

**PROTECTING FEDERAL
HYDROPOWER INVESTMENTS
IN THE WEST:
A STAKEHOLDERS' PERSPECTIVE**

OVERSIGHT HEARING

BEFORE THE
SUBCOMMITTEE ON WATER AND POWER
OF THE
COMMITTEE ON NATURAL RESOURCES
U.S. HOUSE OF REPRESENTATIVES
ONE HUNDRED TWELFTH CONGRESS
FIRST SESSION

Wednesday, May 4, 2011

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OVERSIGHT HEARING ON “PROTECTING FEDERAL HYDROPOWER INVESTMENTS IN THE WEST: A STAKEHOLDERS’ PERSPECTIVE.”

**Wednesday, May 4, 2011
U.S. House of Representatives
Subcommittee on Water and Power
Committee on Natural Resources
Washington, D.C.**

The Subcommittee met, pursuant to call, at 10:01 a.m. in Room 1324, Longworth House Office Building, The Honorable Tom McClintock [Chairman of the Subcommittee] presiding.

Present: Representatives McClintock, Tipton, Gosar, Labrador, Noem, Hastings, Napolitano, and Garamendi.

Also present: Representative DeFazio.

Mr. MCCLINTOCK. The Subcommittee on Water and Power will come to order. The Chair notes the presence of a quorum, which under Committee Rule 3[e] is two Members.

The Water and Power Subcommittee meets today to hear testimony at this oversight hearing entitled “Protecting Federal Hydropower Investments in the West: A Stakeholders’ Perspective.” We also meet under the mandate of House Resolution 72, to identify regulatory impediments to job creation.

The Chair will begin by asking unanimous consent that the gentleman from Oregon, Mr. DeFazio, be allowed to sit with the Subcommittee and participate in the hearing. Without objection, so ordered.

We will begin with five-minute opening statements by myself and the Ranking Member, followed by the Subcommittee Members, and I will begin by recognizing myself for five minutes.

STATEMENT OF HON. TOM MCCLINTOCK, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF CALIFORNIA

Mr. MCCLINTOCK. The purpose of today’s hearing is to receive testimony on the benefits that hydroelectricity offers to our nation’s prosperity, the impediments hydroelectricity generators now face, and the costs that these impediments impose on the family budgets of millions of Americans, and on job creation at a time when Americans suffer the most prolonged period of high unemployment since the Depression.

Hydropower is by all accounts the cheapest and cleanest electricity available to modern technology. Its cost is typically

estimated at between a half a cent and three cents per kilowatt hour compared with the subsidized cost of more than 14 cents per kilowatt hour for solar power and, of course, without those subsidies, it would be much, much higher. Hydroelectricity produces zero air emissions, and yet no major hydroelectricity facility has been built in many years and our existing facilities are being bled dry by endless litigation and regulatory obstacles that result in major increases in electricity prices and chronic shortages of electricity.

Earlier this year this Subcommittee heard from the Federal agencies charged with producing and delivering hydropower. It became painfully clear that crushing new costs continue to be heaped on our electricity bills from overregulation, water use restrictions, and mandated use of so-called alternative energy sources. Worse, it became apparent that there are no plans actually being implemented to increase our hydroelectric generation through the construction of major new facilities.

We see around us the wreckage of these retrograde policies. California, which boasts of being on the cutting edge of this folly, now suffers the highest electricity prices in the continental United States, chronic shortage of capacity, per capita electricity consumption that is now lower than Guam and Aruba, and an economy that leads the Nation from the bottom. This must not be America's future.

Our water and power pioneers had the vision of constructing large multi-purpose facilities to make the desert bloom and to provide low cost, emissions-free energy. The cheap and abundant hydroelectricity generated in the West's Federal dams played a major role in producing the armaments and food necessary to defeat our enemies in World War II, and it laid the foundation for the explosive economic growth and prosperity of the western United States in the post-war years.

This Administration purports to support hydroelectricity through press releases, yet actions speak louder than words. It continues to pursue the destruction of four hydroelectric dams on the Klamath that produce enough electricity for more than 150,000 homes. The capital cost of doing so is more than half a billion dollars on top of crushing replacement costs, on top of the loss of the Iron Gate Fish Hatchery that releases 5 million salmon smolt each year.

It continues to fund extremist organizations like the one invited by the Minority Party today whose president has said that the destruction of these dams would be a model for the demolition of four additional dams on the Snake River that produce enough electricity for 1.1 million homes, adding a half billion dollars per year just in replacement costs.

It continues to pursue high-flow spillage from the Glen Canyon Dam that wastes millions of dollars of lost electricity production, and ironically increases predator populations that devour endangered humpback chub. Upstream it has its sights on the Aspinall Unit in western Colorado. We will hear today that 30 percent of the electricity bills that families in the Pacific Northwest are just to meet environmental regulations.

Protecting endangered species is a worthy goal and worthy goals need to be pursued with common sense and sound science, not left-

wing ideology and junk science. We need to ask whether the enormous wealth that is being consumed by these policies has made any significant contribution to enhancing endangered populations compared to far less expensive and effective alternatives, including predator control, increasing overall water supplies, and hatchery production. As far as I can tell, the principal beneficiaries of current policies have been the law firms and environmental fund raising organizations and the principal victims have been the families and workers who face a dismal future of rationing, shortages, prohibitively expensive water and power, and a dying economy.

It is the purpose of these hearings to begin moving the pendulum back toward sensible and proven policies that build our hydroelectricity infrastructure. Today we will hear from leading experts from outside the Beltway whose work is dedicated to providing for the needs of a growing population. Their insights on hydropower policy will provide this Subcommittee with guidance to restore the Federal Government as a positive force for prosperity, abundance, and plenty once again.

With that I will recognize our Ranking Member for an opening statement of five minutes.

[The prepared statement of Mr. McClintock follows:]

**Statement of The Honorable Tom McClintock, Chairman,
Subcommittee on Water and Power**

The purpose of today's hearing is to receive testimony on the benefits that hydroelectricity offers to our nation's prosperity, the impediments that hydroelectricity generators now face, and the costs that these impediments impose on the family budgets of millions of Americans and on job creation at a time when Americans suffer the most prolonged period of high unemployment since the Depression.

Hydropower is by all accounts the cheapest and cleanest electricity available to modern technology. Its cost is typically estimated at between a half-cent and three cents per kilowatt hour, compared with more than 14-cents per kilowatt hour for solar power. It produces zero air emissions.

And yet, no major hydro-electric facility has been built in many years, and our existing facilities are being bled dry by endless litigation and regulatory obstacles that result in major increases in electricity prices and chronic shortages of electricity.

Earlier this year, this subcommittee heard from the federal agencies charged with producing and delivering hydropower. It became painfully clear that crushing new costs continue to be heaped onto our electricity bills from over-regulation, water use restrictions and mandated use of so-called alternative energy sources. Worse, it became apparent that there are no plans actually being implemented to increase our hydro-electric generation through construction of major facilities.

We see around us the wreckage of these retrograde policies. California, which boasts of being on the cutting edge of this folly, now suffers the highest electricity prices in the continental United States, chronic shortage of capacity, per capita electricity consumption that is now lower than Guam and Aruba, and an economy that leads the nation—from behind. This must not become America's future.

Our water and power pioneers had the vision of constructing large multi-purpose facilities to "make the desert bloom" and to provide low cost, emissions-free energy. The cheap and abundant hydroelectricity generated in the west's federal dams played a major role in producing the armaments and food needed to defeat our enemies in World War II. And it laid the foundation for the explosive economic growth and prosperity of the western United States in the post-war years.

This Administration purports to support hydropower through press releases, yet actions speak louder than words:

It continues to pursue the destruction of four hydroelectric dams on the Klamath that produce enough electricity for more than 150,000 homes. The capital cost is more than half a billion dollars, on top of crushing replacement costs, on top of the loss of the Iron Gate Fish Hatchery that releases 5 million salmon smolt each year.

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We will hear today that thirty percent of the electricity bills of families in the Pacific Northwest are just to meet environmental regulations.

Protecting endangered species is a worthy goal and worthy goals need to be pursued with common sense and sound science, not left-wing ideology and junk science. We need to ask whether the enormous wealth that has been consumed by these policies has made any significant contribution to enhancing endangered populations compared to far less expensive and effective alternatives, including predator control, increasing overall water supplies and hatchery production. As far as I can tell, the principal beneficiaries of current policies have been the law-firms and environmental fundraising organizations—and the principal victims have been families and workers who face a dismal future of rationing, shortages, prohibitively expensive water and power and a dying economy.

It is the purpose of these hearings to begin moving the pendulum back toward sensible and proven policies that built our hydro-electric infrastructure. Today, we will hear from leading experts from outside the beltway whose work is dedicated to providing for the needs of a growing population. Their insights on hydropower policy will provide this subcommittee with guidance to restore the federal government as a positive force for prosperity, abundance and plenty once again.

STATEMENT OF HON. GRACE NAPOLITANO, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF CALIFORNIA

Mrs. NAPOLITANO. Thank you, Mr. Chairman.

Today's hearing focuses on protection of our existing hydropower resources and restoring production, assuming the continuation of which by definition describes plentiful quantities of fish or supply. An abundance of hydropower in the Pacific Northwest is reminiscent of how electricity from the Columbia River powered aluminum plants in shipyards, enabling us to win World War II. Equally embedded into the Pacific Northwest culture is the role of fisheries in the region whether it is through rights and traditions of a salmon harvest for Native Nations or during the abundant times of the 1860s and 1960s when commercial fisheries actually annually harvested millions of pounds of fish and salmon, thereby fueling their local economy.

Let us acknowledge what abundance means to everybody. What it means to generations of fishermen, the Native American Tribes, what abundance means to generations of recreational enthusiasts, what it means to water and power perspective, and what it means to restoring our environment and commercial fisheries. The vision of abundance is not an isolated view.

There is no argument about the important role hydropower has played and continues to play in meeting our energy demands all over the West. Changes since that time, dams have been built which include, of course, the changes in those areas include climate change, environmental, tribal water rights, population shifts, and increases. We have to face all the realities and work together to find the solutions.

As Mr. Fahlund aptly mentioned in the written testimony, environmental quality is not a luxury good. Leaving our children with the burden of environmental deficit is no less insidious than leav-

ing them with the burden of a financial one. To find that balance requires leadership and cooperation on all levels, leadership exemplified by local stakeholders like in the Klamath Basin where farmers, tribal leaders, and environmentalists reached a historic agreement that would preserve farming in the region, restore our environment, and meet our tribal trust responsibilities. We seem to forget that Native Americans have the first right to water.

Leadership like in the Yakima region where farmers and environmentalists are working together on developing and creating new water supplies by taking into account the needs of the environment. Leadership like in the Colorado region where stakeholders and water users work together to implement the multi-species habitat conservation plan while allowing for water and power deliveries to continue in accordance with state and Federal laws.

Our local communities must be commended for their courage and their leadership in creating these collaborative partnerships. They are not looking to blame. They are looking for solutions. If we want to preserve hydropower as a resource for the future, we must support these collaborative efforts as well as look at the efficiencies, the new technologies, and the alternative power sources, like solar, wind, geo, just to name a couple, to help meet our future demands.

I know that Northwest delegation is actively looking at solutions to support the development of renewals while protecting their hydropower resources and operation integrity of the BPA grid. The issue of high wind, high water where power supply is exceeding demand is a challenge but it is a challenge that can possibly be solved.

As I have stated at our PMA budget hearing on March, I would like to offer any help in facilitating a solution to this discussion since California depends on the renewables generated in the Northwest Region.

I see I have a couple of moments and I would like to, of course, state that I have looked at the statements that were submitted for the record with great interest, and I find that there are some concerns, and quite a few concerns in increasing rates, but I most pose a question to all of you. If we are not able to help the grids or the PMAs be able to—what do I say—increase the capability, increase the generation of power by adding new technology or by replacing some of the old turbines, by assisting them in being able to create a better environment, how else are you going to be able to meet it if you do not increase the rates, at least for a portion of time? To me, that is a serious question and, yes, it will mean—of course, the point was made that some of the folks that would be least able to pay for that increase would be people on fixed incomes. We have issues with that, yes, but it is also true that most of those are waived by the electric companies.

With that, I thank our witnesses for being here today. We look forward to your testimony.

Mr. McCLINTOCK. The Chair would ask unanimous consent to allow Mr. Tipton to go out of order. He has an urgent matter that he has to attend to following his comments, so without objection Mr. Tipton for five minutes.

**STATEMENT OF HON. SCOTT TIPTON, A REPRESENTATIVE IN
CONGRESS FROM THE STATE OF COLORADO**

Mr. TIPTON. Good morning and thank you, Chairman McClintock and Ranking Member Napolitano for convening this important hearing today. I would like to take this opportunity to be able to welcome one of my constituents, Mr. Chris Morgan. Chris is the President of the Colorado Rural Electric Association and a board member for the Gunnison County Electric Association.

Skyrocketing energy prices make the topic of today's hearing very timely. These high energy prices and the state of the economy make low-cost energy sources like hydropower more important than ever. Hydropower is unquestionably the most affordable and reliable form of renewable energy on the market today. Unfortunately, efforts by this Administration are threatening access to this carbon-free power source. The decision made in Washington have a direct effect on all stakeholders in the real world, so I am very interested to hear from Chris and our other witnesses, and again, Mr. Chairman, Ranking Member, thank you so much for this consideration allowing me to go a little early. Thank you.

Mr. MCCLINTOCK. The Chair is now pleased to recognize the Chairman of the Natural Resources Committee, Congressman Doc Hastings of Washington.

**STATEMENT OF HON. DOC HASTINGS, A REPRESENTATIVE IN
CONGRESS FROM THE STATE OF WASHINGTON**

Mr. HASTINGS. Thank you very much, Mr. Chairman, and thank you very much for the courtesy of allowing me to be here today.

This hearing is a valuable opportunity to discuss Federal hydropower and the importance of protecting low-cost renewable energy and the jobs that it creates. We are fortunate to be joined by witnesses who have firsthand knowledge of what hydropower brings to their communities and to their ratepayers. I would especially like to thank our Pacific Northwest witnesses for being here today, and I also want to welcome many in the audience from the rural utilities who have taken time to attend this hearing.

My district in central Washington contains the heart of the Federal Columbia River Power System. This network of Federal dams and reservoirs has provided emission-free, reliable hydropower for generations. It is our duty to make this affordable renewable energy source, make sure that it continues into the future.

However, these investments and economic drivers are under constant assault. They are repeatedly targeted by bureaucratic regulation, lawsuits, and even the whims of the Federal judge. According to the Bonneville Power Administration, over 1,000 megawatts, or enough energy to power one million homes, has already been lost in recent years to salmon recovery efforts.

However, many salmon recovery programs are working. How do you measure that? You measure that by the high number of salmon returning to the rivers, but for some that is simply not enough. There are organizations whose singular focus appears to be to destroy dams and the hydropower they produce, and I would like to note, as the Chairman pointed out, that one of the organizations testifying here is a party to an almost decade-long litigation aimed at breaching the four lower Snake River dams—this despite the

Northwest Power and Conservation Council's finding that such removal would, and I quote, "increase the carbon emissions, cost and risk of the regional power system."

I can emphatically tell you that as long as I am Chairman of this Committee and as long as I am a member of this Congress, these dams will remain intact and functioning. They will not be breached, removed or destroyed. The people of the Northwest understand that dam removal is an extreme action that drives up energy costs and won't help recover fish.

There are those who live outside the Pacific Northwest who fail to understand the important multiple functions these dams serve. In addition to providing most of the power for the region, these dams provide flood control, barge transportation of agricultural commodities, irrigation, recreation, and they ensure the reliability of other renewable energy sources. In addition to protecting existing resources, we must also be looking at how we can create more hydropower through new water storage, canal-based hydropower and other measures. Everything to create more hydropower should be on the table. Efforts to eliminate this low-cost renewable energy or to drive up its costs will be emphatically resisted by this Committee.

To be clear, a true commitment to renewable energy requires a commitment to protecting existing hydropower dams and the many benefits that they provide. I am committed and have been committed to pursuing all of the above energy approach for our nation. This is a top priority for the Natural Resources Committee. Hydropower is a key part of this strategy. We simply need more of this original renewable energy. For that reason I commend the Subcommittee Chairman and Ranking Member for having this hearing, and I look forward to working with you on this legislation that may be produced by this Committee, and as the Chairman said, it all starts with today's hearing. Once again, thank you for your courtesy. I yield back.

[The prepared statement of Mr. Hastings follows:]

**Statement of The Honorable Doc Hastings, Chairman,
Committee on Natural Resources**

This hearing is a valuable opportunity to discuss federal hydropower and the importance of protecting the low-cost, renewable energy and jobs it creates. We're fortunate to be joined by witnesses who have firsthand knowledge of what hydropower brings to their communities and ratepayers. I'd especially like to thank our Pacific Northwest witnesses for being here today. I also want to welcome many in the audience from the rural electric utilities who have taken the time to attend this hearing.

My district in central Washington contains the heart of the Federal Columbia River Power System. This network of federal dams and reservoirs has provided emissions-free, reliable hydropower for generations. It's our duty to make sure this affordable, renewable energy source continues well into the future.

However, these investments and economic drivers are under constant assault. They are repeatedly targeted by bureaucratic regulation, lawsuits, and even the whims of a federal judge. According to the Bonneville Power Administration, over 1,000 megawatts—or enough energy to power one million homes—has already been lost in recent years due to salmon recovery efforts. However, many salmon recovery programs are working based on the high number of salmon returning to the rivers. But for some, that's simply not enough. There are organizations whose singular focus appears to be to destroy dams and the hydropower they produce.

I'd like to note that one of the organizations testifying here today is a party to the almost decade-long litigation aimed at breaching the four lower Snake River dams. This, despite the Northwest Power and Conservation Council's finding that such removal would "increase the carbon emissions, cost and risk of the regional

power system.” I can emphatically tell you that as long as I’m Chairman of this Committee, and as long as I’m serving in Congress, these dams will remain intact and functioning. They will not be breached, removed, or destroyed. The people of the Pacific Northwest understand that dam removal is an extreme action that will drive up energy costs and won’t help recover fish.

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To be clear, a true commitment to renewable energy requires a commitment to protecting existing hydropower dams and the many benefits they provide

I’m committed to pursuing an “all of the above” energy approach for our nation. This is a top priority for the Natural Resources Committee. Hydropower is a key part of this strategy. We simply need more of this original, renewable energy. For that reason, I commend the Subcommittee Chairman for having this hearing and I look forward to working with him and others to pursue hydropower production legislation in the near future. It starts with today’s hearing.

Mr. McCLINTOCK. I now recognize Ms. Noem of South Dakota for her opening statement.

**STATEMENT OF HON. KRISTI NOEM, A REPRESENTATIVE IN
CONGRESS FROM THE STATE OF SOUTH DAKOTA**

Ms. NOEM. Thank you, Mr. Chairman. I am pleased to have the opportunity to introduce one of the witnesses today that is here from South Dakota, Mr. Vic Simmons. Vic graduated from South Dakota State University, and is the General Manager of Rushmore Electric Cooperative in Rapid City, South Dakota.

He has been with Rushmore Electric for 12 years, and for over 30 years has also had experience with the Rural Electric Cooperative and the municipal electric system. His long history of electric utility experience throughout South Dakota gives him a unique perspective on providing hydropower to communities in South Dakota generated from the dams on the Missouri River. He has a wealth of knowledge on the impacts of the rising costs of regulations, such as compliance with Endangered Species Act requirements, so I want to thank Vic for coming today and for testifying before this Subcommittee. I look forward to hearing your testimony and working with you on deferral hydropower investments in the West. Thank you. I yield back.

Mr. McCLINTOCK. Thank you. That concludes the opening statements. We will now hear from our panel of witnesses. Each witness’s testimony will appear in full in the hearing record so I would ask that witnesses keep their oral statement to five minutes as outlined in our invitation letter and also as under Committee Rule 4[a].

I would also like to explain how our timing lights work. When you begin to speak, our clerk will start the timer. The green light will appear. After four minutes, a yellow light will appear, and at that time you should begin to conclude your statement. At five minutes, the red light will come on. I would ask you to complete the statement, but then stop after that.

And with that we will begin. Our first witness is Mr. Scott Corwin, the Executive Director of the Public Power Council of Portland, Oregon.

**STATEMENT OF SCOTT CORWIN, EXECUTIVE DIRECTOR,
PUBLIC POWER COUNCIL, PORTLAND OREGON**

Mr. CORWIN. Thank you, Mr. Chairman, Ms. Ranking Member, Members of the Subcommittee and greetings to Chairman Hastings as well from our region. I apologize for my voice this morning. I may have been yelling too much, which is an occupational hazard, but I will plow through here.

Our members were granted preference rights to Federal power because these utilities are owned by their consumers, and they have a mandate to pass the benefits through to the citizens who are their owners. Several leaders of rural electric cooperatives from our region and around the country are here today. You have my full testimony as you said. I am just going to make four points.

First, the Columbia River Power System, or FCRPS, is extraordinarily valuable and it is an investment worth protecting. It has 31 dams, total installed hydro capacity of 22,000 megawatts. The system is coordinated with Canada, and there is a big decision approaching regarding whether it is in our interest to continue that treaty with Canada in its current form.

The dams lend not only clean renewable power, they are critical to transportation, irrigation, flood control, and recreation as well. Barges on the Columbia River moves about 40 million tons of goods each year. Four lower Snake Dams provide 1,100 average megawatts of emission-free energy, enough to power the city the size of Seattle. They provide about 3,500 megawatts of capacity, which is increasingly important. Replacing that power could cost about \$5 million annually, and is likely to be from thermal resources, increasing carbon productions, and the rate impacts to citizens would be dramatic.

