Appendix 3
Selected Legislative Developments in Other Jurisdictions

1. U.S. - Federal

U.S. - Federal

Overview

Much of the regulation and administration of hydropower in the U.S. is under the control of the federal government. This is largely because the U.S. Constitution gives the federal government jurisdiction over interstate commerce and navigable rivers. State Legislatures have jurisdiction over the allocation of water within their state.

In comparison with Manitoba and the rest of Canada, the U.S. enjoys a highly integrated and sophisticated regulatory scheme. The licensing system for hydro projects requires extensive consultation between several state and federal agencies, coordinated under the leadership of the Federal Energy Regulatory Commission (FERC). Approximately 54% of the hydropower produced in the U.S. is licensed by FERC.[1] The remainder is produced by the federal government, which operates several large dams across the nation. In comparison with Canada, the U.S. federal government plays a strong leadership role in hydro matters.

The U.S. system is designed to balance the economic benefits of hydro against other beneficial uses of waterways as well as the need for environmental protection.

Federal Power Act & Federal Energy Regulatory Commission

The *Federal Power Act* (FPA) sets out an administrative scheme for regulation of hydroelectric projects, interstate sales of electricity, and interstate natural gas pipelines.[2] The FPA also establishes the Federal Energy Regulatory Commission (FERC).

FERC is an independent regulatory agency within the Federal Department of Energy. It was created to regulate power projects on navigable waters and the transmission and bulk sale of electricity between states. FERC's main responsibility is to determine whether licenses should be granted for the purpose of developing, operating, or maintaining works necessary for hydroelectric power.[3] It is also responsible for inspecting private, municipal and state hydroelectric projects.

Requirements for hydroelectric licenses

When making licensing decisions, FERC *must* consider:

1 For more information visit the US Fish and Wildlife Service website at http://www.fws.gov/
2 *The Federal Power Act* forms part of the US Code and is found in Chapter 16 at 16 USC 791-828c.
3 16 USC 797(e)

- the extent to which the proposed project is consistent with the comprehensive conservation plans in place under federal or state authority;
- the recommendations of Federal and State agencies affected by the project;
- the recommendations of Indian tribes affected by the project; and
- where the proponent is a State or municipal applicant, or engaged in the generation or sale of hydro power, the electric consumption efficiency programs of the applicant, including plans to assist consumers with energy efficiency efforts.

Under the FPA, licenses are intended to protect the public interest by striking a balance between economic considerations, the facility's operation, the multi-use nature of the river, and environmental concerns.[4] When deciding whether to issue a licence, FERC *must give equal consideration* to power and non-power values to ensure best use of waterways.[5] This includes balancing various interests such as power development; energy conservation; protection, mitigation of damage to and enhancement of fish and wildlife; protection of recreational activities; and preservation of other aspects of environmental quality.[6]

Every license must include provisions to protect fish and wildlife and mitigate damage to the environment. The FPA provides for cooperation and consultation between federal agencies, including resource agencies such as Fish and Wildlife, in all licensing decisions.[7] When setting conditions, FERC must consider the needs of interstate commerce, the best use of water resources, the protection of fish and wildlife, and the need for other beneficial public uses such as flood control, irrigation, water supply, and recreation.[8]

FERC must be satisfied that the project is the best use of waterpower development, the best adapted to the comprehensive development plan for the waterway, and adequately protects fish and wildlife and other beneficial uses including irrigation, flood control, water supply, and recreational purposes.[9] Section 7(a) (2) of the *Endangered Species Act* (ESA) requires FERC to determine whether the proposed license will jeopardize the existence of an endangered or threatened species.[10] FERC must consult with the National Marine Fisheries Service to make this determination, and must consider the Service's recommendations when placing conditions on the renewed license.

The FPA states that FERC must consult with Indian tribes and federal and state agencies.[11] It also allows FERC and other agencies administering lands to place mandatory conditions on projects on federal lands, including Indian reserves and national forests.[12]

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4 16 USC 803

5 16 USC 117(a)

6 16 USC 797(f)

7 In order to adequately protect fish and wildlife affected by the development or operation of the project, (including their spawning grounds and habitat) each license must include conditions for protection, mitigation of damage, and enhancement of fish and wildlife. These conditions are based on recommendations of various Federal and State agencies, including the Bureau of Fisheries, and the Fish and Wildlife Service. Consultations must be undertaken "for the purpose of preventing loss of and damage to wildlife resources" wherever a license would control or modify a stream or body of water : Fish and Wildlife Coordination Act 16 USC 661-667e.

