OREGON'S SMALL HYDRO WORKING GROUP - Meeting #1
Summary of Meeting October 23, 2008
Sunriver, Oregon

Approximately 40 participants attended the half-day meeting, another approx. 10 people joined via phone link.

I. Hydro Overview/Summary

Mary Grainey, Oregon Water Resources Division, presented an overview of the hydro process in Oregon.

Some points made (with additional reference information added):

- Since 1909 – all waters are State waters and any beneficial use must go through the State.
- An Oregon water right is necessary for a hydro project; Must apply for hydro even if you have one for water use (for example, adding hydro to an irrigation right)
  - Cannot just "use" the water
  - Must evaluate environmental consequences – such as fish impacts.
- Water rights process requires OWRD to issue an order on potential for cumulative impact along with other existing, approved, or proposed project within the basin. Each approved project has to go through a contested case hearing.
- Major FERC documents: Preliminary document, study plans, draft application, final application, fish and wildlife terms and conditions (10(j)), environmental assessment, water quality certification (section 401), consultation on ESA
- About FERC exemptions – to add hydro to existing water right:

  This means that the exemption is not subject to the comprehensive development standard of FPA Section 10(a)(1); mandatory conditions under FPA sections 4(e) and 18; eminent domain authority of FPA section 21; and so forth. 16 USC 823A; 16 USC 2705, 2708
  - FERC small conduit exemption to 15 MW (up to 40 MW in some cases)

    The facility cannot occupy federal lands. The conduit is not a project work. Applications for exemptions of small hydroelectric conduits are categorically exempt from the requirement to prepare an EA or EIS.
  - FERC 5 MW (max) exemption (See Appendix 1)

    install or add capacity to a project located at a nonfederal, pre-1977 dam, or at a natural water feature. If *only federal lands are involved,* any applicant is eligible. If *some federal lands are involved*, any applicant who has all the real property interests in the nonfederal lands necessary to develop and operate the project or an option to obtain the interests is eligible. 18 CFR 4.31(c)(2)
- 4 reasons to need a FERC license:
  - Federal dam
  - Federal land
  - Navigable river
  - Interstate commerce
- Some theoretical calculations – Emphasis on "Theoretical":

Theoretical Horsepower (THP) = $\frac{\text{HEAD (feet) x FLOW (cfs)}}{8.8}$

Theoretical Kilowatts (TkW) = $\frac{\text{HEAD (feet) x FLOW (cfs)}}{11.81}$

- FERC does not pre-empt Oregon water rights.
- Oregon has set up a process that parallels FERC procedure for issuing water rights. Benefit of having a state process, parallel to FERC process, is that state has responsibility to manage water resources. Gives public opportunity to provide input close to home, includes coordination with other state agencies, and can be accomplished in parallel with FERC process using application and study documents prepared for FERC.
- Most of paperwork that's submitted to FERC is also applicable to Oregon water rights review.
- OWRD has minor hydro application process and application for developing hydroelectric as part of on existing water right. Can find information on their website under Water Right Application Forms: http://www.wrd.state.or.us/OWRD/PUBS/forms.shtml.
- For smaller projects – folks fill out minor application, then OWRD coordinates the necessary Agencies to do site visit and invites comments from group of agencies. OWRD does technical report that says where the project is and what they think the conditions will be.
- Most of Oregon's micro and small hydro projects are not connected to the grid.
- Must consult with a variety of agencies on water right applications for hydro. Have to be aware of a variety of other standards, i.e water quality, fish and wildlife, plants, cultural resources, land resources/land use, safety, and economics/need for power.
- Oregon Department of Fish and Wildlife has very important role providing project review for protection of fish and other resources, and making recommendations to FERC on fish and wildlife conditions.
- Natural resource standard provides exemption for modifying existing facility in a manner that can be shown to restore, enhance or improve anadromous fish populations within the river system.
- DEQ has special responsibility under CWA to meet clean water standards, so they have responsibilities related to dissolved oxygen, sedimentation, etc. (401 certification)
- Oregon has several projects are in the pipeline right now.
- Dorena just got their FERC license during the past week (Oct 2008).
- We can expect to see a lot about pumped storage in the next few years.

QUESTIONS/DISCUSSION:

4 reasons why you would need FERC license: river has been deemed navigable, constitutes interstate commerce, on federal facility, or federal land. Interstate commerce is what catches most people – if you're tied into the grid.

What about cumulative impact of hydro projects that are in irrigation district system? Still have to go through process, build case of no effects based on fact that it's part of an existing system.

What about sewage outfall hydro projects – do they need a water right? Haven't been run by AG yet, but answer is probably still yes.

Definitions "small scale" and "micro-hydro" – economics – less than 100 kW

Barriers to small hydro development?
Hydro projects less than 200 kW get a different treatment in the standard offer contract with the PUC.

Environmental vs. economics

Ultimately, there is a barrier to bringing in tiny systems to a big system. ODOE is proposing in the next Legislative session to make small hydro eligible for residential tax credit program so there is some funding to offset costs.