Certainly breaching these dams as some advocate makes no sense from an energy perspective, but it also would not significantly improve access to history spawning areas, and is not needed for juvenile or certainly adult fish passage which is already about 96 percent at each project.

The second point, the value has been degraded as operations of Federal dams are being increasingly constrained by environmental regulation. Notably, operational constraints on the FCRPS in the name of salmon mitigation, such as spilling water over the dams or adjusting timing of the flows in the river, have reduced the average generation of the system by about 1,100 average megawatts of energy, or about 13 percent since 1995.

Over the past five years the average annual replacement cost of that energy has averaged \$460 million, a cost borne by the customers. That is part of the total cost to BPA power customers of \$800 million a year for fish and wildlife expenses which is about 30 percent of their entire wholesale power bill for these utilities. Customers will need a continuing role and review of the operations and budget obligations to continue to try to make sure ratepayer dollars are spent more efficiently.

The first step to protecting this investment is to stabilize this regulatory impact by having the 2010 supplemental biological opinion approved in court, and there is a hearing in Portland next week on that. With all Federal agencies, almost all of the tribes in the entire region, and the States of Washington, Idaho, and Montana solidly behind that plan, it is an opportunity to move forward as a region and build on the success we have seen so far in salmon mitigation.

The third point, beyond fish and wildlife a new challenge for hydropower investment is the impact of integration of intermittent resources like wind into this system. PPC members support efforts to responsibly add cost-effective renewable resources, but there is an increasing limitation on the capacity to do so, and the wind variability presents operational challenges and tees up key questions about proper cost allocation so that hydro ratepayers are not unfairly paying the cost of this integration.

One anomaly occurs from time to time during heavy spring runoff and there is too much generation for regional loads threatening reliability. All generators interconnected to BPA system, including wind generators, are asked to ramp down and receive Federal hydropower at low prices or even free. The agency now has a draft policy out with a whole list of actions they must take before requesting wind projects to fether off, but the agency has said it will not pay generators for the value of lost production tax credits, which is a good result from the viewpoint of electricity ratepayers who pay for the system and cannot envision having to pay others to take Federal hydropower to cover a lost taxpayer-funded subsidy.

That said, we see policy changes we would all work on together such as qualifying hydropower in that instance as eligible for those renewable energy or tax credits.

My last point relates to recent budget proposals. Remember that all of the costs of this power system are paid by ratepayers, all of the costs. There is no Federal subsidy involved here. That is why we find so offensive any proposals to force power market administrations like BPA to charge higher rates to fund deficit reduction. It is nothing less than a unfair regional tax.

Our economy is dependent upon this hydropower system, and we feel strongly this large investment is worth protecting so we thank you for holding this hearing, Mr. Chairman, and for the opportunity to speak with you today, and I look forward to any questions. Thank you.

[The prepared statement of Mr. Corwin follows:]

Statement of R. Scott Corwin, Executive Director, Public Power Council

Introduction

Good afternoon, Chairman McClintock, Ranking Member Napolitano, and Members of the Subcommittee, and greetings to our Northwest Representatives on the Natural Resources Committee, Chairman Hastings, Representative DeFazio, Representative Labrador, and Representative Bishop. My name is Scott Corwin. I am the Executive Director of the Public Power Council. I thank you for the opportunity to testify today on this important topic, along with fellow Northwest panelists, Roman Gillen and Tom Karier.

The Public Power Council (PPC) is a trade association representing the consumer-owned electric utilities of the Pacific Northwest with statutory first rights (known as "preference") to purchase power that is generated by the Federal Columbia River

Power System and marketed by the Bonneville Power Administration (BPA). These preference rights were granted to publicly and cooperatively-owned utilities because they have a mandate to pass the benefits through to the citizens of the Northwest, the consumers who are their owners. Our member utilities have service territories in portions of seven western states and serve over 41% of the electricity consumers in the region. Several leaders of the rural electric cooperatives from our region are in the room today.

These utilities, being both some of the largest and the smallest in the Northwest, are committed to preserving the value of the Columbia River system for clean, renewable hydropower and for the system's multiple other uses. Because the utility members of PPC are owned by and answer directly to their customers, they are very sensitive to the rates they pay for wholesale power and transmission of electricity.

Today, I will talk about: (1) the value of these large ratepayer investments in federal hydropower in the West; (2) some of the regulatory constraints on the hydropower system, and the fish and wildlife mitigation effort; (3) new challenges to the system, including integration of variable resources such as wind power; and (4) some ideas about how to protect the investment now and in the future. For more on these issues, I welcome you to visit our website at www.ppcpdx.org or the website of Northwest RiverPartners at www.nwrivernpartners.org for issues regarding salmon recovery.

The Investment in Federal Hydropower

The Federal Columbia River Power System (FCRPS) is, by any measure, an incredible achievement in engineering, foresight, and political leadership that benefited from the region's geographical and historical uniqueness. With respect to investments in the federal hydropower system, publicly and cooperatively owned utilities and their customers are the stakeholders who pay the costs, and have the most invested in seeing the system maintained to successfully meet all of its statutory obligations. Under long-term contracts, these utilities, commonly referred to as "preference customers" pay the costs attributed to power production in the FCRPS (power costs are about 80% of the total). Flood control, navigation, recreation, and irrigation are other important uses of the river system. On issues such as fish and wildlife mitigation, and specifically salmon recovery, the preference customers of BPA are committed to success as regional citizens who care for the resource and pay for this effort through their power rates.

Hydropower has played, and will continue to play, an incredibly important role in our nation's energy policy. Nowhere is this more evident than in the Northwest. This is the original renewable source of power, and has been nothing less than the lifeblood of the Northwest region throughout modern history. And, even with this history of relatively low-cost power, the Northwest has made enormous strides as well in achievement of energy-efficiency.

The dams lend not only a clean, continuing supply of power, they are critical to transportation, irrigation, flood control, and recreation as well. Barging on the Columbia River moves 40 million tons of goods each year and keeps hundreds of thousands of trucks and their associated emissions off of the road. The Columbia and Snake River Basin is the number one transportation gateway nationally for wheat, barley and several other commodities.

To an area that was still largely without electricity in the early 20th century, the dams brought light and then economic hope coming out of the Great Depression. Upon the foundations of the Reclamation Act in 1902 and the Flood Control Act in 1917, investment in the system took a leap with the Bonneville Project Act in 1937. Construction on the larger projects, such as Bonneville and Grand Coulee Dam, began in 1933. The oldest dam in the FCRPS is Minidoka, which began operating on the Snake River in 1909.

In the Federal Columbia River Power System there are now 31 dams run by the Bureau of Reclamation and the Army Corps of Engineers, ranging from a three megawatt diversion dam in Boise, Idaho, to the 6795 megawatt (MW) Grand Coulee Dam in Washington. Total installed hydropower capacity in the federal system is over 22,000 MW. This system is coordinated with Canada's portion of the river system, and it should be noted that an important decision is approaching regarding whether it is in our interests to continue the current treaty with Canada.

Part of the "protection of investment" challenge is to maintain the system we have. Over the next few years, total annual operations and maintenance costs to ratepayers for the FCRPS hydro program are expected to increase from about \$280 million annually, to almost \$350 million per year, not including capital. Fish and wildlife mitigation costs are about \$800 million per year, about one-third of the total power revenue requirement in BPA rates.

Of particular note in value and importance to the region are the four lower Snake Dams, completed in the 1970s. They provide about 1,100 average megawatts of renewable, emission-free energy which is approximately the amount of energy necessary to power the city of Seattle. Replacing that power could cost \$300-\$500 million annually, and is likely to be from thermal sources (a notable consideration for West Coast states looking at aggressive carbon reduction goals). A study by the Northwest Power and Conservation Council shows that removal of these dams would increase greenhouse gases by 4.4 million tons/yr in the Northwest and 5.2 million tons/yr west-wide, nearly the equivalent of two typical 400 MW coal-fired power plants. This would occur because the baseline scenario, without dam removal, already assumes that the region will pursue all cost-effective energy conservation and meet state renewable portfolio standards.

In addition, these lower Snake River dams provide other key economic benefits such as irrigation and transportation. Over 10 million tons of commercial cargo travels this stretch of river to Lewiston, Idaho.

Finally, in contrast to some accounts, removal of the lower Snake Dams would not provide much if any benefit to fish listed under the Endangered Species Act (ESA). Current juvenile fish passage survival rates are at or above 95% at all four dams according to NOAA fisheries. In any case, these dams only affect 4 out of 13 Endangered Species Act listed salmon and steelhead stocks in the Columbia River Basin. And, these four dams inundated only 10% of the historic fall chinook spawning habitat in the Snake River; spring chinook, sockeye and steelhead were even less affected.

So, removal of these dams would not significantly improve access to historic spawning areas, is not needed for fish passage, and would make no sense from an energy portfolio perspective.

Regulatory Constraints on Federal Hydropower

In the Northwest, we are ever cognizant of the impact of the federal hydropower system on the environment. An enormous portion of the investment in the system has been committed in order to address those concerns. This investment has been not only in financial form, but also in the form of time dedicated by thousands of individuals from state and local agencies, tribal agencies, federal agencies, and the private citizenry.

For electricity ratepayers this investment is not only reflected in the current \$800 million of annual expenditures mentioned earlier, but in the cumulative impact of over \$13 billion in costs over the past three decades for fish and wildlife efforts funded through BPA power rates. Most of these costs arise from implementation of the Endangered Species Act (ESA) and the Pacific Northwest Power Planning and Conservation Act. However, from a preference customer viewpoint, it appears that electricity ratepayers are asked to fund endeavors far beyond the actual impacts of the hydropower system because BPA has been the easiest funding source to tap. It is appropriate to remember that salmon have lifecycles covering thousands of miles in which mortality occurs well before and after their travel through the ratepayer-funded hydropower system.

The 2010 supplemental biological opinion currently before the U.S. District Court is an evolution of at least 18 years of work by dozens of state, tribal and federal agencies, and is a regionally created, scientifically sound path to success. We are hopeful that the comprehensive approach and broad support for this latest biological opinion will lead to court approval and full implementation.

Several different biological opinions under the ESA have guided regional efforts since the first listings of salmonids in the early 1990s. Eventually, these documents recognized what the science showed: hydropower operations alone would not recover the species. Many other factors contributed to the salmon's decline including over harvest, hatchery practices, degraded habitat and ocean conditions.

Now, the massive effort seems to be paying off: fish passage through the projects has been good and is improving all the time. Adult passage using ladders has been excellent for many years. And, new technology is seeing juvenile fish passage downstream at very high rates. In fact, the new biological opinion sets very high, but achievable, targets for juvenile passage at each dam of 96% in the spring and 93% in the summer. Last year saw 648,000 fall chinook return, and strong projections for 2011 could show record numbers for chinook, coho, and sockeye in the Columbia and Snake rivers.

The investments put forth by ratepayers spread to many areas of the federal hydropower system, including:

- Improvements to the fish passage structures at the eight federal dams on the Snake and Columbia Rivers;

- Screens in front of the turbines to keep juvenile fish from entering the turbines;
- New design of the turbine blades and housing to minimize injury to fish;
- Juvenile bypass systems to collect juvenile fish and route them around the dams;
- New “fish slides”, or spillway weirs, that pass fish safely over the dams;
- Flow deflectors at spill bays to improve water quality during spill; and,
- Many improvements to fish and wildlife habitat and hatcheries.

As we look to protect these investments in fish mitigation, predation is a significant factor on salmon and steelhead mortality and needs more attention as part of a comprehensive plan. A classic “conflict of laws” problem between the ESA, the Migratory Bird Treaty Act, and the Marine Mammal Protection Act has left bird predators consuming between 4% and 21% of the *juvenile* salmonids migrating down river each year, and sea lions consuming an estimated 4% or more of the *adult* spring chinook population passing the Bonneville Dam each year. They also consume large numbers of sturgeon and lamprey. This figure does not include salmon and steelhead taken by sea lions from the estuary up to Bonneville Dam.

Despite these non-hydro impacts, juvenile in-river survival today is nearly twice as high as it was in the mid-to-late 1970’s. Adult survival through the dams and reservoirs is similar to that observed in natural rivers. Again, hydropower is only one of many factors impacting species. Any approach to salmon recovery that will be successful long-term must take into account all aspects of the salmon lifecycle including impacts from hydro, hatcheries, harvest, and habitat.

But, it is the mandated constraints on federal hydropower operations that have been most striking in both in their cost and their operational impact on the system. Operational constraints on the FCRPS, such as spilling water over the dams or adjusting the timing of flows in the river, have reduced the average generation of the system by about 1100 average megawatts of energy, or about 13%, since 1995. Over the past five years, the average annual replacement cost of that energy is \$460 million, borne by the customers.

Water is spilled over the federal dams in the lower Snake and main-stem Columbia River to purportedly improve survival of juvenile fish passing these dams. The current spill program starts in early April each year and concludes at the end of August. The program is balanced with optimizing safe juvenile fish passage using fish transportation programs which often provide the highest fish survival benefit, especially in low water years.

The 2010 biological opinion allows the potential for modification of the spill program and other river and dam operations to optimize fish survival for both adult and juvenile fish. Research indicates that at times, transporting by barge is the safest route of passage for juvenile fish, especially late in the summer and during low water years. The current court injunction mandates specific spill schedules and dam operations which do not provide the flexibility to improve operations of the federal hydrosystem to maximize fish passage survival.

The spill and flow regimes causing a decrease in federal hydropower generation, and the extra associated costs, have occurred at the same time that load growth and other demands for that power have increased in the region. As noted in the Northwest Power and Conservation Council’s Sixth Power Plan, this will push the region to add more thermal, carbon-emitting generation as gas-fired generation is the most likely available source to meet base-load power needs.

New Challenges for the Hydropower Investment: Intermittent Resources

As noted above, a challenge for hydropower in the near future comes from the combination of increasing demand for electricity at the same time that this resource has experienced increased regulatory limitations on generation.

The reliability and flexibility of hydropower generation make the FCRPS particularly well-suited to integrating other renewable sources of energy, such as wind, that are much more intermittent. But, there is a limit to the available capacity and flexibility of the system, and therefore a limit to the demands that can be placed on the system regardless of whether those demands are created by fish and wildlife, wind and other intermittent resource integration, or simply following the swings in customers’ loads placed on the system.

PPC members support efforts to responsibly add cost-effective renewable resources to the region’s electric generation resource mix. But, effectively integrating intermittent renewable resources poses a number of challenges that must be properly addressed to ensure effective operations, system reliability and cost allocation.

Further complicating this dynamic is the dramatic *pace* of wind development in the Northwest even as the region scurries to catch up to the technological and operational challenges posed by wind power’s unique characteristics. As recently as

2005, the system operated by BPA integrated only 250 MW of wind generation. That amount doubled in 2006, then doubled again in 2007. Today, there is over 3500 MW of wind being integrated into the BPA transmission and power system. This represents a 1400 percent increase in just six years.

BPA and the region should be acknowledged for this massive effort to integrate such a large volume of renewable energy so quickly. And, preference customers have been directly involved with the development and purchase of some of those projects. But, wind generation in the Northwest is mostly localized in one portion of the region. This creates a dynamic where variability of total output can range very suddenly from almost full regional capacity to almost none.

Forecasts showing that wind capacity might double again in the next few years raise numerous concerns and questions about the operational impacts to the system: Can an increasingly congested transmission system handle this influx? Can a constrained hydro system be relied on to provide reserves to balance the variability? As those reserves are provided, or as additional sources of capacity and new transmission are added, who will fund these initiatives, and will proper principles of cost causation be followed? There is a fundamental rate-making principle that there should not be costs shifted to those who do not cause the cost or who do not benefit from the expenditure.

Over-generation: Too Much of a Good Thing? As we look at this year's estimate of high water run-off in the Columbia River system, which is currently 119 percent of average, it raises the specter of another serious challenge that occurs when the region experiences an oversupply of generation during surging spring runoff, as it did in June 2010. Water moving through the Columbia and Snake Rivers must pass through generators in order to avoid excessive spill that can harm endangered and threatened fish and violate Clean Water Act requirements that prevent over-saturation of gas in the water column. The challenge is further exacerbated when it occurs during periods of low electrical demand, since there must be a load to use the electricity that is generated at the dams in order to keep the system in balance.

In these instances water must run through generators instead of spilled in order to ensure the hydropower operations necessary to meet fish protection requirements (avoiding high gas saturation). The extra power is sold at low prices, or even given for free, to utilities that reduce generation from their own projects and use federal power instead to make their deliveries (this is known as "environmental redispatch"). Thermal generation projects have historically taken advantage of these sales to displace their own generation with lower-cost hydropower. During the high water oversupply event in June 2010, thermal generation was largely shut down or reduced by purchases of energy from BPA.

However, because of differing economic incentives, such as the need to generate electricity in order to receive renewable energy credits (RECs) or tax credits, wind generators in the region did not similarly shutdown during the high water event last June. This resulted in the threat of harmful levels of spill in order for the system to avoid the extreme consequences of over-generating.

BPA has developed a Record of Decision to describe how they will handle this type of event entering the spring run-off season this year. PPC believes the policy is a solid approach that meets the obligations of the federal system, reflects prudent business practice, helps protect the investment in the system, and meets legal requirements designed to protect fish.

In line with BPA's proposed policy, PPC believes: (1) BPA should use all other reasonable means to dispose of excess federal generation during a high water event *before* providing federal hydropower at no cost to displace renewable generators within the BPA Balancing Authority; (2) BPA should adhere to clear and transparent steps it will take to reduce spill during high runoff conditions with specific triggers for environmental redispatch; (3) BPA should *not* pay an entity to take federal hydropower in order to replace a lost taxpayer subsidy or renewable energy credit. Also; and, (4) BPA, its customers, and the other stakeholders should seek other policy changes to provide compensation for the revenues associated with federal and state renewable energy rules. For instance, hydropower delivered under environmental redispatch conditions should be classified as "renewable" to meet the REC or tax credit requirements so that wind generators still receive the associated revenues they expect.

Conclusion: Protecting the Investment

In light of its significant benefits to customers and to the environment as a clean, renewable, and flexible form of generation, hydropower should be preserved, encouraged, and enhanced where possible. Over the last 75 years of major federal hydropower production in the Pacific Northwest, citizens of our region and neighboring

regions have benefited from this resource and its clean energy, low impact transportation, irrigation, flood control, and recreation.

The first and best step to protecting this investment is to stabilize the regulatory burden upon it. The 2010 supplemental biological opinion for operation of the FCRPS for salmonids is the result of massive work to create science-based consensus among states, tribes, and federal agencies. It should be approved and allowed to work.

While the biological opinion and associated memoranda of agreement represent ominous costs to preference customers, we also see the need to get the plan approved in order to create some regulatory stability. This is an opportunity to move forward as a region and build on the success we've seen so far in salmon mitigation. Meanwhile, better approaches to predation, better policies around harvest and hatchery practices, and more efficient use of water through the system are areas customers will watch closely.

Another way to protect the investment in all areas of the FCRPS is to work hard to make sure future investments are sensible and are the best possible use of limited ratepayer dollars. Our goal is to have significant input at the front end of the BPA, Army Corps of Engineers, and Bureau of Reclamation budget processes for the Federal Columbia River Power System. As customers, we do not want merely to be arguing in rate cases over the allocation of costs already incurred. Currently, an evolution of the budget process for BPA called the Integrated Business Review is further refining how and when customers get information. But, an enhanced customer role in key spending decisions still is needed, especially as additional wildlife funding commitments are considered. We look forward to working closely as well with the Northwest Power and Conservation Council in that pursuit.

One other way to protect the investment is to protect the investors from unintended consequences. BPA should conduct a new assessment of the impact of the influx of wind generation, and of potential impacts in light of forecasts for future development. The Northwest Wind Integration Forum, with an array of regional stakeholders, is one venue where this could take place. Preference customers are looking to BPA to adhere to the principles of cost causation as it incurs direct and indirect costs from this challenge. But, we are ready to work collectively towards long-term solutions.

And, one final way to protect those expected to make investments in the federal hydropower system is to oppose any proposals to hijack the value of that investment by raising the rates of Power Marketing Administrations in the name of federal deficit reduction. Preference customers pay for the costs of operations and maintenance of the system, and they pay the principle plus interest of any Treasury debt annually (the payment to Treasury last year was \$864 million). Proposals to raise the rates of Power Marketing Administrations for deficit reduction are a misguided attempt to create a new regional tax to fund the federal government.

At a critical time in our nation's history with respect to energy policy, the federal hydropower system will play a lead role as a key domestic source of adequate, efficient, reliable, and renewable energy. Our large investment in the system certainly is worth protecting. Thank you for holding this hearing, and for the opportunity to speak with you today. I look forward to addressing any questions you may have.

Mr. MCCLINTOCK. Thank you very much for your testimony. Our next witness is Mr. Chris Morgan, President of the Colorado Rural Electric Association and a Board Member of Gunnison County Electric Association of Gunnison, Colorado.

**STATEMENT OF CHRIS MORGAN, COLORADO REA PRESIDENT
AND BOARD MEMBER OF GUNNISON COUNTY ELECTRIC
ASSOCIATION, GUNNISON, COLORADO**

Mr. MORGAN. Mr. Chairman, Ranking Member and the rest of the Committee, thank you for allowing me to come and speak to you today.

I am here today to discuss the importance of Federal hydropower, a reliable renewable resource, and keeping the rates of Colorado's 1.25 million electric cooperative member-owners affordable. Specifically, I will confine my testimony to the Aspinall Unit.