8 See 16 USC 797f; Also see : 16 USC 117(j)

9 16 USC 803(a)

10 *Endangered Species Act of 1973*, 16 USC 1531-1544

11 16 USC 117(a)

12 16 USC 797(e)

FERC may grant licenses lasting 30 to 50 years and may place conditions on the license.[13]

Licence Renewals

Generally, the FPA allows for the same requirements that apply to new licences to apply to renewal of existing licences. According to the FPA, if the federal government does not exercise its right to take over and operate an existing project, FERC is authorized to issue a new licence "upon such terms and conditions as may be authorized or required under the then existing laws or regulations".[14] This means that FERC has the legislative authority to require existing licensees to comply with the contemporary version on the FPA and regulations. Bringing an existing license under the contemporary laws requires FERC to issue a new licence.[15]

License renewals require license holders to give FERC notice of their intention to renew their license 24 months before the expiry. They must also consult with fish and wildlife agencies and conduct the appropriate studies before the expiry of their existing license.[16]

National Environmental Policy Act

The *National Environmental Policy Act* (NEPA) provides a mechanism to ensure that all federal agencies consider the environmental impact of their actions and any reasonable alternatives to those actions.[17] The purpose of NEPA is to ensure that environmental concerns are weighed equally in decision-making processes. NEPA requires federal agencies to incorporate environmental planning in their decision-making through a "systematic and interdisciplinary approach."[18] This approach means that federal officials must consider environmental values along with technical and economic factors.[19]

NEPA requires all federal agencies to prepare an Environmental Impact Statement (EIS) for any proposed action that will significantly affect the environment. An EIS should include: discussion of the purpose of and need for the action; alternatives; the affected environment; and the environmental consequences of the proposed action.[20]

The NEPA Regulations also outline that before or after the draft EIS is prepared, the public and other Federal agencies may provide comments and recommendations. After a final EIS is made, the agency must provide a "Record of Decision", explaining how the EIS was incorporated into its decision, including consideration of alternatives.[21]

The Pacific Northwest Electric Power Planning and Conservation Act

The *Pacific Northwest Power Planning and Conservation Act* authorizes the establishment of

13 16 USC 799
14 16 USC 808
15 16 US 808 (a) (1)
16 16 USC 808 (c) (1)
17 *National Environmental Policy Act*, 42 U.S.C. 4321-4347
18 NEPA, §4332
19 https://ceq.doe.gov/welcome.html
20 NEPA, §4332(2)(C); see also NEPA Regulations, 40 CFR 1502
21 NEPA Regulations, 40 CFR 1502-1502

the Pacific Northwest Power and Conservation Council (PNWPC).[22] The PNWPC's main role is to plan and develop policy related to hydro power and environmental protection for the Columbia river and its tributaries. It also prepares regional conservation plans as well as a fish and wildlife protection, mitigation, and enhancement program. The PNWPC must establish scientific peer review groups to advise it on program and funding decisions. The funds for implementing the plans come from the Bonneville Power Administrations annual fish and wildlife budget. The plans are then considered as recommendations for FERC to consider when licensing decisions are made.

Environmental Protection Agency

The Environmental Protection Agency (EPA) is the federal agency responsible for safeguarding human health and the environment. With respect to hydropower, the EPA is responsible for receiving and reviewing environmental assessment documents that federal agencies such as FERC are required to submit under NEPA. The EPA publicly reviews and comments on all EISs that stem from hydropower licensing and regulation. If the EPA decides that a federal agency has not met its environmental assessment obligations it refers the matter to the Council of Environmental Quality (CEQ) – the supervisory body for NEPA.

U.S. Pacific Northwest

Like Manitoba, the U.S. Pacific Northwest has a high concentration of hydroelectric dams and is heavily reliant on hydroelectric power generation. Washington and Oregon are the largest producers of hydroelectricity in the country. In 2013, Washington produced almost 30% of the nation's hydropower.[23] In the same year 70% of Oregon's net electricity generation was from conventional hydroelectric power plants and other renewable energy resources.[24] Much of the states' power is sold to neighbouring jurisdictions, including California and British Columbia. Also similar to Manitoba, the abundance of hydropower in Oregon and Washington means that citizens of these states pay some of the lowest electricity rates in the country.

The Bonneville Power Agency

The Bonneville Power Agency (BPA) is a federal agency responsible for marketing power produced by federally owned dams in the Pacific Northwest. It was originally created in 1937 to market electricity from the Bonneville dam on the Columbia River. The Bonneville dam and other federal dams in the area are created through acts of congress and are not regulated by the State or FERC.[25]

Pacific Northwest Electric Power and Conservation Act

In 1980 Congress enacted *The Pacific Northwest Electric Power and Conservation Act,* which expanded the BPA's mandate to include protection and enhancement of fish and wildlife

22 *Pacific Northwest Electric Power Planning and Conservation Act,*16 U.S.C. 839

23 According to the US Energy Information Administration (a federal agency). Statistics are available online at <http://www.eia.gov/state/?sid=WA> last visited March 20, 2015.

24 According to the US Energy Information Administration. Statistics are available online at <http://www.eia.gov/state/?sid=OR> last visited March 20, 2015.

25 This was under *The Bonneville Project Act* of 1937, 16USC 12B 832.

affected by hydropower.[26] Under the direction of this Act, the BPA funds conservation programs which have been developed by an independent planning body - the Northwest Power Planning Council. This Act came at a time when public concern over salmon was at a high. The measures taken by Bonneville and the planning council seem to be working well. Since 1978 over $13.8 billion has been allocated to fish projects by Bonneville.[27]

Northwest Power and Conservation Council

The Northwest Power and Conservation Council (NWPC) is a planning, policy-making, and review body with a mandate to provide direction on electric power and environmental issues. The NWPC was established pursuant to the *Northwest Power Act*, enacted in 1980. The NWPC was created by an agreement between the U.S. Congress and the states of Idaho, Montana, Oregon, and Washington. The NWPC develops a fish and wildlife protection, mitigation, and enhancement plan (called a “fish and wildlife plan”) every five years.

