist of both companies in direct competition with Enduring Hydro as well as companies in direct competition with Hydro Power in general.

***Status Quo:** The status quo for bargaining context will serve as the baseline to which all other options will be compared. Therefore, both responsiveness and equity are neutral*

I. Responsiveness

Currently, Cube Hydro has been in contact with the U.S. Army Corps of Engineers and they have expressed interest in accepting private funds to reopen and renovate existing hydropower-generating dams. Therefore, the responsiveness of the first alternative (or second option) is positive.

In comparison to the first alternative, adding a section to an existing authorization act can be relatively difficult and required a number of different channels and connections through congress in order to get the additional section passed. Therefore, the responsiveness of working through congress is negative.

Finally, while Cube Hydro executives know the ins and outs of working with the White House, the entire process of obtaining an executive action will require a considerable amount of time and effort, as getting in touch with the Office of Science and Technology Policy and the Office of Management and Budget can be difficult. Therefore, the responsiveness of this option is more negative than the other three.

II. Equity

As the final outcome of all three alternatives is the same (i.e. generating private funds to reopen existing USACE hydropower-generating dams), the equity section of the bargaining context does not need to be broken down by alternative.

Public Equity

Public equity can be broken down into two sections. On one hand, the general public will be happy overall with the reopening of hydropower-generating dams, as the price of electricity in the long run will go down. On the other hand, environmentalist groups could be against this action, as restarting dams could affect wildlife and the ecosystem surrounding the dams. It is worth mentioning, however, that Cube Hydro's technology does reduce the number of fish-kills per dam. Therefore, Public Equity for all alternatives is a mixture of positive (from the general public's end) and negative (from the environmentalist groups' end).

Competition Equity

Competitors of Cube Hydro are defined as private companies similar to Cube Hydro who are interested in funding the refurbishment and maintenance of existing publicly owned hydropower dams. Allowing private companies to renovate and maintain existing hydropower dams will generate more competition, which could in return lead to more dams being renovated thereby reducing the cost of electricity overall while bringing on more help for the USACE. Therefore the equity of the competition is positive.

	Status Quo	USACE	Congress	White House
Responsiveness	0	+	-	--
Equity - Public	0	++/-	++/-	++/-
Equity - Compe	0	+	+	+

Strategy

Based on our analysis, we have identified that working with the USACE and with members of Congress is both effective and efficient in getting Cube Hydro access to existing hydroelectric dams. As USACE is the owner of the dams, any strategy would have to include their support and approval. However, the issue of no specific legislation allowing public private partnerships still remains. Therefore, we recommend that Cube Hydro do its due diligence in targeting specific politicians in order to increase the likelihood of favorable policy. These key politicians include:

1. Lisa Murkowski (R, AK) - Chairman of Senate Committee on Energy and Natural Resources
2. Fred Upton (R, MI) - Chairman of House Committee on Energy and Commerce
3. Rob Bishop (R, UT) - Chairman of House Committee on Natural Resources

I. Strategy for USACE

1. Within USACE, correspond with Chief of Engineers and Assistant Secretary of the Army (Civil Works). According to Section 408 of the “Policy and Procedural Guidance for Processing Requests to Alter USACE Projects”, the authority to grant permission for alterations is held by the Secretary of the Army who acts on the recommendations of the Chief of Engineers.
 - Contact the smaller subsections of USACE including the Pittsburgh District, and the Great Lakes and Ohio River Division.
 - Find out their concerns and hopes for a partnership
 - Based on previous successes of privatization in military housing and hydroelectric dams including the Mahoning Creek Dam Project, recommend to the Chief of Engineers and Assistant Secretary of the Army to modernize old USACE hydroelectric using P3’s.
2. Once the idea is approved by the Chief of Engineers, the Secretary of the Army may be open to authorizing existing hydroelectric projects to private companies on a case by case basis.

