

**Developing Policy to Uplift Native American Tribes Affected by Hydropower in the
Columbia River Basin**

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On my honor as a University Student, I have neither given nor received unauthorized aid on this
assignment as defined by the Honor Guidelines for Thesis-Related Assignments

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Research Question and Significance

Focusing the world's energy and electricity on renewable sources has never been a more relevant topic. Climate change and global warming are in full force as carbon emissions and greenhouse gases continue to populate the atmosphere; this has the effect of trapping radiation emitted from Earth in the atmosphere resulting in rising temperatures across the planet. The world of science and public policy have equally acknowledged the dangers posed to our planet if shifts toward renewable energy sources like hydropower are not made. In the United States, one prominent hub of renewable energy is the Columbia River Basin. For decades, the dam system in this area has been a major energy supplier for the California power grid—a grid which also depends on solar, wind, and natural gas. With the trends in climate change, finding a way to optimize the existing dam system and shift the power grid to 100% renewable energy through simulation and modeling has become imperative.

The dams constructed in this area have not come without significant drawbacks—namely the environmental impacts and resulting social impacts. The dams' ongoing operations have had the effect of reducing accessibility to salmon populations and reducing salmon runs in the Columbia River Basin. This is significantly disrupting the way of life of Indigenous populations who have relied on salmon for centuries as a staple food and a traditional symbol. Furthermore, the period between the 1930s and 1980s when the dams in this region were constructed was characterized by significant displacement and loss of Native American territory, leaving many tribes today living in federally assigned settlements with unsafe living conditions. Rapid industrialization and legislation geared toward the use of hydropower has completely disregarded the sentiment and needs of Indigenous residents—a reality that is only starting to be addressed. This is a shocking example of the government implicitly relying on technological determinism as

the dam system in the Columbia River Basin has expanded over time. The United States has a dark reputation of committing egregious acts of genocide against Native Americans and ostracizing them from their settlements and homelands. If the present disenfranchisement of Native Americans because of the dams in the Columbia River Basin continues to go unaddressed, the nation is setting a dangerous precedent about the sacrifice of human rights for the sake of technology. An important contradiction in this system however is that the expansion of hydropower and creation of these dams has been both economically motivated—reducing the price of energy in the region—and environmentally motivated—slowing climate change. These objectives are beneficial to our society, which makes establishing reparations for the effects that hydropower advancement has had on Native Americans such a complicated subject.

Therefore, this research seeks to draw upon a body of literature involving hydropower legislation instituted by the US federal government and policy analyses conducted in academic literature regarding the impacts of hydropower on a global scale. With this evidence, an argument can be crafted around what the most successful approaches and frameworks are for hydropower policy going forward in the California River Basin that ensure the rights and survival of Native American tribes in the region. Exploring a multi-stakeholder process in the context of hydropower in California is a beneficial exercise for the federal government; with the progression of climate change and scarcity within the energy market, there may come instances in the future where the federal government will have to address the needs of multiple social groups and constituents who may be better represented than Native Americans. In these cases, lobbying and legislative pressures will be much greater so getting experience with comprehensive stakeholder analysis for hydropower in California could provide an extremely valuable precedent if such cases do arise in the future.

Background & Context of the Question

In discussing matters involving the historic relationship between Native Americans and the federal government in the Columbia River Basin, there are several important organizations and groups that should be well defined first. The first is what constitutes hydropower in the Columbia River Basin. The Columbia River Basin is one of the nation's largest watersheds dedicated to the Columbia River, covering 260,000 square miles and providing drainage for hundreds of rivers, creeks, and streams. Beginning in the 1930s, the construction of dams depending on this river was normalized by the federal government to provide flood control, hydroelectricity, water for irrigation, locks for navigation of boats and barges, and places for recreation. The Columbia River System, which was created as part of a larger effort by the federal government called the FCRPS (Federal Columbia River Power System), is managed as a coordinated system for public use by the federal agencies (FCRPS Hydrosystem, CPN Region | Bureau of Reclamation). The management of the river's use by the government has led to significant disruptions to environmental flows and the way of life of the indigenous people who also depend on the Columbia River.