Implementation of the plans is funded by the BPA and overseen by FERC, and undertaken by the Federal Bureau of Reclamation, the Army Corps of Engineers, and public and private utilities. The NWPC also prepares a 20-year electric power plan, which is updated every 5 years. The electric power plan forecasts how much power will be needed in the region over the next 20 years and ways the need will be met, including greater energy efficiency.

Oregon

Oregon's water use and allocation systems are similar to those of Canadian provinces and territories. An important difference is that Oregon's statutes contain provisions regulating hydroelectric development that are much more extensive than their Canadian counterparts.

Under Oregon law, all water belongs to the public.[28] Aside from domestic users and some others, most people need State approval to use water. This includes industrial, municipal, and agricultural users. Approval takes the form of licenses that recognize the user's “water right”. Special requirements exist for licensing of hydro projects. The State's regulation and licensing system closely parallels that of FERC, and is designed to create a streamlined licensing system that combines the State and Federal application processes.

Oregon Water Code

Oregon's *Water Code* is a broad set of laws covering various aspects of water governance.[29] It includes water rights and allocation, as well as others including flood control, irrigation, and conservation. The *Water Code* gives the State the authority to grant licenses for the appropriation of water, including appropriation for use in hydroelectric developments.[30] The

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26 16 USC 12H, see s.839(6) and 839d(1)

27 According BPA's own data. See Bonneville Power Administration (2014) *BPA Facts*. Available online at <https://www.bpa.gov/news/pubs/GeneralPublications/gi-BPA-Facts.pdf> last accessed March 20, 2015, at p.2.

28 ORS 537.110

29 “Water Code” refers to all Chapters under Title 45 of the Oregon Revised Statutes: Water Resources, Irrigation, Drainage, Flood Control Reclamation. These are Chapters 536 to 553. Particularly, this part of the study looks at Chapters dealing with Water Resources, especially Chapter 537: Appropriation of Water Generally.

30 ORS 543.260

water rights system in Oregon is similar to most western Canadian provinces.

Like Manitoba, Oregon is very reliant on hydroelectric power and has had challenges with the effects of hydro operations on salmon fisheries. There is an explicit mention in *Water Code* of these effects:

> The economic and **general welfare of the people** of this state have been **seriously impaired** and are **in danger of further impairment** by the exercise of some **single-purpose power or influence over the water resources** of this state or portions thereof by each of a large number of public authorities, and by an equally large number of legislative declarations by statute of single-purpose policies with regard to such water resources, resulting in friction and duplication of activity among such public authorities, in confusion as to what is primary and what is secondary beneficial use or control of such water resources and in a consequent failure to utilize and control such water resources for multiple purposes for the maximum beneficial use and control possible and necessary. (emphasis added)[31]

Hydroelectric Projects

Chapter 543 of the *Water Code* is entitled “Hydroelectric Projects” and deals with the appropriation and use of water for hydroelectric purposes. It provides the Water Resources Commission with authority to grant licenses and set conditions for hydroelectric projects. The Commission also has authority to hold hearings and conduct investigations.[32] Chapter 543 sets out several requirements for granting licenses, which are described below.

Reauthorization of Hydroelectric Projects

Chapter 543A of the *Water Code* deals specifically with re-licensing and decommissioning of hydro projects. It was passed in 1997 in response to a high number of expiring licenses and the apparent lack of a legal mechanism for reauthorization.[33]
The purpose of the chapter is to establish a coordinated process for state reauthorization of water licenses to guide state actions and dealings with federal agencies and FERC.[34] It establishes the Hydroelectric Application Review Team (HART) to review renewal applications and develop the State's position. Many of the considerations HART looks at are similar to those found in Chapter 543 and the FPA.[35]

Water Resources Commission

The Water Resources Commission (WRC) is a body of citizens appointed by State officials to set state-wide water policy for Oregon and to oversee the Water Resource Department. Many of the government's responsibilities for management of water rest with the WRC, but most administrative duties are delegated to the Water Resources Department.

The WRC must conduct a public hearing on any application for a preliminary permit or license

31 ORS 536.220
32 ORS 543.050
33 ORS 543A.010
34 ORS 543A.015
35 See ORS 543A.025

for a major project[36] After the hearing, if the WRC determines that the project does not comply with the general requirements, or the State's integrated water resource policy, it may reject the application or make an order requiring its modification to conform to the public interest.

In making its decision, the WRC must consider conserving the highest use of the water for all purposes, the maximum economic development of the waters, the amount of water available, and the prevention of wasteful use.

Water Resources Department

The Water Resources Department (WRD) is an executive branch of government responsible for administering Oregon's water resources for existing users, the environment, and future users.[37] The WRD's core functions are to protect existing water rights, facilitate voluntary streamflow restoration, and provide accessible data on water resources.[38] With some exceptions, water users must obtain authorization from the WRD to use water for any non-domestic purpose.

The WRD is responsible for developing an "integrated state resource strategy" to implement the policy set by the WRC. While developing the strategy, the WRD must work closely with the State Department of Fish and Wildlife and the Department of Environmental Quality, and must consult with other state, local, and federal agencies, Indian tribes, stakeholders, and the public.[39] Basin plans provide a framework for reviewing requests for water permits and licenses.