The Aspinall Unit consists of three dams—Blue Mesa, Morrow Point and Crystal Dams on the Gunnison River, and the Aspinall Unit provides a number of benefits to the folks in the western United States. It provides flood control, water storage for municipal use and for irrigation, and it provides hydropower generation. That hydropower generation is very cheap. In fact, hydropower generation is the cheapest source of electricity available to Gunnison County Electric Association and the other cooperatives in the area.

The Aspinall Unit also has another critical feature. It provides nearly half of the power peaking flexibility of the Colorado River Storage Project. In addition, the energy produced at the Aspinall Unit is renewable and emissions free. As you know, Colorado has an active renewable portfolio standard and has goals of being a leader in producing clean energy. The Federal Government has set similar goals and is currently contemplating an RPS for the nation. The Aspinall Unit has been meeting those goals for many, many years already.

The Aspinall Unit also provides benefits to the West. It provides recreational opportunities such as boating, fishing, sailing, and river running. They provide water flows to help protect endangered species, and the creation of a substantial fishery.

Mr. Chairman, currently we have a reasonable balance in the Aspinall Unit. After seven years of Federal litigation and a mediated settlement, the Black Canyon Consent Decree was signed on December 31, 2008. The drafting of the consent decree involved approximately 30 parties including the relevant Federal agencies, Reclamation, National Park Service and Western Area Power Administration, also the State of Colorado, environmental interests and recreational enthusiasts, and Federal hydropower customers. So as you can see there has already been struck a balance between environmental interests and hydropower.

The Bureau of Reclamation should be given the power of discretion to operate the Aspinall Unit to meet a wide variety of important needs from power generation to recreation to environmental concerns, and I understand there are proposals to restrict power generating operations at the Aspinall Unit which would have a direct impact on the ability of the Western Power Administration to deliver power to its customers, ultimately leading to increased rates.

As you know, Colorado has been hit hard by the recent recession. My constituents and cooperative members have lost jobs and some have even lost their homes. The people of Colorado are already experiencing significant increases in the cost of electric generation due to many factors: increased construction costs of generation and transmission facilities, increased costs of siting, increased cost of additional regulations, and increased costs associated with rising fuel costs.

The people of Gunnison County and Colorado cannot tolerate anymore rate increase, and since electric cooperatives are nonprofit utilities every additional dollar that is passed down goes directly to the consumer.

Mr. Chairman, in closing, I would like to assert that I am not only advocating solely for the electric utility industry. This is because why? I am an environmentalist as well and a nature lover.

While I am not a scientist, I am an avid boater. I have had the opportunity to run the Grand Canyon in a kayak four times. I have spent over 60 nights down at the bottom of the Grand Canyon. I have had opportunities to kayak the Black Canyon on the Gunnison which the Aspinall Unit resides upon. I have seen that there is a balance. I go to these places because they are beautiful and they are wonderful places to go visit, and I also understand at the same time that we need clean, reliable, affordable, low-cost dispatchable electric generation, and that we cannot afford to lose any of our dams. We cannot afford to pass more costs onto our consumers.

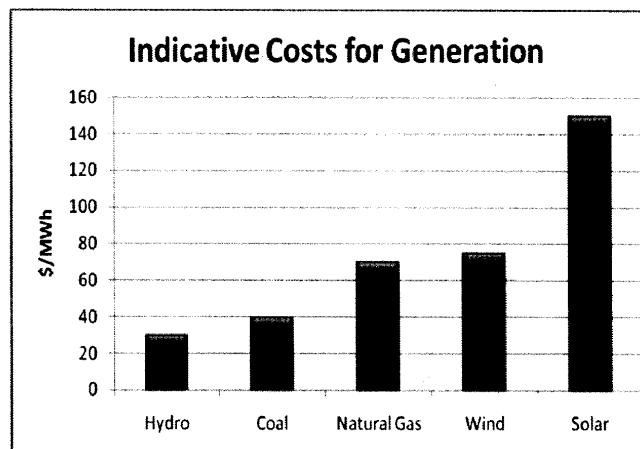
So, I would assert that we currently have a balance and we should maintain the status quo that we have today. Thank you very much, sir.

[The prepared statement of Mr. Morgan follows:]

**Statement of Chris Morgan, Board President,
Colorado Rural Electric Association**

Chairman McClintock and Ranking Member Napolitano, my name is Chris Morgan. I am currently a board member of Gunnison County Electric Association (GCEA) in Gunnison County, Colorado and I am also currently serving as the Board President of the Colorado Rural Electric Association (CREA). GCEA's service boundaries encompass portions of Gunnison, Hinsdale and Saguache counties in Colorado, and it serves over 10,000 customers on 1,030 miles of distribution lines. CREA is the state association representing the 1.25 million Coloradans spread across 70% of the state's landmass who depend on an electric cooperative for their electricity.

I am here today to discuss the importance of the Federal Hydropower—a reliable renewable resource—in keeping the rates of Colorado's 1.25 million electric cooperative member-owners affordable. Specifically, I will confine my testimony to the importance of the Colorado River Storage Project (CRSP) and the integral role that the Bureau of Reclamation's Aspinall Unit—the facilities of which are in Gunnison County's backyard—plays in providing reliable renewable generation during peak times of electric power consumption in the West.



GCEA purchases power under a contract with Tri-State Generation and Transmission. GCEA's average wholesale cost of power year for year to date 2011 is \$69.24 per MWh. That translates into a wholesale cost of nearly 7 cents a KWh. As you can see from the graph to the right, Hydroelectric power represents the cheapest portion of the portfolio of the electricity that GCEA purchases at a wholesale rate of less than half of the cost of the blended cost the energy we purchase. In addition, while I do not represent nor is GCEA associated with the power con-

sumed by the municipal utility of the City of Gunnison, the City of Gunnison also enjoys rate relief from the hydropower produced by the Aspinall Unit.

The Aspinall Unit consists of three dams and reservoirs on the Gunnison River in Colorado: Blue Mesa, Crystal, and Morrow Point. The Aspinall Unit is one of the components of the federal multi-purpose Colorado River Storage Project that is operated by the Bureau of Reclamation. CRSP power resources are marketed, under long-term contract, pursuant to federal law, to non-profit entities such as electric cooperative and municipal utilities in the States of Colorado, New Mexico, Wyoming, Utah, Nevada and Arizona. The Glen Canyon Dam in Arizona is the largest generating feature of the CRSP. However, due to environmentally imposed restricted operations at Glen Canyon in Arizona and the Flaming Gorge Dam in Utah, the Aspinall Unit in Colorado currently provides nearly half of the peaking flexibility in the overall CRSP. In other words, the Aspinall Unit is like a light switch in your house—you can turn it on during peak times of electricity usage and turn it off when electricity demand decreases.

There are proposals to restrict power-generating operations at the Aspinall Unit, which would have a direct impact on the ability of the Western Area Power Administration (“WAPA”) to deliver power to its customers—ultimately leading to increased rates. (WAPA delivers the hydropower generation to Tri-State Generation and Transmission Association, a power supply co-op headquartered in Colorado, which in turn provides the power to GCEA).

As the economy struggles to make its way out of the “Great Recession”—Colorado’s electric cooperative consumers cannot afford increased electricity rates.

In order to understand the importance of the Aspinall Unit, it is important to know the history of Federal power generation in the Upper Colorado River Basin. The Colorado River Basin resources are split between the needs of the Upper (Colorado, Wyoming, Utah and New Mexico) and Lower (Utah, Arizona and California) Basin states as codified in the Colorado River Basin Compact of 1922. The compact calls for the Upper Basin states not to deplete the flow of the Colorado below 75 million acre feet during any period of 10 consecutive years. During the post World War II boom years the population density of the U.S. began to shift to the West and Southwest increasing demand on the resources of the Colorado River Basin. In a bid to sustain economic development in the Upper Basin and prevent the catastrophic consequences to the Upper Basin states of a Lower Basin Compact “call,” Congress passed and President Eisenhower signed into law the Colorado River Storage Project Act of 1956.

The CRSP Act authorized the construction of the Glen Canyon, Aspinall, Flaming Gorge and Navajo facilities. This Act had three purposes: *“the reclamation [irrigation] of arid and semiarid land, control of floods, and for the generation of hydroelectric power. . . .”* The CRSP Act excluded fish, wildlife and recreation from its purposes.

About a decade after President Eisenhower signed the CRSP Act into law, further population shifts to the Southwest prompted Congress to pass the Colorado River Basin Project Act (CRBPA). The 1968 Act included language stating that *“ . . . improving conditions for fish and wildlife”* was a purpose of the Act, but it also explicitly states that *“Nothing in this chapter [act] shall be construed to alter, amend, repeal, modify, or be in conflict with the provisions of. . . the Colorado River Storage Project Act.”* In other words, the language included in the 1968 law for fish and wildlife does not, in any way, change the original purposes of the 1956 law which were to promote irrigation, flood control and hydropower generation.

Unfortunately, questions still arise regarding the authorized purposes of facilities constructed under the authority of both laws. Those questions over the last 10 years have created the following debate: should the Aspinall Unit be operated *primarily* to meet the flow requirements of two endangered species of fish, the Razorback Sucker and Bonytail Chub OR should Reclamation have the **discretion** to operate Aspinall to meet its statutory obligations and authorized purposes while at the same time benefitting the additional resource needs of fish, wildlife and recreation? I would argue that Reclamation should operate the three dams on the Gunnison to meet both power generation needs and to protect endangered species.

Nearly 10 years ago, the National Park Service asked for a reserved water right in the Black Canyon of the Gunnison, which is immediately downstream from the Aspinall Unit. In the meantime, Reclamation began work on an environmental impact statement (EIS) process which was intended to provide for operational changes at Aspinall to help meet flow recommendations thought to be necessary for the endangered fish species. After several years of negotiation with multiple federal agencies and stakeholders, a consensus draft EIS was prepared. The draft was put “on hold” until the Black Canyon water right issues were settled.

After seven years of federal litigation and a mediated settlement, the Black Canyon Consent Decree was signed on December 31, 2008. The drafting of the consent decree involved approximately 30 parties, including the relevant federal agencies (Reclamation, National Park Service, and Western Area Power Administration), the State of Colorado, environmental interests, recreational enthusiasts and federal hydropower customers. The decree was intended to “split the baby” by allowing for the Aspinall Unit to be operated for two concurrent purposes—a Spring Peak flow release to meet flow recommendations which should assist in the recovery of endangered species while at the same time providing a peak for the National Park Service resources in the Black Canyon of the Gunnison National Park..

In late December, 2010, after nearly two years of being “on hold”, the draft EIS was reissued to the cooperating agencies. It was significantly revised by the Department of the Interior in Washington, D.C. with no consultation among the stakeholders that had worked diligently for several years during the drafting process. Several aspects of the revised EIS appear to elevate Park resources above the originally authorized Project purposes, and could have significant impact on the flexibility and timing of hydropower generation.

Cooperating agencies submitted comments on April 1, but as of this time, it is uncertain as to what the next steps will be. The State of Colorado, the Platte River Power Authority and the Western Area Power Administration all submitted detailed comments recommending that those consensus provisions contained in the draft be reinstituted in the revised EIS and that the careful balancing of resource purposes and benefits that was sought by those involved in the drafting be reinstated. This “balance” is critical when federal multi-purpose projects are operated. As noted in a recent District Court decision, Judge David Campbell, in ruling for the United States, highlighted the importance of “balance”. Although he was referring to the operation of Glen Canyon Dam, I believe that his ruling is equally applicable to Reclamation’s operation of the Aspinall Unit because the projects of the CRSP are inextricably linked. “This experience aptly illustrates the complex set of interests Reclamation must balance in operating the Dam. Those interests include not only the endangered species below the Dam, but also tribes in the region, the seven Colorado River basin states, large municipalities that depend on water and power from Glen Canyon Dam, agricultural interests, Grand Canyon National Park, and national energy needs at a time when clean energy production is becoming increasingly important.”¹

In addition, Mr. Chairman, GCEA has sought the evaluation of the possibility of pursuing the addition of a hydroelectric generation facility to an existing BOR dam within our service territory. The specific storage facility is known as Taylor Park Reservoir Dam. We have conducted a feasibility study of the possibility of adding a hydroelectric generator to that existing dam alongside two other partners—The Upper Gunnison River Conservation District and the Uncompahgre Water Users Association. The results of this study concluded that there were two feasible options for electric generation from this facility, shown below. These conclusions are based upon historic hydrological conditions, existing and possible electric distribution line capacity, power generation potential and a comprehensive economic analysis. The two preliminary recommendations provided by the URS Corporation are briefly outlined below.

- 1.960 MW hydropower plant. This would be possible under the current single phase transmission capabilities existing in the Taylor River Canyon currently.
- 3.675 MW hydropower plant. This option would require a complete rebuild of the transmission facilities from Taylor Reservoir in order to place the energy on the grid.

This power would be available from an existing water storage facility. In addition, the power would be emissions-free and potentially be dispatchable in order to help mitigate peak demands of electric energy. As you are aware, mitigation of peak demand periods eliminate or delay the need to build new generation resources, reduce emissions and reduce costs to the consumer.

However, GCEA is very concerned that as we are a very small not for profit utility with limited revenues. The financial risks associated with the navigation of the governmental regulatory process in pursuing this project may be a hurdle we cannot overcome. A small utility such as GCEA needs regulatory certainty or we cannot pursue a project, and GCEA has observed historically that regulatory certainty is not something we can count on. In order for a small utility such as GCEA to help coordinate the use of an existing government owned water storage facility for the production of reliable, emission free and reliable electric energy, we need your help.

¹ Grand Canyon Trust v. United States, No. CV-07-8164-PHX-DGC, Order of March 29, 2011

In closing, Mr. Chairman, I think Judge Campbell's decision is correct and speaks to the title of this hearing. If we are moving toward a cleaner and greener energy future, there must be a recognition of the fact that hydropower is the cheapest, and most abundant renewable energy resource. In my view, protecting Federal Hydropower Investments in the West means primarily utilizing Aspinall and other CRSP facilities for one of the purposes for which they were originally intended—the generation of clean, renewable and affordable hydropower.

Thank you, Mr. Chairman, I'd be happy to answer any questions you or members of the committee might have.

Mr. MCCLINTOCK. Great. Thank you for your testimony. Our next witness who has already been introduced, Mr. Vic Simmons, General Manager of Rushmore Electric Cooperative in Rapid City, South Dakota.

**STATEMENT OF VIC SIMMONS, GENERAL MANGER,
RUSHMORE ELECTRIC COOPERATIVE, RAPID CITY, SOUTH
DAKOTA**

Mr. SIMMONS. Thank you, Mr. Chairman, Members of the Committee.

As introduced, I am Vic Simmons. I am General Manager of Rushmore Electric Power Cooperative. Rushmore Electric is a GNT in western South Dakota. Our hydropower comes from the Bureau of Reclamation and Corps of Engineers dams on the Missouri River and its tributaries.

Rushmore's allocations along with allocations to five Native American tribes in western South Dakota make up about one-fourth of our power supply resources. I also serve as Chairman of the Water and Power Planning Committee of the Midwest Electric Consumers Association. Midwest is a regional coalition of over 300 consumer-owned utilities serving over 3 million consumers through nine western states.

Rushmore Electric strongly supports the funding necessary to keep the Federal hydropower resources operating as a vital part of our power supply. Without dependable funding in the Federal budget the reliability of this system will suffer. Replacing this renewable hydropower with other resources would cost the consumers of western South Dakota over \$2.7 million per year. This extra burden is not affordable in an area that continually ranks among the lowest income areas in the United States. This is an area where we often measure the number of miles of line it takes to serve a customer, not the other way around.

The continuing rising cost of regulations, compliance with Endangered Species Act requirements, and rules that seem to lack common sense take up valuable time and resources. As an example, the spring rise scenario to encourage pallid sturgeon to spawn would release water when electric loads are at their lowest, thus wasting that stored water. If that water is not there in the summer when we need it most for peaking conditions, it would have to be replaced with natural gas-fired generation at a higher cost and a higher environmental issue.

Like most of the infrastructure in this country, a safe and reliable Federal hydropower system needs adequate and dependable funding for capital improvements, operations and maintenance. These facilities were built over 45 years ago. While the Bureau of

Reclamation and the Corps of Engineers have done a remarkable job of keeping these facilities in top condition, as they get older these facilities need more funds, not less.

As Federal hydropower consumers, as my friend and colleague stated, we pay 100 percent of the costs. We pay that back with interest. We also cover our share of the dams and the reservoirs, and we pay a share of irrigation. So far as of the end of 2009 \$1.2 billion of the \$2.8 billion Federal financed power facilities have been paid back with interest.

Protecting the Federal hydropower investment in the West is not only about providing hydropower, flood control, municipal and industrial water supply, irrigation, recreation, navigation, fish and wildlife, it is also a sound business decision for the United States. The Corps of Engineers is determined that the Missouri River Dams have prevented over 25 billion in flood damage since 1938, thus repaying the original investment in the dams billions of times over. The Federal hydro system has returned the investment of the past and will continue to return the investments of the future. Thank you.

[The prepared statement of Mr. Simmons follows:]

**Statement of Vic Simmons, General Manager,
Rushmore Electric Power Cooperative**

Mr. Chairman and members of the subcommittee, thank you for the opportunity to testify before you today on protecting federal hydropower investment in the west.

My name is Vic Simmons. I am the General Manager of Rushmore Electric Power Cooperative. Rushmore Electric is a Generation and Transmission cooperative serving western South Dakota. Our hydro power comes from the Bureau of Reclamation and Corps of Engineers dams on the Missouri River and its tributaries through allocations from the Western Area Power Administration. Rushmore Electric's allocation along with allocations to five Native American Tribes located within our western South Dakota service territory make up just short of one-fourth of our power supply resources.

I also serve as the Chairman of the Water and Power Planning Committee of the Mid-West Electric Consumers Association. The Mid-West Electric Consumers Association is a regional coalition of over 300 consumer-owned utilities (rural electric cooperatives, public power districts, and municipal electric utilities) serving over 3 million consumers through purchases of hydropower generated at federal multi-purpose projects in the Missouri River basin under the Pick-Sloan Missouri Basin Program. The nine states included within the Mid-West footprint are Colorado, Iowa, Kansas, Minnesota, Montana, Nebraska, North Dakota, South Dakota and Wyoming. Midwest and its members enjoy an excellent working relationship with our federal partners.

Rushmore Electric strongly supports the funding necessary to keep the federal hydropower resources operating as a vital part of our power supply. Without dependable funding in the federal budget, the reliability of this system will suffer. Replacing this renewable hydropower with other resources would cost the consumers of western South Dakota over \$2.7 million dollars per year. This extra burden is not affordable in an area that continually ranks among the lowest income areas in the United States. This is an area where we often measure the number of miles of line it takes to serve a customer, rather than the number of customers per mile of line.

The continually rising costs of regulations, compliance with the Endangered Species Act requirements, and rules that seem to lack common sense take up valuable time and resources. As an example, the spring rise scenario to encourage the pallid sturgeon to spawn, would release water when electrical loads are at their lowest, thus wasting the stored water. If that water is not there when it is needed for peak conditions later in the summer, expensive natural gas fired turbines would need to be used.

Like most of the infrastructure in this country, a safe and reliable federal hydropower system needs adequate and dependable funding for capital improvements, operations, and maintenance. These facilities were built over 45 years ago. While the Bureau of Reclamation and the Corps of Engineers has done a remarkable job of

keeping these facilities in top condition, as they get older, these facilities will take more funds to maintain and update, not less.

Federal hydropower facilities are part of the multi-purpose projects that serve a variety of purposes—flood control, municipal and industrial water supply, irrigation, recreation, navigation, fish and wildlife. Unlike most other federal capital projects, much of the costs of constructing, operating, and maintaining these hydropower projects are repaid to the federal government with interest.

Power customers purchase electrical power generated at federal multi-purpose projects that have been authorized for hydropower development, and are paying back 100% of the costs of these facilities:

- the federal capital investment in generation and transmission facilities, with interest, including all of the original investment and the repair and replacement costs;
 - an allocated share of the original multi-purpose capital investment (the dam, the reservoir, etc.) and an allocated share of the repair and replacement with interest of multi-purpose facilities;
 - all of the annual operations and maintenance cost of generation and transmission facilities;
 - an allocated share of the annual operations and maintenance costs of multi-purpose facilities; and
 - the portion of the cost of federal irrigation projects that is deemed to be beyond the ability of the irrigators to repay.
- \$1.2 billion of the \$2.8 billion total federally financed power facilities (Power's share of the dams and transmission) have been paid back.

Protecting the Federal Hydropower Investments in the West is not only about providing hydropower, flood control, municipal and industrial water supply, irrigation, recreation, navigation, fish and wildlife, it is also a sound business decision for the United States. The Corps of Engineers has determined that the Missouri River dams have prevented \$25 billion in flood damage since 1938, thus repaying the original invest in just the dams of \$1.2 billion many times over. The federal hydro system has returned the investments of the past and will continue to return the investments of the future.

Thank you.

Mr. MCCLINTOCK. Thank you for your testimony. Our next witness is Mr. Andrew Fahlund. He is the Senior Vice President of Conservation for American Rivers, Washington, D.C. His group is referenced in several of the opening statements, and I want to stress is here at the invitation of the Minority Party. Mr. Fahlund for five minutes.

STATEMENT OF ANDREW FAHLUND, SENIOR VICE PRESIDENT OF CONSERVATION, AMERICAN RIVERS, WASHINGTON, D.C.

Mr. FAHLUND. Mr. Chairman and Members of the Subcommittee, thank you for inviting me to testify before you today.