The Environmental Protection Agency has this to say on their website about the effects of overuse of the Columbia River—in large part due to hydropower operations: “But heavy use has also caused significant declines in water quality in some areas, putting human health at risk and threatening the survival of salmon and other species” (US EPA). The Environmental Protection Agency goes as far as to acknowledge the negative impacts that have occurred due to widespread hydropower operations with the Columbia River Basin—systems put in place by the federal government. The tribal people they mention furthermore are the most affected group as they have had to deal with seizure of their homes and a disruption to a food source that has been a staple of

their culture for generations. Notable Pacific Northwest tribes that have been impacted in such ways include the Nez Perce, Warm Springs, Yakama, and Umatilla—all of whom settled with the federal government in the 1950s for their lost sites. The major stakeholders on the federal side of hydropower operations in the Columbia River Basin are the US Army Corps of Engineers, the Department of Energy, Congress, and the Supreme Court. Some important legislation can be pointed to that represents the federal government's efforts to acknowledge the struggles of Native Americans due to hydropower: In 2016, under the Obama Administration, the United States Army Corps of Engineers developed plans to construct a Native American village in the region to create more permanent housing. Congress also passed the Water Infrastructure Improvements for the Nation Act, which gave additional financial assistance for long-displaced tribal members (Phillips). One large-scale program by the federal government that has proven effective over time in securing environmental flows and supporting freshwater biodiversity is the 2002 Columbia Basin Water Transactions Program in the Pacific Northwest (McCoy et al.). This initiative is responsible for helping restore environmental flows in dewatered tributary habitats for salmon over the past decade.

Methods

This research seeks to draw upon a body of literature involving hydropower legislation instituted by the US federal government, policy analysis conducted in academic literature regarding the impacts of hydropower on a global scale, and the testimonies of Native American tribes. I will analyze past cases domestically and internationally where frameworks and stakeholder analysis have been applied to hydropower implementation to balance the needs of multiple actors. From these, I will derive how the approaches utilized elsewhere in the world for

hydropower can be transferred to the case of the Columbia River Basin and the struggle of Native Americans by looking for common themes. Political frameworks can be used to address situations that involve multiple stakeholders such as the issue of hydropower operation where the stakeholders include the federal government and the Native American population. A good framework to look at to understand how it is applied comes from *Discussing Large Dams in Asia After the World Commission on Dams: Is a Political Ecology Approach the Way Forward?* by Ravi Baghel and Marcus Nüsser. This source proposes a new framework for the future examination of large dams and hydropower projects. The paper is a criticism of the guidelines proposed in the World Commission on Dams (WCD) final report which were rejected by Asian governments. The approach that they propose moves away from the subjectivity of the measure of costs and benefits of dams done by the WCD, and more toward “examining the shifting asymmetries and discursive flows that sustain and promote dam building over time” (Baghel & Nüsser). This approach is considered more dynamic and comprehensive than a set of rules which do not adapt well to changing economies and environments. They also discuss the incorporation of multiple actors, stakeholders, and driving forces. This framework offers guidelines that can be analyzed and compared to other scholarly work in this field to determine commonalities between them—allowing me to generate an evidence-based recommendation for a suitable framework for implementing hydropower in the future and how to address the case of the Columbia River Basin.

Political Ecology Framework

The framework of political ecology requires that ecological structures and functions from rivers to planets be coupled with the social, political, cultural, and economic influences that

humans have over them in order to be completely understood and conceptualized. These influences include power relations that manifest themselves in human-environmental interactions. The classic definition of political ecology made by Blaikie and Brookfield is the combination of ecological concerns and a broadly defined political economy (Blaikie & Brookfield). The definition has considerably evolved since then. The first-generation definition proposed that local ecological changes be understood in the context of global relations of power and global capitalism, but still viewing nature as external and separate from humans. “One of the most significant changes in the field was the resulting shift in focus away from finding underlying political and economic 'structures' reproduced as environmental change. Poststructural political ecologies attempt to understand how the unequal power relations amongst social groups, and the 'knowledge' that mediates human-environmental interactions, are reproduced as present-day ecological changes on all scales” (Baghel & Nüsser). While a poststructural political ideology allows for a better accounting of all stakeholders involved in dam projects, it requires a certain level of cooperation from countries who possess very arbitrary demarcations of territorial entities which complicate the prioritization of ecology. Political ecology can in cases like these be directed toward the centralized construction and governance of large dams in order to target the source.