The WRD grants water right permits, certificates, and licenses. Permits enable temporary use, usually as part of a development project where a permanent certificate or license is expected. Once the term of a water right permit has ended (the development phase of the project is complete), if all of the conditions of the permit have been met, the WRD may grant a water use certificate. The certificate allows the holder to continue using water until the terms of the certificate are broken or the right is used less than once every 5 years. There are special requirements for obtaining licenses for hydro projects which generally correspond with those of FERC.

All of the WRD's records, including technical studies of water resources, are available to the public.[40]

Licensing Requirements

Given the direction from the FPA, Oregon must consider the public interest in licensing decision making. In order to decide whether a hydro development will serve the public interest, the WRC must consider future and present power needs and must make a finding on the need for power.[41]

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36 RSO 543.225
37 See Oregon, Water Resources Department (2004) *Managing Oregon's Water.* Information sheet. Online: http://www.oregon.gov/owrd/pubs/docs/infosheet1.wrd.pdf
38 WRD website at http://www.oregon.gov/owrd/pages/index.aspx
39 RSO 536.220(3)(a) and (b)
40 RSO 536.040
41 RSO 543.017(e)

A license may be issued for up to 50 years. If the project is regulated by FERC, the term of the license will be concurrent with the federal license. [42]

Each license is issued on the condition that all of the terms and conditions prescribed by WRC will be followed.[43]

Relicensing Requirements

Most of the requirements for re-licensing state hydroelectric projects are found in Chapter 543A of the *Water Code*, which is entitled “Reauthorizing and Decommissioning Hydroelectric Project”. If the owner of a hydroelectric project has filed a notice of intention to renew the water right certificate, the WRC will convene the Hydroelectric Application Review Team (HART), which is made up of representatives from the WRD, the Department of Environmental Quality and the State Department of Fish and Wildlife.[44] The HART determines if sufficient information has been provided by the applicant and if it has not, then the applicant must hold a public scoping meeting and invite the HART, federal agencies, “federally recognized Indian tribes” and members of the public. The purpose of the public scoping meeting is to give the participants the opportunity to review the information and discuss a proposed schedule to complete the reauthorization process, discuss studies or other information that might be needed, and to “identify other resources and other health and safety issues of the state that must be considered in the reauthorization process”.[45] After the scoping meeting, the applicant prepares a report for the HART’s review. The HART then prepares a draft order either approving or denying the application for public review and comment.[46] The HART then prepares a final order and members of the public may file protests. If there are significant disputes about the reauthorization, the applicant may apply for a contested case conference.[47] If the reauthorization application is approved, a water rights certificate will issue for a term of not more than 50 years.[48]

Some of the minimum standards for the continued operation of an existing hydroelectric project so it “will not impair or be detrimental to the public interest” include mitigation for adverse impacts to fish and wildlife resources due to new construction or operational changes, “ongoing adverse impacts existing at the time of the reauthorization”; and “appropriate measures to promote restoration and rehabilitation of fish and wildlife resources”. In addition, wetland resources must be protected, maintained or enhanced and “other resources in the project vicinity including recreational opportunities, scenic and aesthetic values, historic, cultural and archaeological sites, and botanical resources shall be protected, maintained or enhanced”.[49] Lastly, Chapter 543 requires all licences to be subject to certain conditions, for instance that the operations affecting the storage and discharge of water “shall at all times be controlled by such reasonable rules ... for the protection of life, health and property, and in the interests of the fullest practicable conservation and utilization of such waters for power purposes and for other beneficial public uses, including recreational

42 RSO 543.255(1)
43 *Ibid.*
44 RSO 543A.030-035
45 RSO 543A.040-045
46 RSO 543A.050-055
47 RSO 543A.120-130
48 RSO 543A.140-145
49 RSO 543A.025

purposes".[50]

Washington

For the most part, Washington's water laws are very similar to those of Oregon. An exception is the absence of statutes governing hydropower. Washington relies on the FERC licensing process and does not have extensive laws setting out requirements for hydro licensing. However, the Washington's *Water Resources Act* does make the Washington Department of Ecology responsible for reviewing applications to appropriate water.
The *Water Resources Act* also directs department officials to "vigorously represent state interest before water resource regulation, management, development, and use agencies of the United States with regard to planning, licensing, re-licensing, permit proposals," including FERC, the EPA, the Army Corps of Engineers, and the Department of the Interior.[51]

Water Code

Washington's *Water Code* governs all aspects water management, including use and allocation.[52] The state's water rights system and licensing system closely mirrors that of Oregon. Key features of the Code include:

- a declaration that all water belongs to the public;[53]
- the requirement that most non-domestic water uses be approved by the state;
- a priority system for allocation based on the "first in time shall be the first in right" principle;[54]
- a requirement that the water right must be used at least once every 5 years or it will be relinquished.

The *Water Code* contains relatively few provisions that expressly deal with hydropower. Those involving hydropower relate to dam safety.