Jan – given that council does not allow new diversions, where are new opportunities for micro hydro development? There are opportunities way up high in the systems. OWRD takes ODFW way up in systems to survey for fish. There are also opportunities where people are basically taking water off the hillside before it goes into a defined stream, or tributary to a fish bearing stream.

When OWRD gets applications for new minor projects, they do send a notice to the power council.

II. Low-Impact Hydroelectric Institute (LIHA) – Fred Ayer, Executive Director

LIHI is a non-profit; incorporated in 1999. Formed by American Rivers, Green Mountain Energy & CRS Green Energy. Purpose – provide market incentive to reduce impacts of hydro generation, provide credible standard for consumers, through Hydropower Certification Program. Size of a project is not the template for whether is hydro project is "good" or "bad".

In order to be certified by the Institute, a hydropower facility must meet criteria in the following eight areas:

1. river flows,
2. water quality,
3. fish passage and protection,
4. watershed protection
5. threatened and endangered species protection,
6. cultural resource protection,
7. recreation, and
8. facilities recommended for removal. (from LIHI website)

They ask folks to contact them, discuss a filing, and without charging them anything, they have them complete a questionnaire and look for red flags. They would rather ID folks that don't meet their criteria before they apply. They charge a fee based on generation. For a long time,

lowest fee was $2500, but added a new lower fee at $1600. Have also added an annual charge at 15% of original fee.

Other points made:

- If you're in a FERC relicensing and come to them, you have already completed a lot of the process they ask you to do.
- Costs: range from $1600 to $50,000, annual fees are from $240 to $8000. Cost of putting application together depends on how well organized they are, they can use consultant or attorney, or do the work themselves. He is looking for substance rather than style.
- If you were certified before 2006 you don't have to pay an annual fee until your certification comes up for renewal.
- Falls Creek Hydro project perspective – Recertified a year ago and have sold RECs on a 5-year contract. If you have this certification it's worth it. They are putting this money back into the plant to extend the life of the plant.
- Only 2% of hydro plants in the country have been certified by LIHI.
- What is the smallest project? 800 kW, 1400 kW, 250 kW. Haven't done any in the 100 kW or under class.
- If small hydro developers have kept good records, it should be easy for them.

QUESTIONS/DISCUSSION

Question – recreational development. Small hydro developers incur big liability if they try to develop recreation in tandem with small hydro project. One way to deal with this is make case that it will be dangerous to develop recreation at facility. One small tribal project put buffer zone around their project.

Are there any certified projects that are part of existing conduits? Not right now. LIHI has received several calls since beginning of year from water supply folks.
fayer@lowimpacthydro.org, phone (207) 773-8190

$3 per MWh to sell RECs. One problem with selling RECs – you need to have them reported to WREGIS for them to be viable in the future.

They also have some project developers selling on the voluntary market, i.e. to universities that want green power.

Low impact rule – will take to renewable energy working group, talk with them about it, start rulemaking process, have a workshop discussion to get into some of this detail. A lot of folks are getting hung up on parameters in legislation. If you're not a utility, it doesn't matter if you're certified. There are different places to go to get value out of this.

Question – interpreting parts 4 and 5 to conclude that only facilities owned by a utility qualify for the RPS? If you're 1995 or later, you don't have to be part of the utility to qualify for the RPS. Also, if you're not part of the utility, you don't have to be LIHI certified to qualify for the RPS. If you've got a facility that started operation after 1995, you don't have to be utility

owned. To qualify for RPS, that means able to generate RECs that a utility could use to comply with the RPS.

Water districts are interested in legislative concept to move date back to 1990 – that would bring on another 6 or 7 MW of irrigation district projects.

If you are producing RECs that qualify in a system, in Oregon, you can sell to utility and they might want to purchase your power and RECs together. Their green power programs have to use WREGIS for their accounting.

III. Open Discussion – Comments; Questions; Perspectives

Can FERC delegate their process to the states? In Hawaii, you have to petition FERC to become involved – the state has their own process. Symbiotics has a project in Hawaii under 10 MW.

FERC has two processes. One is a licensing process where FERC is in control of the license and makes the decision whether license should be granted. Other type is an exemption project smaller than 5 MW. As long as get approval from other agencies, don't need a FERC license, will be granted an exemption. Often it's the Forest Service.

On a smaller project, if it's the streamlined process (18 mo to 2 years rather than 3 years) can get an exempt project. Advantage of an exempt project is that it lasts forever, whereas the FERC license only lasts 50 years or so.

Can FERC enter into delegation agreement with states for hydro projects? If so, is there a way to make the process easier by doing this? We have new law at state level for in-conduit projects to get conduit exemption, can we do same thing at federal level?

Concern about exemptions being transferred to the state – could state come up with quick turnaround on approval process?

Not sure that FERC can delegate its authority, or if they would be willing to. However, once you're in to the exemption process, it's not to onerous. There is a process involved in getting the exemption from FERC and you have to submit a description of the project, how it will operate, etc.