This framework also incorporates an actor-oriented model to look at environmental change and land use conflicts that are occurring within a politicized environment. Expanding the focus of technical systems to include complex stakeholders, this framework enables the discovery of deep rooted, institutional problems in land use conflicts. The authors state that “The key types of actors in the discussion on large dams are national states and governmental institutions, dam building industry associations and engineering companies, multilateral funding

institutions, environmental non-governmental activist groups, and the adversely affected people” (Baghel & Nüsser). Under this framework, actors are defined not only by their political and economic interests but also by the symbolic and cultural relations that they have with both rivers and dams.

Results

To analyze how existing frameworks applied to hydropower and the plight of Native Americans in the Columbia River Basin, it is important to perform a thorough stakeholder analysis of the cases, including the American case, that will be looked at. By establishing the important categories that can best represent the important aspects of these domestic and international cases, it creates the opportunity to look for similarities that exist with the Columbia River Basin case as well as how differences across these categories could reveal the best hydropower policies that could work for the United States. For each case, I will attempt to define the relevant stakeholders as well as their relevant needs, objectives, and motivations, the environmental and economic impacts of hydropower, the existing licensing processes behind hydropower implementation, legislation that addresses the impacts of dams, and proposed solutions and frameworks in these cases for the governance of hydropower. With these pieces of information, I can determine the transferability of these solutions and frameworks to the case of the Columbia River Basin.

I will start off by looking at the case of the United States and tribes in the Columbia River Basin. The first set of important stakeholders to look at are the federal agencies involved in hydropower—the Federal Energy Regulatory Commission (FERC), the U.S. Army Corps of Engineers (USACE), and the Bureau of Reclamation (BOR)—all of which are responsible for regulating and managing hydropower and dam projects in the United States. The next group is

state and local governments, who are responsible for granting permits and managing water resources. The next group is tribal nations who reside on the lands where the federal government has constructed dams. The next group is environmental and conservation organizations and lobbyists who are the advocates for the protection of the environment from the negative impacts of hydropower and dams. The last group is energy producers—both public and private—who own and operate many hydropower and dam projects. The main interactions between objectives and motivations comes from the misalignment of priorities among the federal management of dams, lobbyists, and tribal nations.

Hydropower brings a significant economic opportunity for the United States but at the expense of the environment and the livelihoods of indigenous people, creating strife among these stakeholders. The economic impacts of hydropower in the Columbia River Basin are undeniable; the hydroelectric power generated by dams in the region provides affordable power to homes, businesses and industries, the water stored behind the dams are used for irrigation in the agricultural industry, and the dams facilitate transportation for ships and barges to navigate the Columbia River for the transport of goods—supporting international trade and commerce. On the other hand, there are significant negative impacts on the environment caused by these dams discussed earlier such as the loss of salmon and other fish populations which tribal nations rely on as a food source. Furthermore, the disruption of these fish species has had negative impacts on commercial and recreational fishing industries. Lastly, the construction of these dams has led to displacement of Native Americans from their homes. Licensing processes for hydropower projects in the United States has proven to be a sore point for the sector even according to the federal agencies overseeing dams. The Department of Energy have stated in their description of the current state of hydropower in the U.S that there is “uncertainty in licensing-related

processes” and that the “outcomes may adversely affect development costs, timelines and financing options” (O’Connor et al. 2016). There has been concern among stakeholders that inefficient, overlapping, and interpretive regulation of hydropower has led to delays and costs that pose long-term business risks to hydropower owners, operators, and developers. This flawed licensing processes has proven costly to Native Americans as stakeholders in the Columbia River Basin hydropower system. A representative in Congress from California—Jared Huffman--said this in a 2016 oversight hearing before the Subcommittee on Water, Power and Oceans of the Committee on Natural Resources: “In the early 20th century, the Federal Government allowed hundreds of permits to build dams on the public's rivers. The licensing process frequently did not take into account seriously, at least any of the effects of these facilities on fisheries, recreation, or tribal and public lands. Although the ingenuity and industriousness of our forebears was laudable, is laudable, today, thanks to science and real-world experience, we simply know that we can do better” (Realizing the Potential of Hydropower as a Clean, Renewable and Domestic Energy Resource). Huffman further expressed serious concerns about the House Energy Bill that was passed stating that it “undermine(s) the ability of states and Federal natural resource agencies to place reasonable conditions on hydropower licenses and protect tribal and public lands, safeguard water quality, and fishery resources” (Realizing the Potential of Hydropower as a Clean, Renewable and Domestic Energy Resource).