Minimum Flows and Levels Act

The *Minimum Flows and Levels Act* allows the Department of Ecology to set minimum water flows or levels for streams, lakes or other public waters at the request of the state fish and wildlife service in order to protect fish and wildlife, water quality, or recreational or aesthetic values whenever it appears to be in the public interest.[55] Before rules for minimum flow or levels can be put in place the Department must hold a public hearing.

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50 RSO 543.300
51 RCW 90.543.080
52 RCS 90.03
53 RCW 90.03.010
54 RCW 90.030.010
55 RCW 90.22

Water Resources Act

The *Water Resources Act* (WRA) establishes the Department of Ecology and enables the Department to create water management plans designed to provide water security and ecological protection.[56] The Department of Ecology is the principal agency administering laws that govern the use and management of Washington's water. The WRA directs the Department to undertake “a comprehensive planning process that includes the state, Indian tribes, local governments, and interested parties.”[57]

In terms of hydropower, the Department's main function is issuing water quality certifications. Water quality certifications are recommendations on improving water quality to be incorporated into the license as required by s. 401 of the *Clean Water Act*.

The WRA indicates that rivers and streams should have base flows necessary to provide for preservation of wildlife, fish, aesthetic and other environmental values, and navigational values, and that lakes and ponds shall be retained substantially in their natural condition. To allow withdrawals of water that conflict with this direction it must be clear that overriding considerations of the public interest will be served.[58]

With respect to hydro developments, the Department is required to evaluate any application to appropriate water pursuant to the *Water Code*.[59] It must ensure there is sufficient information furnished by the applicant regarding the need for the project, alternative means of serving the purposes of the project, the cumulative effects of the project and other information.

The WRA also establishes guidelines to direct future water policy. Key guidelines include:

- Promotion of balanced development of cost-effective and environmentally sound hydropower projects by a range of development interests;
- Protection of values associated with the state’s rivers, including fish and wildlife populations and habitats, water quality and quantity, unique physical and botanical features, archaeological sites, and scenic and recreational resources; and
- Protection of the interests of citizens regarding river-related economic development, municipal water, electric energy, flood control, recreation, and environmental integrity.[60]

Lessons on water governance from the US

Strong federal leadership & consideration of water as belonging to the public

The extensive involvement of the U.S. federal government and its agencies in the licensing process allows for a more integrated approach to watershed management. The U.S. model sends a strong message to licensees that the federal government sees itself as a steward of the waterways. It also establishes a coordinated approach by outlining that different interests

56 RCW 90.54
57 RCW 90.54.010
58 RCW 90.54.020
59 RCW 90.54.170
60 RCW 90.54.800

will be weighed based on equal values.

The underlying reason for this weighing of interest may be the explicit legislative recognition that water *belongs to the public*. The corresponding Washington and Oregon water governance legislation also include this in their *Water Codes*.

Giving equal consideration to economic interests and the environment (including protection of fish and wildlife)

As previously stated, the FPA explicitly requires FERC to give *equal consideration* to power and non-power values to ensure best use of waterways.[61] The FPA outlines the various interests to be weighed including environmental, wildlife and energy conservation.[62]

In Oregon, the WRC must take into account environmental considerations in licensing. No activity can be approved that will result in a net loss of wild game, fish, or recreational opportunities, unless acceptable mitigation measures are in place. For example, the WRC cannot make a decision which would be harmful to salmon or their habitat unless the applicant proposes to modify an existing facility or structure in a way that can be shown to enhance their population.[63]

The WRC must consult with other local, state, and federal agencies to determine what is acceptable mitigation.[64]

It should be noted that the Federal legislation makes no specific mention of weighing Indigenous rights however certain States may include this consideration in their legislation.

Public Engagement and Stakeholder Consultation

The FPA establishes a FERC Office of Public Participation (now called the Office of External Affairs)[65] This office is FERC's primary contact point with the Congress, the public, international, federal, state, and local government offices, interest groups, and the news media. It is responsible for developing FERC's public relations and other outreach strategies.[66]

Similarly to Manitoba, FERC may involve in its hearings any party or representative of interested consumers or security holders or any other person whose participation in the proceeding may be in the public interest.[67] It should be noted that in certain states, hydroelectric producers do not have the monopoly on development and competitors of a party to a proceeding will also participate in hearings

The FPA stipulates that FERC must have a process for making and investigating complaints.[68] Under the FPA, any person, complaining of anything done or omitted to be done by any

61 16 USC 117(a)
62 16 USC 797(f)
63 RSO 543.017(a)
64 RSO 543.017 (c)
65 Pursuant to 16 USC 825(q) (1). The Office's website is http://www.ferc.gov/about/offices/oea.asp
66 See also FERC's guide for the public. FERC. *Hydropower Licensing—Get Involved: A Guide for the Public*. Available online at: http://www.ferc.gov/for-citizens/citizen-guides/hydro-guide.pdf
67 16 USC 825(g)
68 16 USC 825(e)

license holder, may apply to the Commission by petition. The petition will be forwarded to the license holder who will be asked to satisfy the complaint or to answer it within a reasonable time. If the license holder does not satisfy the complaint it is FERC's duty to investigate.

In addition, NEPA has public consultation requirements that form part of the FERC application. During the scoping and environmental review phase the EIA is available to the public and open to comment.