I am Senior Vice President for conservation programs through American Rivers. We were founded in 1973 with offices throughout the nation, and we are the leading voice for healthy rivers and the communities that depend on them.

Hydropower dams have flooded forests, destroyed fisheries, diminished recreational opportunities and caused great harm to the long-term viability of mostly rural and coastal economies that depend on those resources. However, when hydropower is sited, operated, mitigated appropriately, hydropower can be a tremendous benefit to the nation. That is why American Rivers is signatory to settlements supporting the continued operation of thousands of megawatts and supports the new development of thousands more.

To have a serious conversation about increasing our nation's hydropower resources, let us look at where the big opportunities really lie instead of scapegoating the interests of recreation, fisheries,

tribal resources, and environmental sustainability. The majority of people in the hydropower industry, the environmental community and government have moved beyond that sort of simplistic thinking. I want to touch on the two greatest opportunities to increase hydropower capacity in the United States and address two of the greatest threats.

The first is to use existing infrastructure. Some Federal agencies estimate we could increase Federal hydropower output by as much as 30 percent by simply replacing old turbines and generators. This may present an opportunity to also reduce environmental impacts and would spark job creation through the manufacture and installation of those devices. Adding turbines to non-hydropower dams, pipes and canals offers some potential as well. Numerous tax incentives and renewable energy portfolio requirements have included this sort of incremental hydropower, and we have supported that as well.

The second is to better coordinate the operations of dams within each basin. Hydropower dams are owned and regulated by a patchwork of entities. They typically serve many more functions than simply generating power, and those are often competing. In fact, if we really wanted to maximize hydropower production, we would stop diverting water out of streams for consumptive use. That is not something that most would support. However, efficiency is part of the answer.

We can make some big gains in power production as well as improve other ways of managing water if we require agencies to periodically review and coordinate dam operations on a basin-wide scale and balancing all of the competing interests.

Of the threats, perhaps the greatest to hydropower production in the near term is drought. Models are fairly universal in their productions. The climate change will result in less snow pack and more drought. Confronting the causes of climate change is vital to maintaining our hydropower capacity as well as to protecting fisheries and other species.

The other threat that I would like to highlight is political paralysis. Living in a democracy means that getting anything done typically involves consensus and collaboration. One side may win at the expense of the other for a short time, but those victories are fleeting. Continuing to fight the old flights of zero sum gains will continue to lead us into court and stalemate and won't advance the cause of hydropower environmental restoration or anything else.

We need to move forward with co-equal goals of power production, environmental enhancement and sustainable water supplies. That may sound Pollyanna to some, but I have seen what success can look like in places like Penobscot in Maine and the Klamath in Oregon and California.

I visited the dams in the Klamath Basin in 2002 at the very height of the hostilities there, and rather than seeing despair and cynicism some of us saw opportunity and hope. As we began a dialogue among the many stakeholders we understood that what each of us wanted was not water, electricity or fish, but predictability, trust and hope to raise families, to make a living, and maintain a way of life. We reached agreement on power issues, water issues and fish issues when we all started viewing each other as neigh-

bors who rise and fall together. Are the needs of a farmer in Klamath Falls any more or less important than a fisherman in Eureka? Not anymore. And that was a remarkable transformation.

Discussions about hydropower often get derailed into a referendum on dam removal. Despite the claims of some, dam removal is not the biggest threat to hydropower capacity in America. I would be the first to agree that suggesting all or even most dams should be removed is a radical notion, but no more radical than suggesting that all dams should remain no matter what the cost. Dams are not monuments. Dams are tools and tools wear out or become obsolete.

Leaving our children with the burden of an environmental deficit is no less insidious than leaving them with the burden of a financial one, and we believe it is possible to protect the environment while protecting our investments in hydropower and other water infrastructure.

Thank you for the opportunity to testify, and I would be happy to answer your questions.

[The prepared statement of Mr. Fahlund follows:]

**Statement of Andrew Fahlund, Senior Vice President for Conservation,
American Rivers**

1. Introduction

Chairman McClintock, Ranking Member Napolitano, and Members of the Subcommittee: thank you for this opportunity to testify today and to share American Rivers' perspective on U.S. hydropower policy.

American Rivers is the nation's leading voice for healthy rivers and the communities that depend on them. We believe rivers are vital to our health, safety and quality of life. American Rivers mobilizes an extensive network comprised of tens of thousands of members and activists located in every state across the country. We have been working to protect and restore the health of rivers that have been impacted by hydropower dams since we were founded in 1973. We also serve on the Steering Committee of the Hydropower Reform Coalition, a broad consortium of more than 150 national, regional, and local organizations with a combined membership of more than one million people. In doing so, we represent stakeholders—anglers, canoeists, outdoor enthusiasts, conservation advocates, and lake homeowners—who seek to improve the water quality, fisheries, recreation, and general environmental health of rivers that have been damaged by hydropower dam operations. We are active in many hydropower licensing proceedings currently pending before the Federal Energy Regulatory Commission (FERC), as well as other hydropower-related proceedings involving the Bureau of Reclamation and the Army Corps of Engineers. We have constructively contributed to numerous hydropower-related policy discussions.

2. Towards a balanced Federal hydropower policy that encourages environmentally responsible hydropower development and operation

American Rivers is emphatically *not* anti-hydropower. We seek to improve the nation's hydropower system by encouraging increased generation while improving environmental performance. Conventional hydropower is one of the oldest and most well-established among a growing number of technologies that provide low-emissions alternatives to fossil-fuel energy. Nationally, hydropower provides about 75,000 megawatts of capacity, and represents nearly 7% of total generation. We expect that hydropower will continue to be a part of our nation's energy mix for years to come, and accordingly we have signed dozens of agreements supporting the continued, long-term operation of hydroelectric dams that together provide our nation with thousands of megawatts of generating capacity. Reasonable modifications have dramatically improved the performance of these dams, providing fish passage, improving flows, enhancing water quality, protecting riparian lands, and restoring recreational opportunities.

American Rivers supports the development of new hydropower resources that can be brought online while avoiding significant additional harm to local ecosystems. In recent years, we have worked closely with the National Hydropower Association to

develop and promote several pieces of legislation that provides incentives for new hydropower generation. We support hydropower that is developed and operated in a responsible manner that avoids harm to America's precious river resources. Given the very real environmental and social impacts of global climate change—especially on vital freshwater systems—we understand the need to develop new sources of energy that can replace America's reliance on fossil fuels. Hydropower is and will continue to be an important part of this mix.

However, we also know that the energy we receive from hydropower comes at an enormous cost to the health of our nation's rivers and communities. Hydropower is unique among renewable resources in the scale at which it can damage the environment. Hydropower's environmental and social impacts are serious and extremely well documented. Hydropower dam operations are responsible for the extinction and near-extinction of a number of species. Hydropower plants often divert water around entire sections of river, leaving them dry or constantly alternating between drought and flood-like conditions. Hydropower dams have flooded forests, destroyed fisheries, diminished recreational opportunities, and caused great harm to the long-term viability of the local—mostly rural—economies that depend on those resources.

The harm caused by most hydropower dams can be avoided if hydropower is sited, constructed, and operated in a responsible manner. A few simple changes can make an enormous difference in the health of a river. Hydropower operators can change the timing of power generation to mimic a river's natural hydrologic conditions, stabilize lake levels and dam releases to protect riverside land from erosion, provide fish ladders and other measures that protect fish and allow them to pass safely upstream and downstream of dams, restore habitat for fish and wildlife, alter the design and operation of plants to maintain appropriate temperature and oxygen levels in rivers, and provide public access and release water back into rivers so that people can fish, boat, and swim. These types of changes have a miniscule impact on the overall generation of the nation's hydropower fleet. In fact, an analysis by FERC found that since Congress passed laws in the 1980s to encourage these types of improvements, overall generating capacity has actually *increased* by 4.1%. The benefits to human and natural communities have been immense.

There are, however, some rare cases—where the environmental, social, and economic impacts of a dam cannot be adequately mitigated. Where those impacts outweigh the benefits of a dam, American Rivers and others sometimes advocate for decommissioning of hydropower dams. We take this extraordinary step with great caution, and only as a last resort: out of 20,441 MW of capacity that has been relicensed by FERC since 1986, American Rivers' advocacy has led to roughly 222 MW of licensed capacity being identified as suitable for decommissioning. Our analysis indicates that this 222 MW is roughly equivalent to the capacity of existing FERC-regulated projects that are in non-compliance and not generating because their owners have failed to maintain them in proper working condition. It represents just 1% of the capacity relicensed by FERC since 1986, and only two-tenths of one percent of the nation's total hydropower capacity. American Rivers has supported policies and projects that have already resulted in much more new hydropower capacity being brought online than capacity that has been removed.

The threat of climate change demands urgent action on two major fronts. First, we must dramatically reduce greenhouse gas emissions. Our current hydropower capacity contributes to decreased dependence on fossil fuels and our recommendations below represent suggestions for how to build additional capacity without causing significant additional harm to healthy rivers and the communities that depend upon them. Ironically, because the forecasts of climate change in the west call for less rain and snow, the fundamental fuel for hydropower is significantly compromised.

Second, even if we bring emissions under control, the carbon already in the atmosphere from historic emissions will cause inevitable changes to the climate. We must therefore also take immediate action to help both human and natural communities prepare for inevitable climate changes. By protecting and restoring healthy watersheds, increasing water efficiency, and improving the quality of our infrastructure we can build resilient communities and ecosystems that stand a better chance of weathering the impacts of global warming.

America is still blessed with many healthy, free-flowing rivers, wetlands, and natural floodplains that protect communities, support local jobs, and provide significant economic value. In fact, in many rural economies, recreation and tourism play a greater role in job creation and economic productivity than any other sector. We must preserve and restore these natural resources and promote them as a vital part of our economy. Now and in the years to come, we need hydropower projects that are sited, built, and operated to produce power while minimizing impacts to the rivers that sustain America's human and natural communities. Federal agencies with a role in U.S. hydropower policy, including the Bureau of Reclamation, the U.S.

Army Corps of Engineers, the Department of Energy, and the Federal Energy Regulatory Commission must make the enhancement of environmental quality—at existing and new sites alike—a top priority.

A balanced and responsible hydropower policy must encourage responsible development while continually holding developers and federal operators accountable for their environmental impacts and insisting on the strictest performance standards. It must remove unnecessary obstacles to development while recognizing at the most fundamental level that a high level of environmental performance is a reasonable and necessary cost of doing business. It must encourage new development to take place while also accepting that some sites are simply not appropriate for new or increased hydropower production. Congress must address both sides of this equation equally.

3. Opportunities for new hydropower development

American Rivers supports the development of hydropower projects that are sited, constructed, and operated in a responsible manner so as to avoid harm to America's precious river resources. Hydropower projects that re-use existing water and hydropower infrastructure are the best candidates for responsible development. There is enormous potential from these types of projects. The U.S. Department of Energy has estimated that more than 12,000 MW of new capacity could be added simply by replacing antiquated generating equipment, and more than 12,600 MW more could be added by adding turbines to non-powered dams (only 3% of the nation's dams are currently generating power), many of which are owned and operated by the Federal government. With roughly 75,000 megawatts of installed capacity in the U.S., these types of projects could provide a 30% increase in installed capacity, all without the enormous costs and risks associated with new dam construction. Encouraging such capacity additions at existing federal facilities would be one of the most cost-effective ways to use scarce taxpayer dollars to protect federal investments in water infrastructure.

American Rivers has long advocated for policies that would encourage or require hydropower operators to upgrade aging turbines and generating equipment with updated, modern equipment. We believe that the public should receive the full benefit of each drop of water that passes through a turbine, and antiquated, inefficient equipment dilutes these benefits. Efficiency improvements are relatively low-cost, use turbines and equipment that is manufactured in the United States, and can often contribute to improved environmental outcomes. These efficiency upgrades are the simplest, most cost-effective, and lowest-impact means of increasing hydropower generation. The potential gains in generation are significant: in many cases, these upgrades can result in a 10–20% increase in generation from the same amount of water. There are substantial environmental benefits to these upgrades as well: modern turbines often feature designs which are less harmful to fish, and can operate efficiently across a different range of release levels, allowing for managed flow regimes which more closely mimic a natural river.

Turbines can also be added to many existing hydropower and non-hydropower dams. While these retrofits are not appropriate in every case, they offer new capacity for minimal additional environmental impacts when done right. In some cases, retrofitting existing dams for hydropower can leverage additional environmental improvements to the affected river reach. For instance, a pending retrofit at the Holtwood project on the Susquehanna River in Pennsylvania will more than double that project's generating capacity while also providing for substantially improved fish passage. Several years ago, American Rivers worked closely with the hydropower industry and Members of Congress to craft legislative language that would encourage such forward-thinking development. This language has since been incorporated into the federal law which provides a Production Tax Credit for Renewables, providing developers with an incentive to develop at existing dams that are currently operated for flood control, navigation, and water supply and that could be developed without harmful changes to river flows.

Finally, an increasing number of developers—especially in the west—are exploring off-stream hydroelectric development. Some developers propose to place turbines in existing water conveyance pipes. Others are adding hydropower capacity to irrigation canals. Still others are placing turbines in municipal water treatment facilities. While there is no official estimate of how much capacity may be available from new conduit projects, we expect that it may be significant, and new technologies are improving the economic viability of these types of projects. Many of these projects have the potential to create substantial environmental benefit. For instance, some irrigation districts are using the revenue from power sales to fund projects that will result in the more efficient use of water, leaving more water in the river to provide

ecosystem services. American Rivers is working with conduit developers to find ways to lower the cost and effort associated with developing these types of projects.

3.1 Balanced management of the federal hydropower system

The 171 hydropower plants that make up the federal hydropower system provide more than 37,000 MW of electric capacity, or 50% of total hydropower production in the United States. The federal investment in hydropower production at these facilities is typically seen as secondary to the dams' other authorized purposes, and generation is very often secondary to flood control operations or water deliveries for agriculture. In western basins where reservoirs are used for multiple purposes, outdated operational guidelines, poor water management and conservation practices, and an alarming lack of coordination among multiple federal and non-federal projects are leaving megawatts on the table. The Bureau of Reclamation and the Army Corps of Engineers should improve their cooperation with FERC and its non-federal licensees to ensure that water control and hydropower systems are being operated efficiently on a basin scale. Additionally, any water that is diverted from storage reservoirs for consumptive use is water that is not available to generate power. Federal operators should, as they examine water delivery contracts, consider the relationship between end-user efficiency and hydropower production, and take steps to ensure that hydropower generation is not threatened by inefficient and wasteful consumptive water use.

American Rivers has worked on dozens of hydropower licensing proceedings before the FERC over the past two decades, and our experience has shown that the comprehensive review of hydropower projects operations with extensive stakeholder involvement results in significant improvements to environmental quality while retaining nearly all of those projects' capacity to generate electricity. While the concept of a periodic review that is open to all interested members of the public is a long-standing one in the realm of non-federal hydropower projects, a similar process is lacking—and needed—for hydropower facilities that are owned and operated by the federal government.

Each Federal project has a plan of operation, but many of these plans have not been revised in decades and are hopelessly out of date, despite laws that permit and/or require Federal operators to review the operational plans for their facilities. We recommend that this Subcommittee direct the Federal operators over which it has jurisdiction to examine changes to the design, configuration, or operation of their existing dams in order to improve upon existing operations, and to periodically repeat this analysis. Federal operators should be directed to consider efficiency upgrades, opportunities to install new physical capacity, and more operational changes that will enhance and maximize the array of beneficial public uses these dams provide, including energy production, environmental protection, water supply, navigation, recreation, and whether facilities are receiving a market return for their services, including energy production.

3.2 Basin-scale coordination of multiple projects

While individual hydropower dams have their own impacts, the cumulative effects of multiple hydropower dams are often much greater than the simple sum of their direct impacts. A single-dam may block fish passage and displace wildlife. A series of dams can harm an entire watershed or cause the extinction of an entire fishery, even if the effect of each of the individual dams seems relatively mild when considered in isolation. The impact of a single dam that kills only 5% of fish in its turbines may seem relatively small, but eight dams along the same river, each of which only kill 5% would reduce the river's fish population by more than a third, placing a cumulative burden on the population that is too great to be sustained over time.

The solution to such cumulative impacts is to address hydropower at a watershed or basin scale instead of at the individual project level. It is often possible to get an increase in generation *and* significant improvements in environmental quality when the operation and management of multiple facilities is addressed in a coordinated manner. For instance, consider Maine's Penobscot River basin. For decades, a series of dams in this basin blocked access to high-quality habitat and all but wiped out the river's valuable Alewife, Atlantic Salmon, and Shad fisheries. When these projects were relicensed, parties examined the entire basin and came up with a plan that would restore more than 1000 miles of habitat—and millions of fish—by removing two dams, bypassing a third with a nature-like fishway, and installing fishways at others while allowing for a net increase in power generation. This plan also allows the remaining dams to generate more, concentrating environmental restoration measures where they are most needed and power production where it will have the least impact on the basin as a whole.

The Penobscot agreement demonstrates how the coordinated review and planning of hydropower in a basin can result in more power *and* better environmental outcomes. Unfortunately, the circumstances on the Penobscot—where all of the dams were owned by a single entity and subject to the jurisdiction of a single agency—are the exception rather than the rule. Consider, for instance, California’s rapidly declining populations of Salmon and Steelhead. A combination of federal and non-federal dams in six watersheds in California (the American, the Feather, the Merced, the Stanislaus, the Tuolumne, and the Yuba) blocks these commercially valuable fish from accessing more than 2,200 miles of their highest-value historic habitat.¹ These dams are managed by a patchwork of federal and non-federal operators. The operators coordinate the management of these watersheds for water supply and power production. But when it comes to mitigating the effects of this environmental catastrophe, each operator points its fingers at the others. There is not one major river in the Central Valley that has even a single fish passage structure. All the major salmon runs are stuck on the valley floor, unable to ascend to the upper reaches of these watersheds where the best quality habitat is located. FERC, its licensees, and the federal operators in these basins have failed to end this avoidance of responsibility by coordinating effectively to find basin-wide solutions to restore fish passage to this valuable historic habitat. As a result, these species are at the brink and downstream users are stuck with a disproportionately higher burden for addressing their protection and restoration.

There is an urgent need for the type of basin-scale planning and coordination of hydropower projects that led to the Penobscot agreement. We recommend that Congress direct the Bureau, the Corps, and FERC to cooperate to address multiple projects in a coordinated fashion to increase power generation and environmental outcomes at the basin—not project—scale. For instance, when FERC is relicensing a project in a basin where the Corps or the Bureau also operate hydropower projects, those agencies should participate as cooperating agencies in FERC’s analysis and use that opportunity to review the operations of their own projects in coordination with the FERC-licensed projects.

4. Conclusion

A balanced U.S. energy policy must recognize that hydropower has impacts as well as promise, and it should address both. New hydropower development must be sited, operated, and mitigated responsibly, and it must simultaneously encourage increased generation *and* improved environmental performance at new and existing projects. American Rivers supports the development of new hydropower resources that can be brought online responsibly, avoiding significant additional harm to local ecosystems. We offer the following recommendations to this Committee as it considers how to protect the federal investment in hydropower:

1. Encourage the development of new capacity using existing water infrastructure, especially capacity and efficiency upgrades and power added to non-powered dams. As a class, these hydropower projects can be brought online for the least cost and with the least additional impact to the environment, and could provide as much as a 30% increase in hydropower generation.
2. Direct Federal hydropower operators to evaluate their facilities and operations as well as the relative values of existing authorized purposes in order to find new opportunities to add power, improve efficiency, and improve environmental quality.
3. Direct Federal hydropower operators to coordinate with each other and with FERC to take a basin-scale approach to hydropower development and reoperation rather than a myopic project-by-project view, and encourage multiple operators within a basin to find shared solutions that will increase generation, use water more efficiently, and restore environmental quality.

Environmental quality is not a luxury good: leaving our children with the burden of an environmental deficit is no less insidious than leaving them with the burden of a financial one. Fortunately, it is possible to protect the environment while protecting our investments in hydropower and other water infrastructure. American Rivers has learned some important lessons in our nearly four decades of experience with hydropower. Disputes over water are complex and contentious, and finding solutions to those problems requires a commitment on the part of each party to see that all other parties’ interests are respected. A solution that is based on “abundance” as it is defined by one party to a dispute will never be satisfactory to all. We must find solutions that seek abundant water, abundant clean energy, abundant fish and wildlife, and abundant jobs. When traditional foes stop hurling accusations

¹Lindley, S.T. et al, “Historical Population Structure of Central Valley Steelhead and its Alteration by Dams,” 2006.

at each other and instead sit down, roll up our sleeves, and work together to meet each others interests, we can and often do find lasting, mutually agreeable solutions.

Thank you again for this opportunity to testify you today. I look forward to answering your questions.

Mr. MCCLINTOCK. Thank you for your testimony. Our next witness is Mr. Roman Gillen. He is the President of the Board of Directors of the Oregon Rural Electric Cooperative Association in Salem, Oregon.

STATEMENT OF ROMAN GILLEN, PRESIDENT OF THE BOARD OF DIRECTORS, OREGON RURAL ELECTRIC OPERATIVE ASSOCIATION, SALEM, OREGON

Mr. GILLEN. Thank you, Mr. Chairman. Good morning, Mr. Chairman and Members of the Subcommittee. I am Roman Gillen, President and CEO of Consumers Power, Incorporated, an electric distribution cooperative located in western Oregon, in Philomath near Corvallis. Thank you for this opportunity to testify before the Subcommittee today and for holding this hearing on this important topic.