One important piece of historical legislation to look at to understand the historical relationship of Native Americans and federal hydropower in the Columbia River Basin is the Pacific Northwest Electric Power Planning and Conservation Act (NWPPC) of 1980. The NWPPC directed federal agencies to lessen the harm of hydropower projects on wildlife populations, especially salmon, which are important to the cultural practices and subsistence of

many Native American tribes in the area. It also formed a Power and Conservation Council, which included Native American tribe representatives, to supervise the creation and execution of mitigation measures for the consequences of hydropower projects. The council also encourages the participation of tribes in managing fish and wildlife resources in the Columbia River Basin (Northwest Power Act 1980). On August 4, 2022, the Biden-Harris Administration announced a defining step to continue advancing progress in the longstanding dispute over the operation of 14 federal dams in the Columbia River Basin and their impact on the region's fish populations. The United States federal government, the State of Oregon, and several Native American tribes, including the Nez Perce, Spokane, and Coeur d'Alene tribes, as well as a coalition of plaintiffs led by the National Wildlife Federation, have agreed to extend the stay in litigation until August 31, 2023. The goal is to continue working together to find solutions that restore salmon and other native fish populations while meeting the needs of the diverse stakeholders in the region, including those involved in irrigation, transportation, water supply, and recreation. This collaborative process will allow for the identification and implementation of durable, long-term solutions that honor federal commitments to Tribal Nations and provide affordable and reliable clean power (Biden-Harris Administration Announces Continued Progress to Improve Conditions for Salmon and Other Native Fish in the Columbia River Basin). What this announcement by the current presidential administration indicates is that the federal government has still not made sufficient progress in adapting the hydropower system in the California River Basin to properly accommodate for tribal nations, leading to the extension of the litigation. A successful framework for hydropower implementation is therefore crucial for arriving at a swift and practical solution for the dispute between Native Americans and the federal government. Otherwise, litigation will continue to be extended as the federal government's priorities evolve over the next year.

Furthermore, an efficient solution is necessary for making proper reparations to Native Americans and acknowledging their humanitarian rights in the United States.

The next case for hydropower implementation I will look at that provides the first new framework—called political ecology--we can use to search for a potential solution for Columbia River Basin comes from *Discussing Large Dams in Asia After the World Commission on Dams: Is a Political Ecology Approach the Way Forward?* by Ravi Baghel and Marcus Nüsser. In Asia, China and India have emerged as hubs for dam construction like the West Coast in the United States. In a post-colonialist world, dam construction has symbolized an opportunity for human dominance over nature and economic growth in these countries. The earliest model for regulating entire river basins through a series of dams was the formation of the Tennessee Valley Authority (TVA) in the United States in 1933. This suggests that the United States has been instrumental in dictating how dams and hydropower have evolved globally. Furthermore, the formation of the TVA is an immediate precursor to the dam construction projects of the 1930s led by the federal government in the Columbia River Basin. The organization is characterized as “grassroots democracy” due to its centralization of policy, coupled with decentralization of implementation, and a focus on both technical and social engineering dimensions. The TVA framework was influential in India and Pakistan who sent several professional visitors to survey the organization in the 20th century. Furthermore, the adoption of a democratic framework for hydropower implementation internationally proved beneficial for the United States as it was a way to combat the spread of communism in Asia; “During the 1950s, under the 'socialist' government of Nehru, newly independent India was building a large number of dams. When there was a financial crunch, US diplomatic circles were quite concerned regarding the possible failure of the projects and tried to arrange aid for India to cover the shortfall. The success of projects like the DVC and

the iconic Bhakra Nangal was seen by US policy makers as essential to preventing India ‘falling to the communists’” (Baghel & Nüsser).