II. Strategy Congress

For congress, Enduring Hydro should set out to make a case for the approval of the legislation. To achieve this we recommend the following actions:

1. Study the economic benefits of developing existing dams
2. Collect independent reports pertaining to the benefits and potential of hydropower on existing dams
3. Study the success of the Military Housing Privatization Initiative
4. Draft an addition to the Hydropower Efficiency Act similar to the MHPI but enabling P3's for hydroelectric dams
5. Address potential environmental and public concerns
6. Hold information sessions to let the public and members of Congress know the benefits to the new legislation and dispel misconceptions about hydropower
7. Form a coalition of private and public groups including environmental organizations, USACE, and similar companies that want to develop hydroelectric dams
8. Submit the proposal to Congress

Based on the success of the Military Housing Privatization Initiative, Enduring Hydro should seek to use similar verbiage to draft an addition to the Hydropower Efficiency Act. This proposal should lay out the legal ownership, maintenance responsibilities, and financial details. To get this proposal passed, political support is necessary. We recommended that Enduring Hydro first compile independent reports that support hydropower as a public, economic, and environmental benefit. Reputable sources of this information include the Electric Power Research Institute as well as university studies. Hold information sessions and show how the public, government, private developers, the USACE and other stakeholders stand to gain from the legislation. Form a coalition with parties that support the legislation with political influence such as the Environmental Protection Agency, USACE, and supporting members of Congress. Finally, submit the proposal to the US Senate Committee on Energy and Natural Resources as well as to the US House Committee on Energy and Commerce.

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Appendix

Military Housing Privatization Initiative Diagram

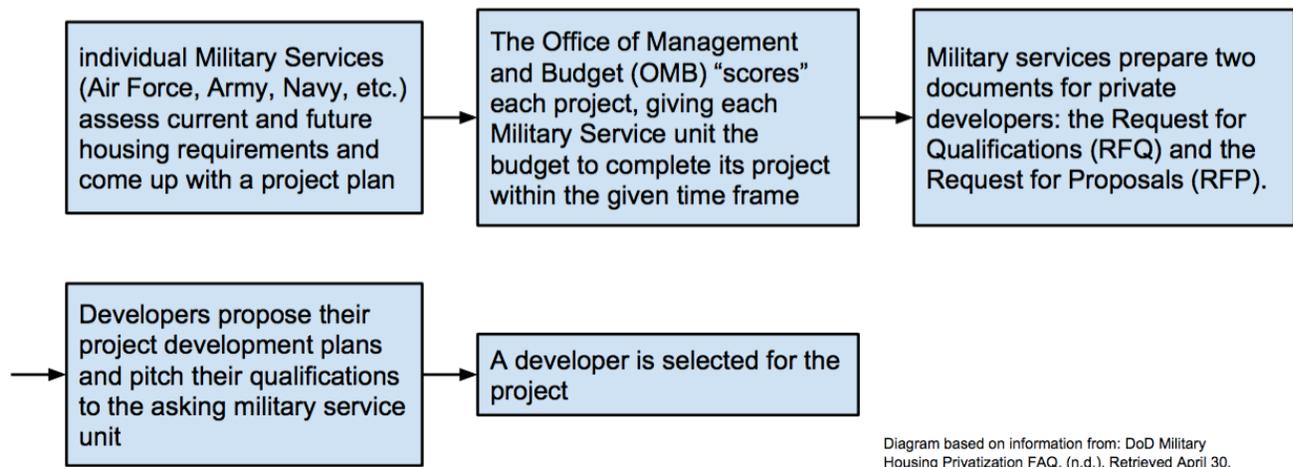


Diagram based on information from: DoD Military Housing Privatization FAQ. (n.d.). Retrieved April 30, 2015, from <http://www.acq.osd.mil/housing/faqs.htm>

**Carnegie
Mellon
University**

5000 Forbes Ave, Pittsburgh, PA, 15213
Professor Deborah Stine
dstine@andrew.cmu.edu