CPI is a customer of the Bonneville Power Administration through our generation and transmission cooperative, P&GC Power, of which I am a board member. CPI serves over 17,000 members in parts of six counties from the Cascade Mountains to the Pacific Ocean, including the 4th Congressional District served by Representative Peter DeFazio. Most of our electricity sales are to residential members. Today I also represent the Oregon Rural Electric Cooperative Association as its board president. ORECA represents the legislative interests of all 18 Oregon electric co-ops, serving over 200,000 members in mostly rural and remote parts of Oregon.

My testimony today centers on three Federal policy issues of concern to our members: high wind, high water, over-generation events; proposals to force power marketing agencies to sell electricity at market-based rates; and salmon recovery on the Columbia River Basin.

As this Committee knows, the Northwest is blessed with an extremely valuable Federal asset, the Federal Columbia River Power System. CPI helps pay for this asset through the rates we pay as a preference customer of BPA. Today, this same Federal system plays a leading role to support the growth of non-hydro low variable cost renewable resources, especially wind.

BPA Administrator Steve Wright told this Committee in March that the amount of wind generation in the Northwest may triple in size over the next six years. This really concerns me as I believe the Northwest is ill equipped to deal with such rapid growth in wind generation. Problems that occur when too much wind coincides with an abundance of hydropower and low utility loads in the spring will only get worse as the Northwest emerges from the drought conditions of recent years.

The second Federal policy issue I would like to speak to concerns wholesale power rates in the Northwest. Cost-based power is the life blood of utilities like CPI in the Northwest, so we are gravely concerned to see proposals re-emerge that force PMAs to sell power

at market rates. We oppose legislation that arbitrarily taxes power rates in select regions of the U.S. Northwest preference customers, including CPI members, pay all of the costs to operate and maintain the Federal hydropower system. Forcing PMAs to sell power at market rates would force utilities like CPI to raise retail rates, perhaps dramatically, causing great harm to our residential members, especially those on fixed incomes. Many of our members depend on electricity to heat their homes in the winter with few alternatives to choose from. With the cost of food and gasoline already increasing it makes no sense to add an additional energy tax, especially upon consumers who can least afford it.

Finally, I would like to say a few words about salmon restoration efforts in the Northwest. We sincerely hope that Federal Judge James Redden approves the 2008 biological opinion when he hears arguments on the plan next Monday, May 9. In that vein, I thank Chairman Hastings and Representative DeFazio for their excellent March 11th opinion piece that strongly endorsed this biop.

CPI and other BPA customers also strongly support the biop even though it comes at a high cost to our members and other BPA customers who are footing the bill. We also thank Chairman Hastings and others on the Committee for their work to ensure that salmon recovery investments are working and that they are cost-effective.

I thank the Subcommittee for allowing me to participate in this discussion and I would be happy to answer any questions.

[The prepared statement of Mr. Gillen follows:]

**Statement of Roman Gillen, President and CEO, Consumers Power, Inc.,
and President, Oregon Rural Electric Cooperative Association**

I. Introduction

Mr. Chairman and Members of the Subcommittee, I am Roman Gillen, President and CEO of Consumers Power, Inc. (CPI), an electric cooperative located in Western Oregon in Philomath, just outside of Corvallis. Thank you for the opportunity to testify before the Subcommittee today, and for holding this hearing on this important topic. I also wish to thank Committee Chairman Rep. Doc Hastings and Committee Members Rep. Rob Bishop, Rep. Peter DeFazio and Rep. Raúl Labrador for their work to protect federal hydropower investments in the Northwest on behalf of their constituents who are customers of the Bonneville Power Administration (BPA). CPI is a customer of BPA through our Generation and Transmission Cooperative, PNGC Power.

Today I am representing both CPI and the Oregon Rural Electric Cooperative Association (ORECA). We are members of NRECA, the National Rural Electric Cooperative Association, and we are members of the Public Power Council, a trade association of BPA customers led by my fellow panelist Scott Corwin. I would also like to recognize my other panelists, especially Tom Karier of Washington State, a member of the Northwest Power and Conservation Council.

CPI is an electric distribution cooperative formed in 1939. CPI's 60 employees serve 17,500 members in parts of six counties covering a 3,500 square mile service area, from the Cascade Mountains to the Pacific Ocean. We are the fourth largest electric cooperative in Oregon with 22,000 meters and 46 aMW in electricity sales in 2010. 70% of our sales are to residential members, 14% small commercial, 14% industrial, and 2% irrigation and street lighting.

My career at CPI began in 1986 in the Information Technology area and I have served as President and CEO for the last five years. I am CPI's representative on the board of PNGC Power, and I currently serve as the board president of ORECA. ORECA represents the legislative and regulatory interests of all 18 Oregon electric co-ops, serving over 200,000 members in mostly rural and remote parts of Oregon with over 30,000 miles of wire. According to Oregon State University, our economic activity directly and indirectly contributes to over 3,000 jobs in Oregon.

As you know, electric cooperatives are owned by our customers, who we refer to as members. Electric cooperatives are not owned by a government or city agency. We are chartered under state cooperative statutes and we are governed by a locally elected Board of Directors from our membership. Unlike a for-profit business we do not retain profits. Any income above expenses is, by law, returned to our members. Our goals of accountability, efficiency and meeting customer needs resemble those of a for-profit electric utility, but our means of getting there are different.

My testimony today will focus on three issues of concern to CPI's ratepayers that are driven by federal policy. These include:

1. High wind/high water overgeneration conditions.
2. Proposals to force Power Marketing Agencies (PMAs) to sell electricity at market based rates.
3. Salmon recovery in the Columbia River Basin.

II. Overgeneration

As this Committee knows, the Northwest is blessed with a valuable federal asset, the Federal Columbia River Power System (FCRPS). As a preference customer of BPA, CPI has shared in those benefits for many years, and we have shared in paying for them through the rates we pay. Today, that same federal system is playing a lead role in supporting the growth of non-hydro, low variable-cost, renewable resources, especially wind. BPA Administrator Steve Wright told this Committee in March that the region's wind generation system may triple in the next six years. I am concerned that the Northwest is not ready for that rapid growth.

In June 2010 the region experienced overgeneration conditions, when too much wind and water arrived in the system at the same time. We expect more high wind/high water events in the future. These events could threaten BPA's ability to protect migrating salmon. Some of the proposed remedies could cause BPAs customers to pay higher rates for electricity. We encourage the Subcommittee to closely examine these issues, and we support BPA's ongoing efforts to develop policies that protect our ratepayers and maintain reliability in the federal system.

III. PMAs at Cost Based Rates

We are aware that proposals have reemerged to force PMAs to sell power at market rates. We oppose these and any other proposal that arbitrarily taxes power rates in some regions. Ratepayers at CPI and throughout the Northwest pay all of the costs of operations and maintenance of the federal hydropower system. In addition to the annual revenue requirement for BPA power of over \$2.2 billion, ratepayers fund an annual payment on principal and interest of debt to Treasury of over \$860 million. In exchange, BPA sells power at cost. Power sales at cost have been a legal requirement since BPA's inception and are the foundation of the contracts that BPA customers signed through 2028. Forcing PMAs to sell power at market rates would clearly force CPI to raise our rates, perhaps dramatically. This would cause great harm to the residential members that we serve, especially those on fixed incomes. With the cost of food and gasoline already increasing, it doesn't make sense to add an additional energy tax, especially upon consumers who can least afford it.

IV. Salmon Recovery

We are hopeful that Federal Judge James Redden will approve the 2008 FCRPS Biological Opinion (BiOp) when he hears arguments on the plan next Monday, May 9. In that vein, I wish to thank Chairman Hastings and Member DeFazio for their excellent March 11 opinion piece that so strongly endorsed this BiOp. CPI and other BPA customers also strongly support the BiOp, even though it comes at a high cost to our members and other BPA customers who are footing the bill. We also wish to thank Chairman Hastings and others on the Committee for their work to ensure that salmon recovery investments are working, and that they are cost effective. As the Chairman knows, the dams at issue in this salmon plan provide our region with clean, renewable hydroelectric power. In addition, these dams offer residents of the Northwest multiple benefits, including a valuable transportation system and irrigation source.

BPA customers have paid over \$13 billion for fish and wildlife mitigation in the Columbia Basin over the past 32 years. The good news is that some of those investments are working. The BiOp is the product of a recent historic and unprecedented collaboration of Native American tribes, federal agencies, and the states of Washington, Idaho and Montana. It is based on the best available science and has been reviewed and approved by an independent panel of scientists. It has also been reviewed and approved by one of Oregon's best and brightest, former Oregon State University professor and current National Oceanic and Atmospheric Administration Director, Dr. Jane Lubchenco. We hope that May 9 will mark the beginning of a new, successful chapter in salmon recovery in the Northwest.

V. Conclusion

Mr. Chairman and Members of the Subcommittee, thank you for inviting me to testify at this hearing. As a representative of PMA customers, I appreciate the opportunity to highlight several issues that are of concern to PMA customers in the Northwest: high wind/high water overgeneration conditions, proposals to force Power Marketing Agencies (PMAs) to sell electricity at market based rates and salmon recovery in the Columbia River Basin.

I thank the Subcommittee for allowing me to participate in this discussion.

Mr. MCCLINTOCK. Thank you for your testimony. Our next witness is Mr. Tom Karier. He is a Council Member of the Northwest Power and Conservation Council in Portland, Oregon.

STATEMENT OF TOM KARIER, COUNCIL MEMBER WASHINGTON STATE, NORTHWEST POWER AND CONSERVATION COUNCIL, PORTLAND, OREGON

Mr. KARIER. Chairman McClintock and Members of the Subcommittee, thank you for the opportunity to testify today at this important hearing on protecting Federal hydropower investments in the West.

My name, as you said, is Tom Karier, and I am one of two Washington members of the Northwest Power and Conservation Council, and Chair the Council's Power Committee.

The Council is a compact of the four Northwest states of Idaho, Montana, Oregon and Washington. The Council is authorized by Federal law, the Northwest Power Act of 1980, to prepare and periodically update a Northwest Power Plan that is implemented by Bonneville Power Administration. The power plan is also used by electric utilities throughout the Northwest in preparing their own lease cost plans, and in my State of Washington our renewable portfolio standards law requires the energy efficiency savings be calculated using the Council's methodology. So the reach of the Council's planning is region wide.

Hydropower provides more than half of the electricity in the Northwest. It is in this context as an energy policymaker in a region rich in hydropower that I bring five messages for you today.

First, preserving the capability of the existing hydropower system will keep power costs and power system carbon emissions low in the Northwest. In the current version of power plan which we completed last year, we assess the impacts of removing the four Federal dams in the lower Snake River from the regional power supply. The results are that existing natural gas-fired and coal-fired generating plants would be used more intensively. The region would export less energy and import more. Carbon emissions would increase by three million tons per year, and the annual cost of the power system would increase by more than \$530 million by 2020. And because Bonneville sells the output of those dams, the cost to the wholesale power would increase 24 to 29 percent.

Second, hydropower helps back up intermittent wind power. Hydropower is an excellent companion for wind power because it can be increased or decreased almost instantaneously to match the variability of wind. The availability of this balancing energy from hydropower is one important reason why wind power is proliferating in the Northwest from about 4,500 megawatts of installed capacity today to more than 6,000 megawatts in the next few years.

Balancing is providing a new source of income for Bonneville and the utilities that own dams. For Bonneville, this means 30 to 50 million dollars in annual revenue that helps to offset customer rates. As well, some utilities that own hydropower dams are realizing as much value from providing balancing services for wind as they are from selling surplus power.

Third, energy efficiency complements and protects the Northwest heritage of clean and affordable hydropower. In the Northwest Power Act, energy efficiency is the highest priority resource to meet new demand for power. Bonneville has a program to require efficiency consistent with our power plan. In the 31 years since the Power Act the Northwest has acquired 4,250 average megawatts of energy efficiency. As generated power, that would be equivalent to the entire States of Idaho and Montana today.

In our current power plan we identify 5,900 more megawatts at an average cost of 3.5 cents per kilowatt hour. That is three times less than the lowest cost new generating resource. That much energy efficiency could meet 85 percent of the new demand for power over the 20-year time period for this plan. Complementing hydropower with energy efficiency stretches the benefits of hydropower.

Fourth, while hydropower affects fish and wildlife, the effects can be mitigated. The Council's Columbia River Fish and Wildlife Program includes strategies to improve dam passage survival for migratory fish. I believe these measures in combination with improvements in fish habitat and the careful use of artificial production are some of the reasons for the increasing number of adult fish returns from the ocean to spawn.

Fifth, and in conclusion, in our region the mix of hydropower, energy efficiency, and wind power is providing electricity consumers with a consistent supply of low-cost carbon-free energy. By continuing to add energy efficiency to the power supply the region will preserve and enhance the flexibility of the hydropower system to meet demand while also providing low-cost balancing services for increasing amounts of wind power.

Thank you again for the opportunity to testify today and I would be glad to answer questions.

[The prepared statement of Mr. Karier follows:]

**Statement of Tom Karier, Washington Council Member,
Northwest Power and Conservation Council**

Chairman McClintock and members of the Subcommittee, thank you for the opportunity to testify today at this important hearing on protecting federal hydropower investments in the West. My name is Tom Karier, and I am one of two Washington members of the Northwest Power and Conservation Council and chair of the Council's Power Committee.

The Council is authorized by federal law, the Northwest Power Act of 1980 (Public Law 96-501; 94 Stat. 2717), to prepare and periodically update a Northwest Power Plan that is implemented by the Bonneville Power Administration, a federal power marketing administration. Bonneville markets the output of the Federal Columbia River Power System, which comprises 31 hydropower dams and one non-federal nuclear power plant in the Northwest. Through its customer utilities, Bonneville supplies about 30 percent of the electricity consumed in the Northwest so the Council's power plan directly affects a significant portion of the region's electricity ratepayers. But the plan also is used by utilities throughout the region as they develop their own integrated resource plans, and Washington's renewable portfolio standard law requires that energy efficiency savings be calculated using the Council's methodology. So the reach of the Council's planning goes far beyond Bonneville.

The Federal Columbia River Power System includes many of the largest hydroelectric dams in the United States and provides 56 percent of the hydropower generated in the Northwest. Regionwide, hydropower is our largest source of electricity, averaging more than half of the power generated under normal precipitation.

The first dams of the Federal Columbia River Power System were constructed during the Depression, and so for more than 70 years our region has been enjoying clean, renewable, low-cost electricity thanks to the water power of the Columbia River and its tributaries.

It is in this context, as an energy policymaker in a region rich in hydropower, that I am testifying today. The Northwest Power and Conservation Council is working to ensure the long-term viability of the Columbia River Basin hydropower system for present and future generations while also protecting and enhancing fish and wildlife that have been affected by hydropower dams.

The Council was formed by the states of Idaho, Montana, Oregon, and Washington in 1981 in accordance with the Power Act. Each state's governor appoints two members to the Council. Through the Council, Northwest citizens can participate in determining how growing electricity needs will be met in the region, and also how fish and wildlife will be protected from the impacts of hydropower dams. The Council's power plan looks 20 years into the future, and by law we review the plan for revisions every five years. We issued our current plan, the sixth revision since the Council was created, in 2010.

According to the Power Act, the purpose of the power plan is to assure an adequate, efficient, economical, and reliable power supply for the Northwest region. The Act also recognized that development of the region's hydropower dams in the Columbia River Basin had detrimental effects on migratory and resident fish, and also wildlife, and required the Council to develop a program to mitigate those effects. The Council's Columbia River Basin Fish and Wildlife Program is an integral part of the Council's power plan. The Council's power plan and the fish and wildlife program are developed through open, public processes to involve the region's citizens and businesses in decisions about the future of these two interdependent aspects of the Pacific Northwest environment and economy.

Removing hydropower dams would increase carbon emissions and raise electricity costs

The region's hydroelectric system continues to be the Northwest's most important generating resource. Preserving the capability of the existing system will keep power costs and carbon emissions low compared to the rest of the country.

Concerns about climate change have altered the power planning landscape dramatically, both nationally and in the West. These concerns have resulted in new policies that affect electricity resource choices, such as restrictions on new coal-fired power plants because of concern about their emissions. In developing the Sixth Power Plan, the Council included estimates of the future cost of complying with carbon policies as a risk. Energy efficiency mitigates the risks of volatile fuel prices and unknown carbon costs.

The Northwest power system emits about half the carbon dioxide per kilowatt-hour of the nation or the rest of the western states. This is due to the large role played by the hydroelectric system of the region. A power system that maximizes cost-effective energy efficiency and renewable resources is a system that also minimizes the risk of exposure to the uncertain future cost of complying with carbon-reduction policies. To quantify the value of such a system, the Council's Sixth Power Plan includes an analysis of the effects of reduced hydropower capability. The analysis, which technically was one of our future-scenario models, examines the effects of removing the four federal dams on the lower Snake River—Lower Granite, Little Goose, Lower Monumental, and Ice Harbor—from the regional power supply. While the scenario is specific to the removal of those four dams, the results could apply to other changes that reduce the capability of the hydroelectric system for any reason.

The lower Snake River dams provide 1,110 average megawatts of energy under average water conditions, about 5 percent of regional annual electric energy needs. In addition, the dams provide 3,500 megawatts of short-term capacity, a little more than 10 percent of the total hydroelectric system capacity, and as part of the Automated Generation Control (AGC) System, they provide system reserves to maintain the reliability of the power supply. They also provide reactive support for the stability of the transmission system.

The effects of removing the capability of the lower Snake River dams are mainly determined by the replacement resources that would be required for the power system to duplicate the energy, capacity, real-time load following, stability reserves and reactive support currently provided by the dams. The analysis assumed that the

power produced by the dams was removed in 2020—half way through the 20-year timeframe of the Sixth Power Plan—and the energy and capacity were replaced by other least-cost resources selected by the Council's regional portfolio model. That is, given the reduced energy and capacity of the hydroelectric system, a low-cost and low-risk portfolio of new and replacement resources would take the place of the four dams.

The analysis showed that dam removal would increase the carbon emissions, cost, and risk of the regional power system. Existing natural gas-fired and coal-fired generating plants would be used more intensively. In addition, the region would export less energy and import more. Carbon emissions would increase 3 million tons per year because of the increased use of generating plants that burn fossil fuels, and the annual cost of the power system would increase by more than \$530 million by 2020. Further, because the lower Snake River dams serve Bonneville public-utility customers, those utilities and their consumers would bear the cost increases. Using a rate-making rule of thumb that a \$65 million to \$80 million cost increase translates into a \$1 per megawatt-hour increase in Bonneville rates, a \$530 million increase in Bonneville costs would raise rates by between \$6.60 and \$8.15 per megawatt-hour. Based on Bonneville's priority firm rate (this is the rate Bonneville charges its public utility customers) of \$28 per megawatt-hour in 2009, dam removal would raise that rate 24 percent to 29 percent.

Hydropower helps back up intermittent wind power

While the primary resource in the Council's Sixth Power plan is energy efficiency, cost-effective renewable resources also play a large role, accounting for 17 percent of new resources. This amount is only what is required to meet existing renewable energy portfolio standards in Oregon, Washington, and Montana (Idaho does not have a renewable portfolio standard). Aside from hydropower, wind currently is the dominant form of renewable energy in the Northwest, as it is competitive in price with new natural gas-fired generation given the various incentives and subsidies for wind power.

Beginning in 1998 with the 25-megawatt Vansycle Ridge project in southeastern Washington, commercial wind power has grown to exceed 4,000 megawatts of nameplate capacity in the Northwest. Wind power now is the fourth-largest component of the Northwest power system in terms of installed capacity (4,571 megawatts). Current plans call for wind power capacity to reach 6,200 megawatts in just a few years.

Although wind power is four times as expensive as energy efficiency, wind power shares some of the important advantages of efficiency. It is free of fuel-price risk and carbon-policy risk and can be developed in small increments with relatively short lead times. However, wind has very little capacity value for the power system. That is, it cannot be counted on to meet peak loads because wind turbines do not produce power in consistent amounts throughout the day. In addition, rather than providing flexibility to adjust to changing electricity demand, wind power imposes additional flexibility requirements on the power system because of its variability.

Hydropower is an excellent companion for wind because hydropower can be generated continuously and the output of dams can be increased or decreased to match the variability of wind. The availability of this backup energy from hydropower is one important reason why wind power is proliferating in the Northwest. So it is important to continue to maintain and improve the efficiency of the hydroelectric system where possible.

This backup role (sometimes called "balancing") for hydropower also is providing a new source of income for Bonneville and utilities that own dams. For Bonneville, this is yielding \$30 million to \$50 million in annual revenue that offsets customer rates. Some utilities that own hydropower dams are realizing as much value from providing backup services as they are from selling surplus power.

Energy efficiency is the highest-priority new resource in the Northwest

So important is energy efficiency in the Northwest's mix of electricity resources that in the Power Act Congress not only made it the highest-priority resource but also directed Bonneville to have a program to acquire efficiency resources consistent with the Council's plan. Importantly, Congress directed the Council to include in its power plans all of the energy efficiency that the Council determines is cost-effective—not all of the energy efficiency that is available at any cost. Nonetheless, in developing its Sixth Power Plan in 2010 the Council identified a vast amount of cost-effective energy efficiency, nearly 6,000 average megawatts through the year 2029. The Council noted the size and value of this resource in the text of the Sixth Plan:

Across multiple scenarios considered in the development of the plan, one conclusion was constant: the most cost-effective and least risky resource for the region is improved efficiency of electricity use.

and

The plan finds enough conservation to be available and cost-effective to meet 85 percent of the region's load growth for the next 20 years. If developed aggressively, this conservation, combined with the region's past successful development of energy efficiency could constitute a resource comparable in size to the Northwest federal hydroelectric system. This efficiency resource will complement and protect the Northwest's heritage of clean and affordable power.