The major agents for dam building across Asia included state planners, engineers, bureaucrats and political leaders, as well as surrounding nations that could be affected due to water disputes in Asia; coming from third world nations, the stakeholders for hydropower implementation in Asia throughout the 20th century exhibited a common ideal—that of “high modernism” which dams symbolized. Rivers in these areas have been ‘denatured’ as the government’s perception in the present day of them shifted away from their natural value toward a more utilitarian perception—“simplified and manageable technological hydroscares” (Baghel & Nüsser). To look at the economic and environmental of the utilitarian perception of dams that was forming in Asia throughout the 20th century, we can use the case of the Bhakra Nangal dam in India. The project was proposed by the Punjab government, which at the time was a disputed territory between India and Pakistan, and would utilize the Sutlej river, running through both India and Pakistan. The project resulted in an increase in irrigated area and food production and 93% of the originally displaced people have received some form of resettlement. A stakeholder group that was negatively impacted by this dam is the nation of Pakistan; “The Indian government impounded the flows of Sutlej and Ravi into Pakistan in April 1948, drying up the canals in (Pakistani) West Punjab. Although India claimed this was done due to the lapse of an agreement on maintaining river flows, it was widely believed that this action was revenge against the Pakistani-backed invasion of Kashmir. This was soon followed by the beginning of work on Bhakra, and the ensuing protests by Pakistan resulted in arbitration by the World Bank ... The building of Bhakra also strengthened India’s negotiating position on the use of Sutlej waters, as otherwise Pakistan would have gotten a much larger share of the river waters, based on historical

use” (Baghel & Nüsser).

Analysis of the Bhakra Dam case through a social, political, and economic lens reveals the need for a framework like political ecology in the case of the Columbia River Basin that examines the effects of large dam systems as well as the causes in the form of economic and political motivations and power relations. This enables preemptive measures against potential disputes that may occur among stakeholders due to hydropower projects, mitigating the costs associated with conflict and mediation for all parties. As the framework of political ecology states, examining the Bhakra dam through a comprehensive lens incorporating politics and ideologies allows for an extension of the discussion on the potential negative impacts that a dam poses to certain stakeholders. The project framed its benefits as increasing Indian irrigation area whereas outscoping the problem shows that it was a mere shift in irrigation area from Pakistan to India, revealing the necessity for well-defined boundaries between nations if hydropower implementation is to occur.

Discussion

The task now is to understand how we can use the application of political ecology in Asia and its preemptive recommendations in order to inform hydropower implementation in the Columbia River Basin for the future and address the plight of tribal nations in the region. In the previous section, the case of the Bhakra Dam was examined under the political ecology framework to reveal grave downsides to its construction. An important similarity between the Columbia River Basin case and the Bhakra Dam case is the relevance of arbitrary demarcations of territorial entities, which are discussed as problematic in the political ecology framework toward reaching a stakeholder consensus in hydropower projects. In the case of Bhakra, the state of Punjab served as a disputed territory through which the Sutlej River flowed; India exploited

this disagreement to dominate the body of water through the dam and discourage Pakistan's access to the body of water. In the case of the Columbia River Basin, the US government has excluded tribal participation for 50 years in negotiations surrounding the governance and implementation of the Columbia River Treaty of 1964, ratified between the US and Canada to reduce flood risks and develop hydropower capacity (Columbia River Treaty). Throughout the 19th and 20th century, Native Americans were coerced into signing treaties ceding over large portions of their land, they were subjected to forced removals and moved to reservations, they fell victim to assimilation policies by the government, and their traditional homelands were flooded for hydropower projects. The core of these issues is arbitrary demarcations of territorial entities by politically and economically motivated states, India and the United States respectively. Using the political ecology framework, a clear recommendation is finding a way to reconcile the land disputes between the US government and Native Americans. Furthermore, in future hydropower implementation projects, any territorial disputes should first be resolved and clearly defined before projects proceed. Measures like this save the stakeholders from having to incur costs associated with the disputes that occur due to these projects.

Using the political ecology framework and its goal of avoiding territorial disputes in order to further hydropower, the US government should consider property rights for Native Americans. Indian reservations contain ~30% of the nation's coal reserves and ~20% of known oil and gas reserves, the value of which is upwards of \$1.5 trillion \$290,000 per tribal member. 86% of these lands are undeveloped because the federal control of reservations bars Native Americans from fully capitalizing on these resources (Regan, S. E., & Anderson, T. L). The federal government holds Native American land "in trust," which means that they cannot own the land and they cannot build equity. They are unable to reap the normal monetary benefits of

owning land through selling it, buying more for economies of scale, and borrowing against it. What is more is that they cannot use the natural resources that are a part of these lands for their own gain. Therefore, Native Americans are essentially excluded from the free-market process and left to their own devices for their survival in a capitalist economy.