Open and transparent access to information at a reasonable cost

The FPA and the Oregon *Water Code* both include explicit provisions indicating that information must be accessible to the public.[69] Applicants for a license renewal must make all of their materials available to the public for inspection, including maps, drawings, data, and any other information FERC requires regarding the construction and operation of the licensed project. This information must include pertinent energy conservation, recreation, fish and wildlife, and other environmental information.[70]

In addition, the decision-making process is designed to be accessible to the public. The FPA provides for open access of information and opportunities for consultation at each stage of the development and licensing process. FERC must publish all of its decisions and reports and make them available to the public at a reasonable cost[71]
The NWPC plans become part of FERC's license conditions. The NWPC planning process also provides a forum for public participation and consultations.

Requirements relating to water quality

Under s. 401(a)(1) of the *Clean Water Act*, FERC may not issue a license authorizing the construction or operation of a hydroelectric project unless the state water quality certifying agency has either issued water quality certification for the project or has waived certification by failing to act on a request for certification.[72] Section 401(d) of the *Clean Water Act* provides that the certification shall become a condition of any federal license that authorizes construction or operation of the project.

Consideration of the basin system

In Oregon, whenever the WRC receives an application to appropriate water for a hydro project, it must consider whether the impacts of the project would be cumulative with proposed or existing projects in the same river basin. If the WRC finds that there are cumulative effects, it must conduct a review. The review must provide enough information to support a decision to approve or deny the project.[73] After the order regarding cumulative impacts has been issued [per ORS 543.255], the WRC must conduct a case hearing upon request from any person[74]
The WRC must place a condition on any license issued for hydroelectric purposes that the person operating the project shall, during the operational lifetime of the project, perform or

69 16 USC 808(b), 16 USC 825(k), RSO 536.040
70 16 USC 808 (b)
71 16 USC 825(k)
72 *Federal Water Pollution Control Act* (Clean Water Act) 33 USC 1251-1376.
73 RSO 543.255
74 RSO 543.230 (1)

allow to be performed any tests required by the State Department of Fish and Wildlife to evaluate the effectiveness of any measures to protect fish. [75]

2. Australia

Overview

Australia's water resources are much more limited than those of North America. For this reason there are comparatively fewer hydro dams.[76] According to Australia's Commonwealth (federal) government, in 2013, Australia had over 120 operating hydroelectric power stations, with a total generation of almost 20 GWh or 8% of total energy generated.[77] This proportion is expected to fall to less than 4% in the next 20 years. Much of the nation's hydropower generation occurs in New South Wales, where the country's second and third largest generating facilities are all located.[78] Both of these operations are owned by Snowy-Hydro, a company jointly owned by the Commonwealth, New South Wales, and Victorian governments.[79]

Australia's constrained water resources make it an excellent place to study water governance. Even its relatively small hydro industry is highly regulated. On the whole, water governance in Australia is more complex and adaptable than that of North America. This is mainly because the quantity and quality of water can fluctuate dramatically with the seasons and over time.

New South Wales

New South Wales (NSW) is a state on the eastern coast of Australia which borders Queensland to the north and Victoria to the south. It is Australia's most populous state, numbering nearly 6 million inhabitants.[80] NWS's largest urban centre is Sydney, which is home to over 4.5 million people. Like much of Australia, NSW's climate is arid, especially in inland areas of the state. NSW's lack of water presents significant challenges and has led to innovative solutions with respect to water management.

Throughout most of the 20th century water use in the state was governed by *The Water Act 1912*. This Act set out a framework for water management similar to the conventional water rights systems used in Canada and the U.S. However, this type of system was inadequate to deal with NSW's arid climate and rising population. By the 1990s, NSW had reached the limit of its water resources. New licences for commercial purposes could no longer be issued across most of NSW and a limit had been placed on the total volume of water that could be

75 RSO 543.265

76 For a good overview of hydro in Australia see the Clean Energy Council's hydro information page at <http://www.cleanenergycouncil.org.au/technologies/hydroelectricity.html> last accessed March 20, 2015.

77 Commonwealth of Australia, Australia Renewable Energy Agency, website on hydropower in Australia, online at <http://arena.gov.au/about-renewable-energy/hydropower/> last accessed March 20, 2015.

78 Clean Energy Council, online: <http://www.cleanenergycouncil.org.au/technologies/hydroelectricity.html>

79 Ean Higgins. (January 11, 2014) No Stomach for Selling Off Snowy Hydro. *The Australian.* Online at <http://www.theaustralian.com.au/news/no-stomach-for-selling-off-snowy-hydro/story-e6frg6n6-1226799383931> last accessed March 20, 2015.

80 Commonwealth of Australia, Australian Bureau of Statistics. Demographic Statistics, online at <http://www.abs.gov.au/ausstats/abs@.nsf/mf/3101.0/> last accessed March 20, 2015.

extracted inland.[81]

Overuse of water led to serious environmental damage such as loss of species, habitat loss, wetland decline, and poor water quality. NWS undertook a complete overhaul of its water governance legislation. In 2000 the *Water Management Act* was passed. This law established a completely new statutory framework for managing water in NSW.