Over the years since the Council was formed, improved energy efficiency has met nearly half of the region's growth in energy-service demand. If the region's energy savings were added back to the regional energy loads, load would have increased by 8,150 average megawatts between 1980 and 2008. During that time the region acquired 3,900 average megawatts of energy efficiency, so that actual loads to be met by electricity generation only increased by 4,250 average megawatts. Today, in 2011, acquired energy efficiency totals nearly 4,300 average megawatts. The Council's power plan is rich with energy efficiency because the Power Act requires the Council to meet future demand with cost-effective resources, energy efficiency gets highest priority among resources in the Act, and the Council has identified literally hundreds of potential efficiency improvements that cost less than one-third as much as the lowest electricity-cost generation technologies. The average cost of the energy efficiency in the Sixth Power Plan in 2009 was 3.6 cents per kilowatt-hour; the cost of the least-expensive new natural gas-fired power plant was 9.2 cents, and wind power in the Columbia Basin cost 10.4 cents per kilowatt-hour.

The availability of so much cost-effective energy efficiency is good news for those of us who care about protecting federal hydropower investments in the West, as it means that energy efficiency is helping to ensure that hydropower will remain the dominant electricity resource in our region by reducing the need to build thermal generating plants to augment the hydropower supply. Not only is energy efficiency by far the least-expensive resource available to the region, it also avoids risks of volatile fuel prices and the financial risks associated with large-scale resources, and also mitigates the risk of potential carbon-pricing policies to address climate-change concerns. Improved efficiency contributes not only to meeting future energy requirements but also provides capacity during peak load periods. The savings from efficiency generally follow the hourly shape of energy use, saving more energy when more is being used. As a result, efficiency contributes more to load reduction during times of peak usage. Or in other words, efficiency improvements have capacity value, as well as energy value.

Hydropower affects fish and wildlife, but the effects can be mitigated

Preserving the capability of the existing hydroelectric system has significant value for the region. Mitigating damage to anadromous fish from development of the Federal Columbia River Power System has changed the operation of the hydroelectric system, reducing its energy capability and its flexibility. It is important to mitigate this damage, but also to do it in a way that best preserves the value of the low-cost, low-carbon hydropower resource. The Council attempts to ensure that its fish and wildlife program uses cost-effective strategies to improve survival of juvenile and adult anadromous fish that migrate past Columbia and Snake river dams to and from the Pacific Ocean, including salmon, steelhead, sturgeon, and Pacific lamprey. The program also addresses the effects of hydropower on resident fish—those that do not go to the ocean.

Importantly, the fish and wildlife program is part of the power plan. The Power Act requires the Council to include measures in the program to protect, mitigate, and enhance fish and wildlife affected by the development, operation, and management of hydropower dams in the Columbia River Basin while also assuring the Pacific Northwest an adequate, efficient, economical, and reliable power supply through the power plan. The Act also directs federal agencies that operate the dams and sell their power to undertake those responsibilities in a manner that provides equitable treatment for such fish and wildlife with the other purposes for which the dams and related facilities are managed and operated.

The program identifies a comprehensive set of interrelated fish and wildlife problems and responsive strategies. State and federal fish and wildlife agencies, Indian tribes, and others propose projects to the Council to address the problems and implement the strategies. All project proposals are reviewed by the Council's Independent Scientific Review Panel, which submits its reviews to the Council. The Council then makes project-funding recommendations to Bonneville.

Mainstem hydropower dam operations and fish-passage improvements are addressed in the program with strategies that aim to optimize the survival of focal species. These efforts include re-establishing natural river processes to the extent feasible and consistent with the Council's responsibilities in the Power Act. The program also aims to rebuild healthy, naturally producing fish and wildlife populations by protecting, mitigating, and restoring habitats and the biological systems within them.

This has resulted in operational changes at the dams since the Council was created. Because of the Power Act, and more specifically because of the Endangered Species Act listings of more than a dozen species of salmon and steelhead in the Columbia River Basin since the early 1990s, hydropower generation has been reduced by about 1,100 average-megawatts. This primarily is due to legal requirements to spill water over dams to aid downstream juvenile fish migration during the spring and summer months.

The fish and wildlife program includes strategies to improve passage survival for migratory fish at the dams. I believe these measures, in combination with improvements in fish habitat and the careful use of artificial production, are helping to boost the number of adult fish returning from the ocean to spawn. In the last ten years or so we have seen big increases in some runs, particularly some species of Chinook and sockeye salmon. Especially since 1999, adult salmon and steelhead counts at Bonneville Dam have been averaging much higher than any comparable period since the dam was completed and fish counting began in 1938.

Snake River sockeye, the first Columbia River Basin salmon species listed for protection under the Endangered Species Act (in 1991), have demonstrated a strong response to a captive broodstock program and favorable ocean conditions over the last decade. The number of these fish returning to spawn and counted at Lower Granite Dam has been higher in recent years than any time since the 1950s. As well, juvenile salmon and steelhead passage survival at the dams also has been improving in recent years due to factors such as spill, system bypass improvements, and in-river improvements such as predator control.

Finally, fish spawning and rearing habitat is being improved under the Council's fish and wildlife program. From 2005 to 2010, for example, 1,435 miles of instream and streamside habitat were improved and 1,527 miles of habitat were opened to spawning by the removal of passage barriers.

Conclusion: Hydropower and energy efficiency: Critical to a low-cost, low-risk power supply

The Pacific Northwest power system is faced with significant uncertainties about the direction and form of climate-change policy, future fuel prices, salmon recovery actions, economic growth, and integrating rapidly growing amounts of variable wind generation. The Council's resource strategy for the Sixth Power Plan provides guidance for Bonneville and the region's electric utilities on choices that will help meet the region's growing electricity needs while also reducing the risk associated with uncertain future conditions.

Hydropower is the most important source of electricity in the Northwest, not only providing low-cost, carbon-free energy on a consistent basis but recently providing critical backup for the increasing amount of carbon-free wind power in the region. By continuing to add energy efficiency to the power supply, the region will preserve and enhance the flexibility of hydropower to meet demand while also providing low-cost backup services for increasing amounts of renewable energy.

Mr. MCCLINTOCK. Thank you for your testimony. For the final testimony of the day I would like to yield to Mr. Gosar to make the introduction.

Dr. GOSAR. Thank you, Mr. Chairman.

First of all, I would like to welcome my fellow Arizonan up here to Washington. Now if he can take some of this rain back to Arizona, we would love it. Principally he has served as a consultant primarily for the State Legislature throughout the state for numerous water and electrical districts, but more importantly, primarily for the Maricopa-Stanfield District, Mr. Grant Ward.

Thank you very much.

STATEMENT OF GRANT WARD, WATER AND POWER CONSULTANT, MARICOPA-STANFIELD IRRIGATION DISTRICT, MARICOPA, ARIZONA

Mr. WARD. Thank you, Representative Gosar. I appreciate that.

Chairman McClintock and Ranking Member Napolitano, Members of the Committee, my name is Grant Ward and I served from 1995 to 2008 as the General Manager of the Maricopa-Stanfield Irrigation and Drainage District, and since then have been serving as their water and power consultant. MSID was created in the late 1960s and includes 87,000 acres of irrigated farmland located in western Pinal County of Arizona.

I would first like to address my remarks to the title of this hearing by discussing the hydropower produced at the Glen Canyon Dam. When one looks at the issue of protecting Federal investments, it should be noted that while Glen Canyon Dam has the capacity to produce 1,361 megawatts, the capacity has been reduced by approximately one-third. This means that instead of having the availability of 1,361 megawatts there is only about 900 megawatts available. Based on whether the capacity of the dam is for a wet or a dry year, the loss is in the range of 200 megawatts to 400 megawatts which is equivalent to providing enough electricity for 175,000 to 250,000 residential customers.

Utilities still have to make up that loss by buying supplemental electricity to provide to their customers and that most often is generated in the form of coal, oil, or natural gas. What that means is that instead of having clean renewable energy in the form of hydropower a carbon footprint is created equaling approximately 1.63 billion pounds of carbon annually. We would ask for a more reasonable approach to the use of the full capacity of Glen Canyon Dam.

We recognize there has to be a balance between the economy and the environment, but believe that the operation of Glen Canyon Dam is not the ultimate cause of the environmental concerns.

Second, I would like to discuss the opportunity for the construction of low head hydro units for the purpose of generating power both Federally owned and private canal systems. My experience and understanding comes from the efforts to construct a hydropower unit for our canal system. Our district began looking into this capacity of installing such units in early 2009.

We first reviewed our canals to determine the amount of drop at our gates and turnouts, and the average flow of water that would go over that structure for the year. We found that we have a possibility of constructing 14 separate low hydro units at a minimum. The largest output on any individual drop structure was determined to be approximately 300 kilowatts to 350 kilowatts. Combining all of the units together we found that the total amount of electricity that could be produced equaled approximately 2,200 kilowatts which would provide electricity to power 550 to 1,100 residential homes.

Our struggle over the last two plus years has been trying to determine the requirements of the Bureau of Reclamation. Briefly, our struggles can be summed up in the following four points:

Reclamation rules of ownership, exactly how that is qualified, and we have struggled in getting some of the direction from Reclamation as well as understanding where we should go. As a result

of owner, under ownership you are required to have a lease or power privilege agreement. Exactly how does that apply to a canal system such as ours? Under the environmental assessment being required if it is a Bureau-owned system, if the canal was built in the last several years and was required to have an EA at that time, is it necessary to go through the complete process again if all the new work will be within the original right-of-ways?

And finally FERC, Federal Energy Regulation Commission, most hydro units in our canals would produce hydropower of less than 1.5 megawatts, yet we are still required to go to FERC for an exemption permit. If it is the exemption and there are rules that say how it should be exempted, we believe that it raises the question of why having to apply for a permit to get an exemption if we already meet those standards.

These four items together can be very costly and very time consuming, and being able to be successful in building systems.

As a final note, during our two plus years of determining our eligibility to either work through Reclamation or paying our own costs, we have found Reclamation sincerely interested in getting low head hydro systems off the ground and developing this type of renewable energy. However the concern we have is the time delay that has taken place to obtain answers, and sometimes the different answers from different departments or locations.

We would make a suggestion that as interested as Reclamation is in going forward with low head hydro systems they put any and all resources that are working on these systems in one office for all requests, all questions, all opportunities, and when someone or some entity shows any desire to look into low head hydro systems their call is immediately forwarded to that one office for any and all answers and direction.

I thank you for the opportunity to testify.

[The prepared statement of Mr. Ward follows:]

**Statement of Grant R. Ward, Water and Power Consultant to
Maricopa-Stanfield Irrigation & Drainage District**

My name is Grant Ward and I served from 1995 to 2008 as the General Manager of the Maricopa-Stanfield Irrigation & Drainage District (MSIDD), and since then have been serving as their Water and Power consultant. MSIDD was created in the late 1960s and includes 87,000 acres of irrigated farmland, located in western Pinal County of Arizona. It was formed primarily to take Colorado River water from the Central Arizona Project (CAP) system, when it became available, by connecting with the CAP's Tucson aqueduct and delivering the water through more than 250 miles of concrete-lined canals, laterals, pipelines, pumping plants and related works. The system is also used to deliver groundwater operated with pumps powered by electricity from Hoover Dam, Glen Canyon Dam, and Parker-Davis Dam, as well as supplemental purchased power, all provided by its sister district, Electrical District No. 3, Pinal County.

I would first like to address my remarks to the title of this hearing by discussing the Hydropower produced at the Glen Canyon Dam. When one looks at the issue of protecting federal investments, it should be noted that while Glen Canyon Dam has the capacity to produce 1,361 mw (equivalent to producing power of up to 1,320,000 residential customers), the capacity has been reduced by approximately 1/3 based on a Record of Decision issued October 8, 1996, Operation of Glen Canyon Dam Final Environmental Impact Statement. This means that instead of having the availability of 1,361 mw (name plate number), there is only about 900 mw available. Based on whether the capacity of the dam is for a wet year or a dry year the loss is in a range of 200mw to 400mw, which is equivalent to providing enough electricity for 175,000 to 250,000 residential customers. Utilities still have to make up that loss by buying supplemental electricity to provide to their customers, and that

most often is generated in the form of coal, oil or natural gas. What that means is that instead of having clean renewable energy in the form of hydropower, a carbon footprint is created equaling 1,341 pounds per mwh, or 1.63 billion pounds of carbon annually.

We would ask for a more reasonable approach to the use of the full capacity at Glen Canyon Dam. We recognize there has to be balance between the economy and the environment, but believe that the operation of Glen Canyon Dam is not the ultimate cause of the environmental concerns.

Second, I would like to discuss the potential opportunity for the construction of low head hydro power units for the purpose of generating power in both federally owned (Bureau of Reclamation) and private canal systems. My experience and understanding comes from the efforts to construct a hydro power unit for our canal system. Our district began looking into the possibility of installing such units in early 2009. We first reviewed our canals to determine the amount of drop (the actual footage from one level of the canal down to the next level) at our gates and turnouts and the average flow of water that would go over that structure for the year. We found that we have a possibility of constructing 14, as a minimum, (up to 17) separate low head hydro units along various drops and canal turnouts. The largest output on a drop structure was determined to be approximately 300kws to 350kws. Using the more conservative number that is enough electricity to power approximately 100 residential customers. When we reviewed the numbers for the installation of possible low head hydro units we found that the total amount of electricity that could be produced equaled approximately 2,200kws (further study would be needed on some of the proposed systems to determine cost/benefit ratios), which could provide electricity to power 550 to 1100 residential homes.

Our struggle over the last 2 plus years has been trying to determine the requirements of the Bureau of Reclamation (the canals are federally owned, although our district operates and maintains the entire system serving the district). Briefly our "struggles" can be summed up in the following four points:

1. Reclamation rules of ownership—if Reclamation is involved in providing any funding for a hydro project, they will own all improvements to the facility (meaning the hydro unit). *But* if the canal is fully operated and maintained by the district, the debt for the original construction has basically been paid off, and the District is willing to pay 100% for the new construction, must Reclamation still have ownership of the low head hydro facility?
2. Under ownership requirements of Reclamation, all must comply with the issuing of a Lease of Power Purchase agreement, which requires Reclamation to give a Federal Register Notice allowing companies to bid, and Reclamation awards the bid to the successful bidder, even if the district is constructing the unit either by itself or through a contractor that has been approved by the district board under their bidding regulations. Lease of Power privilege requires an annual fee. We are not sure what that fee will be but have been told it could be 1–3mils/kwh, or could be 5% of the annual revenue.
3. Environmental Assessment will be required. If the canal was built in the last 20 years (the system is fully cement lined) and was required to have an EA at that time, is it necessary to go through the complete process again if all the new work will be within the original rights-of-way?
4. Reclamation has indicated that if the canal is a federally owned canal, and the original legislation (or contract) creating the canal system was also approved for power development, the District would not be required to have a FERC permit. However, when districts either don't have that clause in their contract, or if they are private canals, they would have to face going to FERC for an "exemption" permit. Most of these drop structures will produce hydro-power of less than 1.5mw, which I understand falls below FERC's regulations. In any event, they have to obtain an exemption permit which, when one Arizona private district located on the west side of Phoenix had to obtain an exemption permit (for 12kw), they had to spend \$40,000.00 (including pro-bono work by a consultant), and it took 8–9 months to obtain the permit.

As a final note, during our 2 plus years of determining our eligibility to either work through Reclamation (funding) or paying our own costs, we have found Reclamation sincerely interested in getting low head hydro systems off the ground and developing this type of renewable energy. We have met with the Commissioner's, office, the Denver office, the Phoenix Area office, as well as the Power Manager's office. However, the concern we have is the time delay that has taken place to obtain answers (approximately 30 emails as well as several face to face meetings), and sometimes the different answers from different departments or locations. To their credit they have been trying to obtain the correct answers between departments, but that has added to delays (I can't help but feel that the review of most hydro projects

are being appraised using rules that primarily apply to dams that presently have no hydro plants, not irrigation canals). We would make a suggestion that as interested as Reclamation is in going forward with low head hydro systems, they put any and all resources that are working on these systems in one office—for all requests, questions, opportunities—and when someone or some entity shows any desire to look into low head hydro systems, their call is immediately forwarded to that one office for any and all answers and direction.

I wish to thank the subcommittee for this opportunity to present our concerns to you and hereby submit this testimony for your review and consideration.

Mr. McCLINTOCK. Thank you all very much for your testimony and for your presence here today. At this point we will begin questions of witnesses. To allow all of our Members to participate and to ensure that we can hear from all of our witnesses, Members will be limited to five minutes for questions, although if Members have additional questions we can have additional rounds, and Members can also submit questions for the hearing record.

After the Ranking Member and I pose our questions, I will then recognize Members alternatively on both sides of the aisle in order of their appearance here today, and I will now begin by recognizing myself for five minutes.

First, I would like to correct the misimpression that somehow the agreement to tear down the four dams on the Klamath was the result of a local consensus. Quite the contrary. There has been at least one voter referendum in Siskiyou County in which voters overwhelmingly opposed the agreement. There have been several elections on both sides of the state line that were decisively settled in favor of the opponents of the agreement, and the Siskiyou County Board of Supervisors has formally called for the agreement's reversal.

I would like to begin with Mr. Corwin regarding the proposal for the destruction of the Snake River Dams. Who exactly is proposing this and at what stage is the proposal?

Mr. CORWIN. Thank you, Mr. Chairman.

As far as the actual parties operating the system, all of the relevant Federal parties, all of the ratepayer groups, the states, all of those folks who were listed before on the biological opinion, none of them are proposing destruction of those dams.

Mr. McCLINTOCK. Who is proposing it?

Mr. CORWIN. In years past it tended to be some of the advocacy groups, you know, that had proposed that, so some of the fish advocacy groups and others.

Mr. McCLINTOCK. Are any of them here today?

Mr. CORWIN. Yes, the American Rivers is part of that coalition.

Mr. McCLINTOCK. At the invitation of the Minority Party, I would stress.

Mr. CORWIN. Yes.

Mr. McCLINTOCK. What would be the replacement cost of this proposal? What is the cost of destroying those dams and what is the value of the dams themselves that we would be destroying? Any ballpark estimates?

Mr. CORWIN. You know, when you total it all up it is in the billions and we can provide the reports that have been done in the past. Frankly, it is not under—you know, it hasn't been updated

for awhile because we have been trying to move forward with a real solution.

Mr. McCLINTOCK. OK. Could I ask each of your power providers to give me an estimate of the percentage of the electricity bills that their consumers are paying right now because of environmental and other governmental regulations and litigation?

Mr. CORWIN. Yes.

Mr. McCLINTOCK. Start with you, Mr. Corwin.

Mr. CORWIN. Yes, certainly. Like I said, just for fish and wildlife the wholesale electricity bill is 30 percent. On that you could probably add a few percent more for other constraints. On your question before, too, we do have—just the power replacement portion for those Snake River Dams, and this is in Mr. Karier's testimony as well, it is like he said, about a half a billion dollars, and you are looking at rate increases—

Mr. McCLINTOCK. OK, I would just like to—

Mr. CORWIN.—25 percent.

Mr. McCLINTOCK.—know on behalf of the consumers how much of their electricity bill is going to meet all of these demands. Mr. Morgan, any ideas for your folks?

Mr. MORGAN. Yes, sir. I have to clarify something. Gunnison County Electric is the second smallest cooperative in the State of Colorado, and we do not directly purchase power from anyone except under a purchase power agreement, wholesale power agreement with TriState Generation and Transmission. So all the Federal hydropower is purchased by TriState, and their whole blended portfolio of energy, about 18 percent is regulation.

Mr. McCLINTOCK. Mr. Simmons.

Mr. SIMMONS. I am not sure that is an easy question to answer, and the reason for that is a lot of these costs are embedded in our wholesale rates and it is hard to find out exactly how much money is being spent on the different issues. We don't know them.

Mr. McCLINTOCK. Would you say—is 30 percent about right, Mr. Corwin's number, about 18 percent Mr. Morgan's?

Mr. SIMMONS. I would say we are in the similar ballpark.

Mr. McCLINTOCK. OK, Mr. Gillen.

Mr. GILLEN. For our utility, about 30 percent of our wholesale power bill pays for Bonneville's fish and wildlife costs. Wholesale power costs are about half.

Mr. McCLINTOCK. Mr. Karier.

Mr. KARIER. Thank you, Mr. Chairman. Those numbers from Scott Corwin and Roman Gillen sound about right. The Council tracks—

Mr. McCLINTOCK. I am going to have to move on because my time is short. Mr. Ward?

Mr. WARD. Since 1996, the cost economics for Glen Canyon Dam's loss of that power is over 500 million. Breaking it out probably somewhere in the range of 20 to 25 percent.

Mr. McCLINTOCK. Do the consumers get any notice on any of their bills that nearly a third of their electricity prices is the cost of these regulations and this litigation?

Mr. WARD. Not to my knowledge.

Mr. GILLEN. We do not publish a line item on the bill.

Mr. MCCLINTOCK. Don't you think they have a right to know how much of their electricity bill is going for these purposes?

Mr. GILLEN. Absolutely, and we do print that information in many publications that we provide to our members.

Mr. MCCLINTOCK. Let me ask if any of the providers who want to take a crack at it, what do you see as the future for your consumers under existing Federal policy given the current litigation and regulatory structure, and what can we do to fix it? In 20 seconds or less.

Mr. WARD. Twenty seconds or less.

[Laughter.]

Mr. WARD. I would say that what we are facing right now in litigation is reducing the amount in Glen Canyon Dam down to 50 percent of supply.