A number of tribes in Canada are pushing legislation called the First Nations Property Ownership Act, which would create the legal framework for individual members of First Nations to access capital through secure property rights ... First Nations members who wanted to lease their land for the development of natural resources would be able to do so without seeking permission from the national government. And those who wanted to sell their property would be able to select the highest bidder, regardless of race, take that money, and put it to use for themselves and their families. Finally, those who wanted to keep their land would be able to borrow against it to build a home or start a business” (Riley, N. S.).

The United States should consider such a legislation so that proper reparations can be made to Native Americans in an everchanging and dynamic economic landscape. In the case of the Columbia River Basin, this would address the significant displacement that Native Americans have experienced as well as potentially give them the financial and institutional resources they need to address the environmental impacts that dams have had on salmon populations—a major staple of their food supply and culture. As of 2022, Native American tribes have been taking environmental restoration efforts into their own hands; Native American tribes in the Columbia River Basin like the Coeur d’Alene, Colville, and Spokane tribes are attempting salmon restoration efforts and are doing so successfully through cultural and educational salmon releases. Their efforts have provided a harvest opportunity for salmon for the first time in 60-110

years for some areas. The tribes are employing a scientific approach to go about their salmon release process which has enabled them to collect data regarding survival, travel time, and behavior that will assist in designing future experiments (Baldwin et al.). With more financial resources, Native American tribes can expand private efforts like this without the bureaucratic involvement of the federal government and find a solution to dams' disruptions to environmental flows. Furthermore, to be in line with the political ecology framework's actor oriented model, the US government should design new licensing processes for hydropower that give states and Federal natural resource agencies the governing power to place reasonable conditions on hydropower licenses and protect tribal and public lands, safeguard water quality, and fishery resources. This would allow for a greater incorporation of stakeholder needs into the negotiation process of hydropower projects. Furthermore, to mitigate the effects that imbalanced power relations have in such projects, the US government must give equal weight to the economic and political interests of stakeholders as well as the symbolic and cultural relationships that groups have with the land, rivers, and dams before construction takes place.

Conclusion

The United States prides itself on being a nation where its citizens have right to life, liberty, and the pursuit of happiness. The actions taken by the federal government to disenfranchise Native Americans, not only in the Columbia River Basin, but across the country exclude them from such ideals. In the case of Flint, Michigan, there was considerable media uproar regarding the contamination of the town's water supply and subsequent support by the state. The same level of interest has not been exhibited for an entire race of people whose homes have been seized from them and whose food supply is diminishing to the disruptive effect that dams are having on environmental flows and salmon populations. While hydropower projects are

highly important to the United States from an environmental perspective due to climate change and an economic perspective due to the electricity market, to say that Native Americans must continue being marginalized to meet these objectives is not telling the entire story. The political ecology framework for hydropower implementation serves as a framework to ensure that stakeholders like Native Americans can rightfully fit into legislation without compromising on the large-scale objectives that the United States is pursuing. By analyzing the case of the Bhakra Dam in India using the political ecology framework, we see that it is necessary to have extremely well-defined demarcations of territorial entities and an actor-oriented mindset when planning hydropower projects in the Columbia River Basin and the United States overall.

Recommendations for the US government are to grant Native Americans actual property rights instead of holding reservations “in trust,” which prevents tribes from building equity and reaping the benefits of the natural resources on the land. This gives Native Americans the financial backing they need to pursue their own objectives related to their preservation, such as building more permanent communities and restoring salmon populations that have been disrupted by dams. Furthermore, the government should design new licensing processes for hydropower that are more actor-oriented, giving states the ability to place reasonable conditions on hydropower licenses and protect tribal and public lands, safeguard water quality, and fishery resources. The United States will encounter many situations where the needs of multiple stakeholders must be met in a natural resource and energy production context. To avoid the costs associated with prolonged legislation and litigation, implementing a framework like political ecology to continue developing hydropower and other national infrastructure projects is necessary.

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