The Water Management Act

The *Water Management Act* (WMA) is designed to provide for the sustainable and integrated management of the water sources of NSW for the benefit of present and future generations.[82] In particular, the WMA aims to apply the principles of ecologically sustainable development, to protect and restore water sources and their associated ecosystems, and to foster social and economic benefits that result from the sustainable and efficient use of water.[83]

Principles governing the WMA and its application include:

- protection of water sources;
- protection of plant and animal habitats;
- minimizing the cumulative impacts of licenses and approvals;
- maximizing social and economic benefits; and
- applying the principles of adaptive management.[84]

The main tool the WMA has established for this purpose is Water Sharing Plans. These Plans set out the rules for water allocation and use within a particular water source. The rules are designed to provide for the environmental needs of the river and the needs of water users. They include provisions for allocation between different types of water uses such as municipal, industrial, stock watering, and irrigation.[85]

The Plans must protect the water source and its dependent ecosystems and landholder water rights (in that order).[86] A Plan is generally in place for 10 years, but may be suspended from time to time under s. 49(a) of the WMA due to severe water shortages. In addition, the Plans may include priorities for allocating water in times of drought.[87]

The Office of Water is responsible for managing access to water and ensuring water is shared between the environment and various users. The Office of Water can appoint Management Committees to carry out specific tasks in water management areas.[88]

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81 For a backgrounder on the *Water Management Act*, visit the New South Wales Office of Water website at <http://www.water.nsw.gov.au/Water-management/Law-and-Policy/default.aspx> last accessed March 20, 2015.

82 *Water Management Act* 2000 (NSW), available online at: <http://www5.austlii.edu.au/au/legis/nsw/consol_act/wma2000166/> [WMA]

83 WMA s.3

84 WMA s.5

85 Rules may also include: environmental water rules, rules for granting “access licences” (similar to water right certificates in Canada and US), rules for water supply work approvals, rules for making available water determinations, and water allocation account rules. The rules also set out a framework for trading water within a water source.

86 WMA s. 5(3) and s. 9(b)

87 WMS s. 20(2)(d)

88 The committee must be made up of members from environmental protection groups, water users, local councils, and aboriginal persons, among others (WMA s. 13). Their task might include drafting management

The WMA provides extensive provisions for water management planning. Many of these are focused on preservation of source water quantity and quality. All management plans must include provisions for preservation of water, for monitoring and reporting, and for granting licenses and approvals.[89]

Murray-Darling Basin Authority

The majority of NSW's inland area is within the Murray-Darling Basin.[90] The Murray-Darling Basin Authority (MDBA) is an independent body that oversees the management of the area's water resources. It comprises of a Chair, Chief Executive and four part time members. The MDBA reports to the Minister of the Environment.[91]

In its current incarnation, the MDBA has authority delegated from state and national governments to undertake:

- multi-objective integrated watershed management; and
- comprehensive information management system and careful characterization of key system components and processes[92]

The MDBA is responsible for creating and implementing a basin plan. Water managers make flow decisions based on strategic objectives, system and resource constraints, modelled scenarios, and real-time information.

In 1995, the MDBA set a cap (an upper limit) on the surface water diversions for the entire Basin.[93] The two objectives of the cap were to:

- maintain and where possible improve existing flow regimes; and
- to achieve sustainable consumptive use by developing and managing Basin water resources to meet ecological, commercial and social needs.[94]

The cap was considered by "The Review of the Operations of the Cap" (2000) "as an essential first step towards achieving healthy rivers and sustainable water use."[95] It is managed on a valley basis and States are responsible for its implementation within their jurisdictions.[96]

The MDBA is responsible for auditing and reporting compliance with the cap. An independent Audit Group (IAG) annual audits the cap in every valley of the Basin.

The MDBA also produces and publishes each year a Water Audit Monitoring Report which compliments the IAG. This Report is meant to provide "a broader picture of Cap compliance, water use, accuracy of water use figures, climatic overview for the water year, water

plans (WMA s 15).

89 WMA s.17. See for example : State Water Management Outcomes Plan (WMA s.6); Environmental Protections Plan (WMA s8); Water Shortage Plans (WMA s 49A).

90 In North America a "basin" is normally referred to as a watershed.

91 For more information visit the MDBA website at <http://www.mdba.gov.au/>

92 It should be noted that much of this information is available in real-time display on their website. See for example: http://www.mdba.gov.au/river-data/current-information-forecasts

93 This was done as a result of a Report "An Audit of Water Use in the Murray-Darling Basin" (June 1995)

94 http://www.mdba.gov.au/what-we-do/managing-rivers/the-cap

95 http://www.mdba.gov.au/what-we-do/managing-rivers/the-cap

96 The rules are set out in Schedule E to the Murray-Darling Basin Agreement of the Water Act 2007

availability through allocations, off-allocations and water trading, storages losses, and groundwater uses."[97]

The Commission is advised by a number of project-specific boards and committees including:

- Commission Project Boards[98]
- Commission Committees[99]
- A number of technical panels, task forces, and working groups provide specialized advice to the Committees.[100]

One of the ways the MDBA differs from other processes is in their clear and consensus-based articulation of water asset values and requirements, risks exposures, and management objectives.