Mr. MCCLINTOCK. I will try and pick that up in my second round of questions. My time is about to expire, and I will yield to the Ranking Member for five minutes.

Mrs. NAPOLITANO. Thank you, sir.

Mr. Kariel, you mentioned the Council's six power plan. What role do efficiencies play in preserving hydropower production and how much of the projected future demand of the Northwest can be met with efficiencies?

Mr. KARIER. Thank you. The plan covers a 20-year period and over that 20-year period we expect that we can meet 85 percent of the new loads through energy efficiency, and at a cost, again, of a fraction of other new generation.

Mrs. NAPOLITANO. Thank you. Mr. Fahlund, you mentioned on page 5 of your testimony that you would hope that the multiple Federal agencies work together.

Mr. Chair, I am introducing into the record an MOU between the agencies in December of last year to streamline and simplify authorization of small hydro projects. If you wish a copy, I would be glad to provide it for you.

You also mentioned efficiency—

Mr. MCCLINTOCK. Without objection.

Mrs. NAPOLITANO. Thank you. You also mentioned efficiency upgrades as one of the simplest. Most cost-effective and lowest impact means of increasing hydropower generation, can Congress help to incentivize efficiency upgrades at existing facilities and how?

Mr. FAHLUND. Yes, Congresswoman. I think Mr. Simmons alluded to this briefly, that effectively most of these facilities which were sort of built during the last great Federal stimulus program were effectively—have effectively not been heavily invested, with a few exception, in terms of new turbines, new generators, and so these old facilities could be upgraded significantly. There are technologies out there that can also help enhance fish and wildlife, provide fish and wildlife benefits and give an ability to release water and generated at various levels and at different times that can be beneficial to both the environment and to power production. DOE has done a lot of study on this.

Mrs. NAPOLITANO. Which then leads me to Mr. Simmons. On page 2 you indicate that some of the facilities are 45 years or older, and a lot has been gone over, the cost of O&M is costing more to

fund, consequently the ratepayer ends up paying for that, I am assuming.

What is the life expectancy of some of the—especially the on that you are with that will demand infrastructure repair, infrastructure addition or a replacement of?

Mr. SIMMONS. A lot of these facilities are figured at basically 100-year lives. So we are halfway through that life cycle. Now, rotating equipment, bearings, things like that need to be replaced, and a lot of that has been done through operations and maintenance. So it is an ongoing item. The real problem, I think, is that we need dependable funding from you guys to make sure that these things get done.

Mrs. NAPOLITANO. OK, and that would be at low-cost loans?

Mr. SIMMONS. They are your facilities. They are not ours.

Mrs. NAPOLITANO. But you benefit from them.

Mr. SIMMONS. We pay those rates, but they are your facilities, and this is a question that probably will come up later, but we as customers put up funding for capital improvements. We are doing that through basically cash advances that we do. I don't know how we can put up more when we do not have title to something. You know, if we are going to pay for something—

Mrs. NAPOLITANO. That is an issue that we need to take up then.

Mr. SIMMONS. You know, pay for something that you guys own, how do we get a loan to do that when we don't have title?

Mrs. NAPOLITANO. OK. Well, that is an issue we should be able to look at.

Again, Mr. Fahlund, you mentioned in your testimony you would like to see Federal facilities take a basin-wide approach to hydropower. Can you give an example of where it has worked in the past and why would this be beneficial from an environmental?

Mr. FAHLUND. Yes. One example from the East very quickly is the Penobscot River. We reached an agreement with Pennsylvania Power & Light, which owns the dams on the Penobscot River, and effectively that yielded an agreement that restored habitat, access to habitat, and also yielded a net increase in power production. That project hasn't been fully implemented just yet, but the agreement nonetheless we can see adequate trades offs between power and fish and wound up getting an increase in both.

Mrs. NAPOLITANO. Thank you, Mr. Chair. Look forward to the second round.

Mr. MCCLINTOCK. Next is Ms. Noem.

Ms. NOEM. Thank you, Mr. Chairman, and I have a question for Mr. Simmons, I guess. You mentioned in your testimony the rising costs of complying with regulations such as the Endangered Species Act. And I know you gave us a couple of examples of how that directly impacts ratepayers, but there are other rules that are costly and time-consuming. Could you expand on some of those other rules and the effect that they have on electric co-ops? And then specifically, I mean, address how consumer rates increase to meet the cost of complying with these government regulations because that is truly how they are impacted, how the ratepayers are impacted by your administrative costs and by the costs that you have because of these regulations you are trying to comply with.

Mr. SIMMONS. All of the costs for whatever we have to do end up in the customers' rates. There is no other place to put it. I mean, we are consumer owned. So if one neighbor doesn't pay for it, the other neighbor has to, so it all ends up in the rates.

Endangered species is probably the biggest issue that we deal with on the river. We have the pallid sturgeon that we deal with in the Missouri River, we have the least tern in the piping plover. We have been dealing with the tern and the plover for 25 years. It is hard to identify what that cost is because it has become part of the normal operations.

Ms. NOEM. So you don't have any specifics on how much, what percentage of the costs actually would be probably complying with regulations or—

Mr. SIMMONS. I am not sure we can identify that. We don't know most of those costs.

Ms. NOEM. Have you significantly seen those costs rise as regulations have risen?

Mr. SIMMONS. I would say drought has more of an issue than that does by far on us, but they are there.

Ms. NOEM. Are these customers aware that their rate increases are related to government regulations and for outside influences?

Mr. SIMMONS. If I can't tell you how much they are, how could they?

Ms. NOEM. But do these recognize that—

Mr. SIMMONS. I don't think so.

Ms. NOEM. They don't. OK, thank you very much. I appreciate it. I yield back the balance of my time.

Mr. MCCLINTOCK. Mr. DeFazio.

Mr. DEFAZIO. Thank you, Mr. Chairman.

To the Power Counsel witness, Mr. Karier, you have an incredibly ambitious plan. I mean, 85 percent of new load or new demand can be met through efficiency and conservation, is that correct?

Mr. KARIER. That is correct.

Mr. DEFAZIO. Anybody else in the United States of America come anywhere near those kind of numbers in any other region?

Mr. KARIER. I think there are a few areas. California does a lot with conservation, but I think we are among the leaders in the country in this.

Mr. DEFAZIO. Right. So what if we just said, well, how about you come up with another 3,500 megawatts of short-term power, or 1,110 megawatts of annual power, just dump that on top of what you are already doing, could you easily meet that through more conservation?

Mr. KARIER. The difficulty there is that we invest and plan to invest in all cost-effective conservation, and the fact that we lose some generation doesn't necessarily change that calculation. So it is not easy to draw on that.

Mr. DEFAZIO. So for those who say simplistically to me, well, we will take those dams out which don't block the prime spawning habitat which are blocked by the high dams up—private high dams up, further up the Snake which no one is challenging their re-licensure, no prominent national environmental groups, none that I am aware of.

Second, so we are going to lose that power, we are going to increase costs by \$530 million to ratepayers, and we are going to increase west-wide 5.2 million tons of CO₂ for replacement power. Now, why would we do that, and does that include the costs of loss of navigation in terms of carbon? Does that include the cost of dam removal?

Mr. KARIER. No, we are looking only at the cost of replacing the generation and capacity that those dams—

Mr. DEFAZIO. What about the 10 years of barging that the Clinton Administration determined would be necessary because of the massive siltation with the removal of the dams, what would that cost, and what would that do to the survival of salmon? That seems like three generations of all the smolts being barged. I thought barging was a problem. If barging is a problem, why would we want to barge all the smolts for 10 years?

Mr. KARIER. Those are good questions, Congressman.

Mr. DEFAZIO. Has the Council addressed those things?

Mr. KARIER. We haven't. There was a Federal study by the Army Corps of Engineers.

Mr. DEFAZIO. Yes, I read it actually. I think very few others have.

Mr. KARIER. And I think they did a good job of documenting all of those additional costs, and the costs were significant in all those.

Mr. DEFAZIO. Yes, I think we were looking probably—in today's dollars we would be talking \$2-\$3 billion for dam removal. Then we had the loss of navigation. Then, of course, in those days we didn't think about—people say, oh, just put all the wheat on the trains, and I have talked to the railroads and they say, we don't have any more capacity, and guess what? The Columbia River is there so we can't expand the line, so I guess they go on trucks. No, maybe they will go in a different direction or who knows what will happen, down the Mississippi through the Panama Canal, I don't know how it is going to get there. Well, thank you.

We have another big problem which is private wind generation, contracted very much to California, which does have ambitious goals on meeting their needs for alternate transportation, and Mr. Gillen, and I appreciate him traveling all the way here, I know how difficult it is, addressed this. Do you want to just address briefly the concern of our public ratepayers or customers of Bonneville Power Administration subsidizing private wind power which is being sold under contract to Southern California in high wind, high water years?

Mr. GILLEN. Yes, that is a concern. We want to make sure that the capacity of the Federal hydro system is compensated to firm those resources. Another concern is that as those projects that benefit folks outside the region are built, that takes capacity away from the Federal system that we are going to need in the Northwest as we continue to meet growing loads as well. So there is just a variety of, I think, hidden things that we are concerned about, we are watching very closely.

Mr. DEFAZIO. Wouldn't it be fair to say it would be just sort of a general principle that private wind power entering into contracts with Southern California utilities should pay the costs that they

add to the system, whether it is on transmission or loss of capacity or whatever costs they create?

Mr. GILLEN. I think that would be a fair policy to establish, yes.

Mr. DEFAZIO. Yes, we don't want to be subsidizing a private industry, right?

Mr. GILLEN. That would not make sense.

Mr. DEFAZIO. Yes. OK, thank you. Thank you, Mr. Chairman.

Mr. MCCLINTOCK. If the gentleman will yield for a moment I will just point out we now are requiring 30 percent of our electricity to be generated from these facilities.

Mr. DEFAZIO. Right.

Mr. MCCLINTOCK. We stopped building new major facilities decades ago.

Mr. DEFAZIO. Right.

Mr. MCCLINTOCK. Do you expect us to pay the cost of these policies?

Mr. DEFAZIO. I know that might be unreasonable, Mr. Chairman.

Mr. MCCLINTOCK. Next is Mr. Gosar.

Dr. GOSAR. Thank you very much.

For all of you, you know, with regulation comes litigation and it is sometimes inseparable. Can each of you tell me if there are any sources of litigation that are awarded through the Equal Access of Justice Funds to challenge hydropower projects? Let us start on the left side and work our way down.

Mr. CORWIN. You know, I would need to check into that and get back to you. I am not certain.

Dr. GOSAR. I would love to know that.

Mr. CORWIN. Yes.

Dr. GOSAR. And the amounts. Yes, sir?

Mr. MORGAN. That would be a question you would have to address to our power supplier, and so I do not know the answer.

Mr. SIMMONS. Ditto. I don't know the answer to that. We could find out.

Dr. GOSAR. We would like that. You, sir?

Mr. GILLEN. I don't have an answer but we could find out.

Dr. GOSAR. I want it.

Mr. WARD. And we would do the same.

Dr. GOSAR. Mr. Ward?

Mr. WARD. Congressman, we have seen numbers. To be honest with you I can't tell you exactly what they are and we will send to you a copy of what we have seen for those numbers.

Dr. GOSAR. Part of why I bring that up is there is a symbiotic relationship between that funding and the regulatory bodies because they work synonymously in court, so I would like to see those numbers.

Mr. WARD. We will do that.

Dr. GOSAR. Mr. Ward, as you know, we are going to be more specific about this, is that we have had in the Endangered Species Act, and we have reduced some of the power at the Glen Canyon Dam in regard to the humpback chub. When we reduce the flow of, or reduce—increase the flow of water out of the Glen Canyon Dam, for that five-year study did we actually see an increase in the number of humpback chubs or did we see something contradictory?

Mr. WARD. We did not. The only thing that we have done sediment removal or sediment replacement, we have done high flow, low flow, medium range. The only thing that has shown an increase in the humpback chub has been from mechanical harvesting of trout, which are non-native, which started around 2000 for about three years, and the humpback chub numbers started coming back up.

Dr. GOSAR. And Mr. Ward, I know that there are two different kinds of chubs here. How do we discern those two different kind of chubs?

Mr. WARD. I cannot answer that. I will have to—

Dr. GOSAR. Actually a dorsal fin with seven ribs versus six ribs, if I am not mistaken. That is the only identifiable aspect.

Mr. WARD. That sounds good.

Dr. GOSAR. Yes. Now, if we were to take that off of line here and I know I am very specific about this because Arizona has got a problem, we have deteriorating transmission lines, it is very hard to add on to, some of the worst in the United States. How do we replace that? Is there some way of replacing this lost power?

Mr. WARD. Through the transmission lines?

Dr. GOSAR. Well, I mean the loss of this power from—

Mr. WARD. From Glen Canyon?

Dr. GOSAR.—this hydroelectric output?

Mr. WARD. It would require some new construction and those costs, of course, would be part of each of the utilities that participate. There are some utilities looking to replace transmission in the southern part of the state, but it would be through a cost factor, and that would increase the volume supply available for hydro or other power.

Dr. GOSAR. Now, wouldn't you say that Arizona is one of the prime areas for solar, and a pretty prime spot for wind? Can they make up the difference?

Mr. WARD. Under the current structure of our hydro dams that have been there for many years, all of the power is allotted. You would have to remove some of that allotment from customers to make up the base load for supplying solar and wind.

Dr. GOSAR. But both those are temperamental, are they not?

Mr. WARD. They are temperamental. Sometimes the wind blows, sometimes the sun—the sun shines most of the time, I will say that.

Dr. GOSAR. Yes.

Mr. WARD. But it doesn't shine at night.

Dr. GOSAR. That is why I put them in that order.

Well, thank you, Chairman. I will yield back my time.

Mr. MCCLINTOCK. Mr. Labrador.

Mr. LABRADOR. Thank you, Mr. Chairman.

Is it Mr. Fahlund?

Mr. FAHLUND. Fahlund.

Mr. LABRADOR. Fahlund. OK. Your organization has focused on reaching the four lower Snake River Dams for salmon passage, but if it is true that only four of the listed runs past these dams, what do you suggest for the other nine species listed in the Columbia River Basin?

Mr. FAHLUND. Well, we have been working on restoration of the Columbia River and Snake River Basin stocks really for about the past 25 years pretty intensively. No, no, I take that back—20 years. Our Northwest office is about to celebrate the anniversary. And so we have worked actually with several of the public utility districts, Grant County, Chelan County, on the re-licensing of their facilities, trying to improve passage flows and so forth which have met with some success, I believe. We certainly looked at some of the other Federal facilities in ways in which they can reduce impacts as well, so that is by no means is the Snake River dam removal the only game in town as far as the full panoply of stocks, but the Snake stocks, the science is pretty clear that the best way to achieve harvestable runs once again to benefit fishing communities along the coast is to remove the lower four Snake River Dams and that is why we have advanced that position.

Mr. LABRADOR. What about Grand Coulee, would you advocate taking that out along with 6,800 megawatts of renewable energy contribution and its flood control and irrigation roles?

Mr. FAHLUND. No, by no means.

Mr. LABRADOR. What is your view on endangered coastal runs that do not pass any dams?

Mr. FAHLUND. Well, endangered coastal runs suffer from a different host of issues, habitat being probably the main one of those. Certainly historical logging and mining operations had impacts. It really depends on the stock and the run in particular, so those are areas where my organization hasn't particularly focused. We have limited resources. Other groups have.

Mr. LABRADOR. So wouldn't that be just as true with respect to habitat with the Columbia River species?

Mr. FAHLUND. The Columbian snake species do have habitat issues. That is why in fact we are trying to get most of the Snake River stocks up into the upper basin because the best habitat available through upstream passage is actually up in Idaho in the Salmon River Basin in particular and the clear water.

Mr. LABRADOR. I understand that American Rivers is in current litigation against the Federal Government on Federal dam operations in the Pacific Northwest. As American Rivers received Federal grant money?

Mr. FAHLUND. We receive Federal grant money from various sources, yes.

Mr. LABRADOR. And how much is that?

Mr. FAHLUND. I couldn't tell you exactly off the top of my head. I think it may be in the disclosure statement, or I would be happy to provide you with that information.

Mr. LABRADOR. I really would like to see for the record the grant money and also the Equal Access to Justice Act that was just referred to money received over the last decade.

Mr. FAHLUND. Yes, I don't believe we have received any Equal Justice Act money. We don't employ litigators so that money goes elsewhere.

Mr. LABRADOR. OK. At least the grant money, I would like to see that.

Mr. FAHLUND. Yes, by all means.

Mr. LABRADOR. OK. For all panelists starting with Mr. Corwin, we are right now in a pretty serious reduction mode, deficit reduction mode. Tell me a little bit more about why you do not think power marketing administrations should charge market rates for their power as proposed by some?

Mr. CORWIN. Thank you, Representative. Again, we are talking today about investments in Federal hydropower projects. Those investments are made though by ratepayers. This is all ratepayer-funded dollars. It is not Federal money at stake. So to the extent you are increasing the rates to try to reduce the deficit, you are really just increasing the rates on one part of the country here and one set of customers within that part of the country. It seems unfair. It is a regional tax. We just don't think it makes any sense in the deficit reduction scenarios.

Mr. LABRADOR. OK. I guess we only have 30 seconds so if one more person wanted to respond to that.

Mr. GILLEN. I would agree with Mr. Corwin. Regional burden to help the overall Federal budget issues just doesn't seem very fair, but as Americans we are concerned about the budget issues, too. We just want to see fairness in how that is done.

Mr. LABRADOR. Thank you very much.

Mr. MCCLINTOCK. Mr. Tipton.

Mr. TIPTON. Thank you, Mr. Chairman, and I would like to ask Mr. Morgan. Given the reduction in hydropower generation at the Glen Canyon Dam unit due to environmental compliance, just how critical has the Aspinall Unit become meeting peak electrical demand during the summer months and other seasons of high electrical usage?

Mr. MORGAN. It has become very critical. As you know, peaking generation, especially in the summer months, is very expensive, and being able to utilize the Aspinall Unit for peaking generation allows our power supplier to utilize inexpensive peaking generation that would otherwise probably come from natural gas, which has a significantly higher cost and has emissions, has, you know, environmental considerations as well, so we think it is critical.

Mr. TIPTON. You know, if we didn't have that peaking capacity during the times of critical usage during the summer months, as you know we are going to have to be buying more expensive generation on the market, thus increasing consumer rates in a very bad economy, hurting a lot of the citizens, particularly in my district where we had better than double-digit unemployment in, I believe it is 27 of the 29 counties that I represent in the State of Colorado.

What is the practical impact that you really see? How is that going to be hitting people at home?

Mr. MORGAN. Well, I mean, with our power supplier having to purchase expensive market-based power or generating peaking power with high cost ramping evenness for that peak, that cost is going to be passed on directly to our consumers, and you are correct, Gunnison County is in a bad place right now.

Mr. TIPTON. Right. I think that is something, Mr. Chairman, that is incredibly important for us to be able to keep in mind. A lot of the decisions that are faced here are impacting real people at home, and we have one of the—the cleanest source of energy pro-

duction in the entire country when we are talking about hydroelectric power and the importance to our communities, and particularly when we get out into the western United States, that is the source. So if we want clean energy, this is certainly one of the great points.

Mr. Ward, I would like to maybe have you comment just a little bit in terms of some of the impacts, some of the high flow that has been coming out of the Grand Canyon Dam.

Mr. WARD. Part of the problem we have had, Congressman, is when those timings may be made under the agreements between the environmental community and the utilities there are times of the year that those waters are released when they are not doing the most advantage to the utilities and the power rates peaking, for example.

If we go to what they would like us to do, which is a low flow or level flow, that means it runs the same way all year long, but what do you do in the summer with the high temperatures or in the winter. So as a result it does impact us on how it flows.

Mr. TIPTON. I am incredibly sorry Representative Gosar had to go to another meeting here. He is one of the few vets that we have, somebody that probably really understands it, but one of the purposes of these high flows is to be able to help the humpback chub, and he was able to describe it apparently what they look like, going downstream from the dam.

What fish have benefitted most from these high releases?

Mr. WARD. You know, that is difficult to say. I don't know that the humpback chub have been affected either way. The trout have probably benefitted. They don't seem to have the same problem. High flows a lot of times will create sediment. That doesn't seem to bother the trout too much but it seems like the humpback chub has a hard time finding their food source and so on as a result of sediment in the water.

Mr. TIPTON. Right. Just kind of historical perspective, I grew up in the Southwest, you know, before we had some dams, McPhee Reservoir in my part of the country, and oftentimes those rivers would almost—natural causes almost run dry. What happened?

Mr. WARD. You know, your winter runoff comes in April-May. If you don't have dams, that water goes on down to the coast. If you have no rain or whatever and you have drought, you don't have much rain, and there were times in the early West that they could cross the Colorado in the late summer by walking across almost.

Mr. TIPTON. Right. I would be kind of curious, and this may or may not be in your purview, but does more water, does it equal more endangered fish being saved in this case, and is water the only mechanism really to be able to save the humpback chub?

Mr. WARD. That is a good question because I don't know that can be answered. I don't know that more water is the answer to the problem. It is when the water is released, as far as the environmental community is concerned, and how they approach it and some of the litigation is that it should be released at certain times of the year to avoid certain times like spawning and so forth, so it just really depends on—

Mr. TIPTON. Do we use fish hatcheries? I apologize, Mr. Chairman.

Mr. McCLINTOCK. Yes.

Mr. WARD. We have in the past. I say "we", game and fish in Arizona has done that. I do not believe they have had much success, and I don't know why in the humpback chub.

Mr. TIPTON. Thank you.

Mr. McCLINTOCK. Mr. Garamendi.

Mr. GARAMENDI. I yield to Mr. DeFazio.

Mr. DEFAZIO. Thank you, Mr. Chairman. Mr. Garamendi had a phone call he had to make.

To Mr. Fahlund, you said something I thought was really extraordinary, and I have seen some numbers out there that if we removed those four dams that we would have an incredibly robust coastal fishing area of commercial size for a number of species. We are getting 95 percent smolt survival now with those four dams, which is pretty equivalent to what happens in rivers without dams. So what is happening there? How is that going to give us this huge coastal fishing area on these endangered species that are currently endangered?

Mr. FAHLUND. Well, I think you shouldn't take my word for it. I think you should take the American Fishery Society's word for it. They are the fish biologist experts.

Mr. DEFAZIO. Right, there are biologists on both sides and Jane Lubchenco has quite some credentials as I understand, and she engaged her own peer review of the biop. and didn't come to that same conclusion. Thank you.

Then have you read the Corps of Engineers report, the one that was commissioned during the Clinton-Gore Administration on dam removal? Have you read it? It is quite long, about 600 pages.

Mr. FAHLUND. There were several—

Mr. DEFAZIO. Yes, well, the 600-page one that talked about the siltation 10 years and barging all the smolt.

Mr. FAHLUND. My staff—

Mr. DEFAZIO. About the costs. Well, have you heard, do they tell you about those things? If barging is bad and we have a problem now with survival, we are going to barge all the smolts for 10 years while incurring a \$3 billion cost of dam removal because of siltation. That would be good for the future of these species. What do the biologists say about that?

I mean, then if barging is that great that we can do it for three generations, why don't we just barge them all right now, give them a free ride down to the base of the Columbia?

Mr. FAHLUND. I think that is largely what we are depending on currently.

Mr. DEFAZIO. No, it is not.

Mr. FAHLUND. Spill has been mandated because that has been determined to be a preferable option.

Mr. DEFAZIO. Right, but we are not barging the largest proportion of the smolt. What percent are we barging?

Mr. FAHLUND. I couldn't tell you. I haven't got those figures.

Mr. DEFAZIO. Yeah, you would have to ask your staff.

So let us go back to what the Northwest Power Council conclusions. Do you contest those conclusions that it would cost the ratepayers \$530 million on an annual basis if we remove those dams to purchase replacement power? The replacement power, since they

already have the most ambitious conservation program and renewable program in the country, would have to be done with thermal, regionally would increase carbon emissions by 4.4 million tons, West-wide by 5.2 million because we would be buying power outside the region and shipping it back in because we have lost the capacity, and then, of course, the other small details, barging all the smolts for 10 years, the loss of navigation which isn't included, I don't believe. Did you include that in your carbon estimates, loss of navigation?

Mr. KARIER. No we did not.

Mr. DEFAZIO. OK, that is another pretty significant factor because actually barging is more efficient than rail and rail is way more efficient than trucking, and since we can't put all that stuff on the rail we are going to probably put them on trucks or maybe we are going to send it somewhere else. I don't know.

So anyway, so when you hear all of that you just think we should press ahead with dam removal despite the biop, despite the conclusions of the Obama Administration on this, and the Clinton Administration? We are not talking about the Bush Administration here. We are talking about two Democratic Administrations that came to the conclusion it would be a really stupid idea.

Mr. FAHLUND. Are you asking me?

Mr. DEFAZIO. Yes.

Mr. FAHLUND. I think that we need an honest dialogue that keeps all options on the table, and we haven't had that ever. We have never had a common—

Mr. DEFAZIO. Did you see the amendments that—you know, and the language that Ms. Lubchenco had put into the biop that said should we not meet expectations in terms of these species, that indeed we would return to a review of dam removal?

Mr. FAHLUND. Yes, I did.

Mr. DEFAZIO. But let us try the biop first, and if it doesn't work then we could go back to look at this incredibly stupid and impractical idea of removing all the dams?

Mr. FAHLUND. Yes, I have seen that.

Mr. DEFAZIO. OK. Think that is pretty good? That puts it on the table if we need it, right? Only if we need it.

Mr. FAHLUND. It is on the table if we need it. I suppose that is a promise but not a guarantee that is for sure.

Mr. DEFAZIO. OK, thank you. Thank you, Mr. Chairman.

Mr. MCCLINTOCK. Mr. Garamendi? Mr. Garamendi, you still have 20 seconds.

Mr. GARAMENDI. I hardly know where to start after I have yielded to Mr. DeFazio.

[Laughter.]

Mr. MCCLINTOCK. You have about 10 seconds.

Mr. GARAMENDI. I am shuffling my papers quickly.

Mr. MCCLINTOCK. I think now the gentleman's time has expired, but we will have a bonus round with questions—

[Laughter.]

Mr. MCCLINTOCK.—that will begin right now, and the good news is you will be next up after the Ranking Member.

Mr. GARAMENDI. I think I will just wait until after the Ranking Member and try to figure out where Mr. DeFazio was coming from with all of that. So if I could just defer for a moment.

Mr. MCCLINTOCK. I don't blame you. And I do want to stress for the third time that the gentleman from American Rivers is the Minorities' guest here today.

I would like to return to the question that I began my questions with, and that is the purpose of this series of hearings is to assess our current Federal policies, where they are going, and to determine what adjustments we have to make to get back to a period of abundance and prosperity, and I would like to ask each of the witnesses here today, where are we going under current Federal policies and what can we do to fix that?

Mr. CORWIN. Thanks, Mr. Chairman. Certainly costs are going up. Rates have gone up significantly in the last several years, and that is tied to some of these policies.

Mr. MCCLINTOCK. Why? Why? Because of Federal policies?

Mr. CORWIN. Yes. Certainly for customers of BPA power fish and wildlife costs have escalated over the last 20 years enormously. How do you get to that? You need to meet your statutory obligations unless you can change the statutes and you need to do it more efficiently. Obviously, within a \$800 million fish cost, there are a lot of efficiencies that can still be found. Northwest Power and Conservation Council is trying—

Mr. MCCLINTOCK. And by the way on that point, what are the challenges to fish? What are the biggest challenges to fish populations?

Mr. CORWIN. You know, they are all throughout the life cycle. So this focus on hydropower is—that is where I disagree strongly with some of the statements by the gentleman from American Rivers. You know, these fish face challenges all throughout their life cycle. They are still intentionally caught and harvested as well. They face predation by sea lions, significant amounts, eating the adults who are the folks coming back to spawn.

Mr. MCCLINTOCK. Are the predations a greater factor in mortality than the Federal hydropower facilities?

Mr. CORWIN. Certainly for adults they are, yes. There is almost no issue with adult passage through the Federal hydropower system. The adults go right up the river. But almost all this focus has been on the juvenile passage downstream. Well, there we have also had years where avian predation, birds have eaten 10 million or more of the juvenile smolts that we are spending all this money to protect trying to get them out to the river, so there are a lot of issues. Ocean conditions are another big one. You can't control that a lot, that makes these populations fluctuate.

What we would like to see are more efficiencies in operations, especially on the spill regime that has been mentioned.

Mr. MCCLINTOCK. What would you offer as a more cost-effective ways of dealing with these issues? For example, fish hatcheries, predator control, what are your views on that?

Mr. CORWIN. Absolutely more predator control, more aggressive regime on that; more efficient fish hatcheries. They have made some improvements on those over time. Not spilling water over the dams when there aren't fish in the river is a good start. We are

trying to make steps in that direction. This biop makes steps in that direction, but those are just a few items.

Mr. MCCLINTOCK. Any other thoughts on this subject from the providers?

Mr. GILLEN. The region's commitment to the biop, that has undergone considerable scrutiny and again at considerable cost to our members. We are in support of that because we think that is the best chance to address the needs of these endangered fish.

Mr. WARD. I believe one other thing is, and it was mentioned a moment ago, was predator control, and with Glen Canyon Dam you are between a rock and a hard spot. Trout being the non-native fish are enjoying their lunch on the humpback, but on the same token the fish below that dam—

Mr. MCCLINTOCK. And your customers are paying 30 percent more on their electricity bills in order to feed the trout. Is that essentially what is going on?

Mr. WARD. I think that is one way of saying it.

Mr. MCCLINTOCK. This is insane.

Mr. WARD. And I will say that the trout fishery below the dam is one of the greatest in the world, so they are caught between what do they do. Do they get rid of them? Do they—you know, it is a difficult decision.

Mr. MCCLINTOCK. OK. Mr. Corwin, American Rivers testified for a basin scale coordination on hydropower. Would this impose a new review requirements on existing hydropower and keep new regulations on top of old regulations?

Mr. CORWIN. You know, I am not sure exactly what kind of coordination he was referring to so I would have to look at that. As far as the power system goes, the Federal Columbia River Power System is a model of coordination. To have 31 dams all generating, to have this system working the way it does to meet the needs of the Northwest is incredible right now.

Mr. MCCLINTOCK. Mr. Karier, just a quick yes or no on this. As I understand it, when we add wind and solar to the grid because it is an integrated grid and because wind and solar are intermittent for every megawatt that we add of one of these intermittent sources—wind or solar—we have to have an additional megawatt of reliable backup, is that correct?

Mr. KARIER. Yes.

Mr. MCCLINTOCK. All right, thank you. Ranking Member.

Mrs. NAPOLITANO. Thank you, Mr. Chair, and I would like to submit for the record, Mr. Chair, the number of cases pending litigation as of January 2011 at the Bureau of Reclamation for the Mid-Pacific Region. There are 20 of them. Five are environmental suits, the rest are cities, ditches, alliances, et cetera, et cetera. Just for the record one is closed, so that leaves four out of 20, and I would like to submit that for the record.

Mr. MCCLINTOCK. Without objection.

Mrs. NAPOLITANO. Second, Mr. Karier, you indicate that almost 500 million annual is spent on environmental mitigation. BPA has on the books the building of four nuclear plants. Am I correct?

Mr. KARIER. Washington Public Power Supply System from the plants that weren't built.

Mrs. NAPOLITANO. Correct.

Mr. KARIER. Yes.

Mrs. NAPOLITANO. Three were not built. How much are you paying on that debt? How much is BPA paying? I am sorry.

Mr. KARIER. I would have to get back to you, but that is one of the largest cost items for Bonneville Power is still paying the interest on that debt.

Mrs. NAPOLITANO. Almost a billion dollars annually is my estimation. How does that compare to the mitigation of the environmental issues that we have?

Mr. KARIER. The estimates that we have received from Bonneville about the annual costs for the fish and wildlife program is about \$800 million a year—or \$750-\$800 million—and that includes the cost of the foregone power from spilling water for fish, so it includes some of those operations costs as well as the out-of-pocket costs, so that is the range. We report on that annually to the Governors of the Northwest.

Mrs. NAPOLITANO. I understand, but my concern is that we are comparing some of these costs, and you are bearing costs for something that was never built.

Mr. KARIER. That is correct. That, again, is one of the largest line item costs for Bonneville is—

Mrs. NAPOLITANO. Thank you.

Mr. KARIER.—paying the interest on that investment.

Mrs. NAPOLITANO. Mr. Morgan, you mentioned in your testimony you need help in developing more hydropower resources, and are you aware the Memorandum of Understanding between FERC and the State of Colorado signed last August to simplify procedures authorizing the development of small-scale hydropower projects at existing facilities in Colorado, and have you taken advantage of the program?

Mr. MORGAN. No, I was not aware of that.

Mrs. NAPOLITANO. We would like to furnish the information to you, sir.

Mr. MORGAN. OK.

Mrs. NAPOLITANO. Because we do have it available.

And it is my understanding, Mr. Morgan, that a change to the draft EIS to reflect that Black Canyon's Federally reserved water rights and that Reclamation has committed to delivering the park's water as well as its obligations as part of the Aspinall Unit.

How can we jump to a conclusion and say that Reclamation isn't protecting hydropower before the filed EIS is even released?

Mr. MORGAN. Well, the movement forward is to continue to restrict that. That is the direction that it is moving in.

Mrs. NAPOLITANO. But it is not final.

Mr. MORGAN. You are correct, it is not final.

Mrs. NAPOLITANO. And how are we assuming that?

Mr. MORGAN. That just appears to be the direction that it is moving in.

Mrs. NAPOLITANO. OK. Mr. Fahlund, in your testimony you mentioned an analysis by FERC which found that since Congress passed laws in the mid-1980s to encourage environmental improvements overall generating capacity has actually increased by 4.1 percent. Could you elaborate on how generation would increase while mitigating the environmental impacts?

Mr. FAHLUND. That is simply because many of the efforts within those re-licensing proceedings resulted in agreements where environmental interests supported additions of capacity where facilities were under capacity. We also supported modifications to operations that would have facilitated increases in generation, not just capacity, so it had intended to net out positive.

Mrs. NAPOLITANO. Thank you. Mr. Chair, I have more questions for the record but I would like to leave my remaining 57 seconds to Mr. Garamendi, then he can have his five.

Mr. MCCLINTOCK. Then Mr. Labrador can have his.

Mrs. NAPOLITANO. Yes, I know but—

Mr. GARAMENDI. The Chairman spoke to the issue of abundance and prosperity, good, but an abundance of what and prosperity for whom, and I will go through a series of questions about those, and also I note that we are looking at river segments that basically cover the entire West, and therefore the issues are remarkable different or dramatically different on each river, and each segment of the river, and so one size is clearly not appropriate, and it certainly doesn't fit all, so I will come to those questions. Thank you, Mr. Chairman.

Mr. MCCLINTOCK. Mr. Labrador.

Mr. LABRADOR. Thank you, Mr. Chairman.

Mr. CORWIN, we have spent \$13 billion of taxpayer money on salmon restoration. Can you explain greater detail where this funding is being spent?

Mr. CORWIN. Certainly. Thank you, Representative. And on that to compare costs, to follow up on a question a little earlier there, I think that number was wrong as far as the debt costs remaining on the nuclear plants. The total payment of Bonneville to the Federal Treasury is almost a billion dollars a year, but that includes a lot of other pieces of debt structure in there, so their entire power revenue requirement is \$2.5 billion a year, so they don't have a \$1 billion payment on just the nuclear plant out of that, but there is still a remaining amount. It is going to be paid off in several years.

The pieces of the fish budget break down into an integrated program that is reviewed by the Power Council and they do a good job, but there several hundred projects involved with that. That is about \$250 million a year. The Power Council's oversight costs themselves are another several million. The Fish and Wildlife Service has a piece of about 30 million. The Corps of Engineers has a reimbursement piece of about 40 million, a little bit more than that, and then you have this enormous operations piece from power replacement purchases or foregone revenues that is about \$460 million a year, and then you have capital on the fish projects which is about \$150 million a year, so that is kind of how it breaks down. More and more of that has become related to ESA needs, the biological opinion needs as opposed to general mitigation in the region under Northwest Power Act.

Mr. LABRADOR. Do you think this money is being spent as efficiently as possible?

Mr. CORWIN. No. It has gotten better over the years, but we have a long way to go, and we need to keep our noses to the grindstone as customers and work with the Power Council and Bonneville and other agencies to make sure that is as efficient as possible.

Mr. LABRADOR. Aside from the dollars spent to replace power loss through spill, what are some of the operational impact to losing this generation?

Mr. CORWIN. Yes. I mean, just the spill portion and flow that we were talking about before, the capacity, the flexibility that you lose is, as was mentioned earlier, that is the same flexibility people want to use to try to integrate new resources, these variable resources that drop off suddenly in an hour. Well, hydro can follow those—back up those resources hour to hour, so you lose that capability. You also lose important voltage support for reliability of the system.

We have gotten better about that over time, but in 1996, the West Coast power outage put four million people into a blackout, and that was mainly because of really increasing temperatures and loads, and the lines sagged into some trees, and then McNary Dam went down. Well, part of what they needed was more voltage support and when you have all that project spilling, you don't have that. It is also one of the arguments that came to fore when they were looking at drawing down the John Day Reservoir; that if you didn't have that resource there how would you back up those power needs when you really need them in those situations.

Mr. LABRADOR. Yes, American Rivers has said that the Snake River dams are incompatible with healthy salmon runs. What is the current rate of fish passage at the Snake River Dams?

Mr. CORWIN. Yes, as we were saying earlier, it is about 96 percent, and certainly for adults it is the same as you would have with a natural river. There are other issues that get pulled up in that debate, but the proof is in the pudding on the returns that we are seeing now. The Chinook, especially is really showing good returns, and specific to the Snake River, those returns have improved, and the trend is upwards.

Now, they go up and down according to ocean conditions as well, but the passage improvements that you can measure through the hydropower system are evident.

Mr. LABRADOR. OK, thank you.

Mr.—is it Karier?

Mr. KARIER. Karier, yes.

Mr. LABRADOR. We heard some say that without the four Lower Snake Dams in place the region could replace that energy and capacity with energy efficiency and renewable energy. Is that true?

Mr. KARIER. Well, that has been one part of this argument. The Council's analysis looked at how the region would practically do that. It is more complicated than just energy because of the capacity value of the dams. The dams can meet peak loads. Wind power, for instance, cannot do that for the most part.

So if those dams were removed and the region was faced with replacing that, the Council's analysis shows a combination of primarily less exports, more imports into the region, an increased use of the existing coal plants and the natural gas plants, and expansion of natural gas plants in the Northwest, a small increment of conservation beyond what we already are getting primarily because we are getting all cost-effective conservation in our current plan.

Mr. LABRADOR. Great. Thank you.

Mr. KARIER. So that would be the portfolio that would be required to replace that.

Mr. LABRADOR. Thank you. Thank you, Mr. Chairman.

Mr. MCCLINTOCK. Mr. Garamendi.

Mr. GARAMENDI. Thank you, Mr. Chairman.

Abundance and prosperity for whom and what? Clearly the issue of abundance of the natural species in the river is of great concern. If you are talking salmon, you are also seriously talking about prosperity for those who rely upon the salmon for their income. But we really have to deal with the balancing here. It is not one way or the other. It is a balancing situation.

The testimony that I heard a few moments ago that it is about predation, listen, it is about dams on the river. Predation has always been there in one for or another, and will always be there, and the ocean does change from time to time, but clearly there is no doubt that the dams on the river are the principal issue.

The question for us is given that there are dams on the river how do we provide abundance in its many forms: abundance of electrical power, abundance of water when needed, where needed, and also abundance of fish, many species, and this is true on everyone of the river here, and I will note once again that each of these river segments is quite different from the other so we are dealing with different circumstances.

Some dams can be removed without great harm to electrical power or others. Other dams, no way, no how, it isn't going to happen, so let us get real here and kind of focus on what each of the rivers need and each specific stem of the river. It has been a long time since I have dealt with the Columbia, in fact, it was 1998 that I left the Department of the Interior and the work that I was doing on the Columbia, so I am not up to date, and I have missed most of this hearing. I apologize for that, but I will come up to speed on it.

Going forward what I would like to see us do, Mr. Chairman, is to really figure out how best to deal with a very complex problem to achieve all of the abundance that we need: abundance of fish, salmon, other species, as well as the abundance of power. It is not going to be easily done. We have added to the mix in the last decade—wind, solar—both of which as you point out, Mr. Chairman, are intermittent, and we have the electrical power. The integration of these sources of power is of utmost importance to all of us because all are clean energy, and it may require us to think differently than we have in the past about the integration, about the resources, and the timing of those resources.

I also note, and I guess I am just making a speech here without many questions, but so be it. That was Mr. Boehner's word, wasn't it, "so be it". Anyway, how can we do these thing? How can we have an abundance of fish?

Trucking, Mr. DeFazio's purpose about moving beyond the dams. A lot of the testimony here that I have heard, 96 percent return compared to what? Downstream, the smolt going downstream, the salmon issues.

Mr. Chairman, you are on an issue here that if we think about this in a very holistic way, taking into account the complexities that exist, I think we can make some progress here. We are not

going to remove the dams on the Columbia or the Snake for that matter. It isn't going to happen, at least in our lifetimes. So given that how can we improve the fisheries on an extraordinary river system? That is our challenge. We ought to focus on those things that are possible.

I know the Klamath—you and I may disagree with that, Mr. Chairman—but on the Klamath we ought to complete the study on the Klamath about removing the dams. It hasn't yet been completed. We don't have all the information in. It may make a lot of sense to do so. It may not. We come to this with our own initial prejudices. I suspect yours, Mr. Chairman, is don't remove them. I know mine is to remove them, but let us get on with it and let us find out what the details are in the Klamath.

With regard to the Colorado, yes, the fish have been eating each other for a long time, but we want to make sure that they are all there to eat each other in the future. Numbers have been tossed around here about power losses and the like and about costs and the like, but we are really kind of playing a political game without getting down to the real details that we need to understand. I thank the Ranking Member for bringing out some of those points, so let us get past the rhetoric, and let us recognize that we have a very complex problem in which we ought to be maximizing the abundance in every form, and making sure that there is prosperity for all who have now historically and in the future depended on these rivers. That ought to be our goal. These are complex issues, very tough issues. But if we go at it with goodwill, I think we can make some progress.

Mr. Chairman, I thank you for the hearing, and I look forward to working with you.

Mr. MCCLINTOCK. Thank you. That concludes our rounds of questions. I want to thank all of our witnesses for their valuable testimony. Members of the Subcommittee may have additional questions or comments for witnesses. We would ask that you respond to those in writing, and I also would like again to ask all of you for your input on what changes you believe need to be made in current Federal policy to achieve those objectives of abundance and prosperity that we have outlined. The hearing record will be open for 10 business days to receive these responses.

If there is no further business to be brought before the Committee, without objection, the Committee stands adjourned.

[Whereupon, at 11:56 a.m., the Subcommittee was adjourned.]