Licensing

A "water access license" entitled its holder to a certain amount of available water for a particular use. The WMA states that a licence cannot be granted unless the Minister is satisfied that arrangements have been made to ensure that harm to the water source has been minimized.[101]

The license may set conditions on the specific timing, rate, or circumstances in which water can be appropriated. Categories of licenses are set out by the regulations, each category corresponds with the type of use allowed or the water source and its condition. For example, the license may be for a regulated river, an aquifer, or an estuary; or it may be for a major utility, local water utility, or for livestock and domestic use.[102]

Licenses must also be in compliance with the area's management plan as well as any conditions the Minister may impose for environmental protection.[103] The WMA provides for a review of the license every five years to accommodate any population growth or changes in commercial activity.[104]

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97 http://www.mdba.gov.au/what-we-do/managing-rivers/the-cap

98 Usually made up of Commissioners or Deputy Commissioners, sometimes with members of the Community Advisory Committee. The boards oversee projects (e.g. Basin Salinity Management Strategy) contributing to key strategic directions. The boards are answerable directly to the Commission.

99 Whose membership is drawn from experts in the various aspects of natural resources management and other areas for which the Commission is responsible. Most committees include representatives from departments or agencies of each partner government and from the Community Advisory Committee. Some also contain experts drawn from universities, private companies and community organizations. In this way, the Commission brings together the best expertise available for the integrated planning and management of the Murray-Darling Basin's natural resources. The Commission currently has four standing committees: Water Policy Committee; Basin Sustainability Working Group; River Murray Water Board; and Finance Committee.

100 These include a Basin Salinity Technical Panel; Carp Control Co-ordination Group; Dryland Issues Working Group; Fish Working Group; Floodplain Planning Working Group; Groundwater Technical Reference Group; Operations and Maintenance Working Group, and similar groups.

101 WMA s.63 (2)

102 See WMA s.57 for a list of categories.

103 WMA s.66 (1)

104 WMA s.66 (3)

State of Victoria

The Water Act 1989 governs all of Victoria's water resources. This Act creates a sophisticated, adaptive system for allocating water and issuing entitlements. Parts of the Act are similar to conventional water rights systems found in North America, but the bulk of this statute sets out an allocation and use system that is much more complex than anything found in water rich countries such as Canada and the U.S. The Act's provisions cover management planning, environmental assessment, conservation, various types of water entitlements, and directions for administering the State's water resources through water corporations.

The water entitlement scheme is designed to balance the demands for water for consumption, the environment and other non-consumptive uses. Rather than setting out a simple licensing scheme, the Act creates various types of entitlements for public and private users. Many of these entitlements, or portions of them, can be bought and sold. Environmental protections include source water protection areas and “environmental water entitlements”, water allocated specifically for improving the health of aquatic ecosystems.

The water entitlement framework is administered at three levels:[105]

- the State Government retains overall right to the use, flow and control of all surface water and groundwater on behalf of all Victorians;
- the Minister for Water is responsible for granting entitlements to water (including environmental entitlements) and setting limits and caps; and
- individual rights and entitlements to water

There is only one provision in this Act which mentions hydroelectric power. That is s. 56(6) which states that licenses to hydro operations are provided on conditions set by the minister for a term of 15 to 40 years. Hydropower is also governed by the *Electricity Industry Act*, but this statute does not have any provisions related to water governance.

Lessons on water governance from Australia

Strong integrated water management approach

The New South Wales Department of Land and Water developed a strong integrated water management approach with clear and transparent criteria for prioritizing domestic and commercial water use.[106] The IWMA is expected to benefit the local environment, community and economy.

Sustainability Principles

Given its constrained water resources, Australia has had to create innovative solutions with respect to water management. For example, the New South Wales’ *Water Management Act*

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105 For more information visit the state of Victoria's website on water management at <http://www.depi.vic.gov.au/water/governing-water-resources>.

106 Scheider P et al, “Integrated water cycle planning for towns in New South Wales, Australia” (2003) Water Sci Technol 47 7-8; 87-94

(WMA) integrates sustainability principles as it is designed to provide for sustainable and integrated management of water sources for the benefit of present and future generations.[107] The WMA explicitly states that it aims to protect and restore water sources and their associated ecosystems to foster social and economic benefits resulting in more sustainable and efficient use of water.[108]

Adaptive Management

The WMA indicates that one of the principles governing the Act and its application is adaptive management.[109] New South Wales created a "water sharing plan" which is generally in place for 10 years and guides them with the adaptive management principle.

The WMA provides a review of water licences every five years to accommodate any population growth or changes in commercial activity.[110]

Extensive principles integrated in legislation

The WMA provides extensive provisions for water management and planning. Many of these are focused on preservation of source water quantity and quality. All management plans must include provisions for preservation of water, for monitoring and reporting, and for granting licenses and approvals.[111]

Annual audits

In order to maintain the flow, the Murray-Darling Basin Authority created a legislated upper limit cap on the surface water diversion for its entire Basin. Every year an Independent Audit Group provides audits of the cap.

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107 *Water Management Act* 2000 (NSW), available online at: <http://www5.austlii.edu.au/au/legis/nsw/consol_act/wma2000166/> [WMA]

108 WMA, s. 3

109 WMA, s. 5

110 WMA, s. 66(3)

111 WMA s.17. See for example : State Water Management Outcomes Plan (WMA s.6); Environmental Protections Plan (WMA s8); Water Shortage Plans (WMA s 49A).