There is a big difference between a conduit exemption and any project under 5 MW.

Does FERC want to be involved in minor stuff or do they see it as a hassle?

Pendleton is tied up in conduit exemption process which could be made simpler. Started to look at project 5 years ago, bill passed in 2007 made state process easier, started 6 mo to a year ago to put a project together, now have everything together and it went to FERC,

Question – why does FERC regulate net-metered projects as interstate commerce? If you're in an export position as a grid-tied facility, utility may export electricity out of state. Once it's on the grid it could go out of state.

In FERC's new integrated licensing process, you could theoretically have a license for that project in 4 years. 4-5 years is much faster than the traditional process.

Energy Trust is involved with a lot of projects 20-30 kW or smaller. Very happy with state process. Does FERC really care about these projects? In certain circumstances, could there be a MOA with FERC and Oregon that would allow the state to take care of it and file the paperwork with FERC? Volume of small projects may increase and FERC may want an opportunity to get out of this responsibility.

It would be helpful if folks kept track of their costs on the permitting paperwork for different size projects. Energy Trust will work with folks to track some of that information. Would there be some advantage to sharing paperwork? You could provide examples of projects that have already been approved.

NW Hydro Association/Swalley asked for examples from FERC staff in WDC of good conduit exemptions and they provided some.

IV. Interconnection discussion and comments

New contract for less than 200 kW – went through process with OPUC called UM1129 which took about 3 years. Have developed some good tools to get through power purchase agreement process for projects that are 10 MW or less – they can complete an agreement in about 90 days.

Easier to get through power purchase agreement PPA than interconnection. Have pretty stringent process to go through to evaluate, study and look at potential impacts to the system, what equipment needs to be replaced. Start on interconnection stuff 18 months before you want to start generating power. Study process can last 9-12 months, up to 3 studies to look at impacts of generation study. Costs are really varied – depends on equipment, location of substation, whether single or three phase power, $150,000 to $750,000 to do the interconnection. They ask for $27,000 deposit on study. Size range is anywhere from 2 kW to 6-7 MW.

PUC has open docket on interconnection issues.

An Irrigation District had a lot of trouble finding out what interconnection costs would be when they were looking at hydro projects. They asked for an application before the utility would give them a cost estimate, but they weren't prepared to submit an application yet, they just wanted to know whether project was economically feasible or not.

It would be really helpful if the utilities would provide some basic information, i.e. is there 3 phase power or single phase power, is line heavily or lightly loaded, etc.

However, Pacificorp, for example, reports that they are limited on what they can provide a developer before they receive an application. All PacificCorp needs is a $1000 at first, and they can put together a scoping meeting.

V. Closing Remarks

The Small Hydro group should try to meet every 3 or 4 months. ODOE will coordinate this, and attempt to hold phone and/or webinar meetings to facilitate participation and reduce travel costs. Recommendation was made for face-to-face meeting at least once each year. Perhaps to be rotated through various parts of the State, as possible.

ODOE and ETO will follow up with the utility interconnection discussion points to determine ways/avenues to ease the difficulty and costs of small project interconnection.

ETO will be able to provide hydro market assessment study results, particularly for Clackamas County research, in the near future.

Evaluate ODOE's ability to handle ongoing posting of hydro-related questions and open discussion on their website.

Appendix 1 – From FERC's Hydropower Handbook http://www.ferc.gov/industries/hydropower/gen-info/handbooks/licensing_handbook.pdf

6.2 Obtaining an Exemption

The procedures for applying for an exemption, including pre-filing consultation, are the same as those described for a license (see chapter 2, section 2.3), with the following specific exceptions:

! An applicant has less time (up to 45 days instead of 90) to correct any deficiencies in the application.
18 CFR 4.32(e)(1)

! Exemption orders for 5 MW or less exemptions are typically supported by an EA and seldom require an EIS.

! Procedures for post-filing consultation among the Commission, fish and wildlife agencies, and Indian tribes are distinct for exemption applications. All timely fish and wildlife recommendations under 30(c) of FPA are mandatory.
18 CFR 4.94; 18 CFR 4.105;18 CFR 4.34(g)

The applicant is required to submit a fee accompanying the application to reimburse fish and wildlife agencies for costs incurred in connection with their review of the application pursuant to section 30(e) of the FPA. 18 CFR 4.302

The procedures for filing competing exemption applications are the same as those for competing licenses (see chapter 7).

6.3 5 MW or Less Exemptions

This section describes aspects of the regulations that pertain specifically to exemptions for small hydroelectric projects of 5 MW or less. 18 CFR 4.101

6.3.1 Application Content

An application for exemption for a small hydroelectric project of 5 MW or less must include the following:

! Introductory statement.

! Exhibit A describes the small hydroelectric project and its proposed mode of operation.

! Exhibit B provides a general location map that must show the location of the physical structures and their relationship to the water body and identifiable landmarks, land ownership information, and a proposed project boundary.

! Exhibit E, or a draft preliminary EA if using an alternative

process, is the environmental report and must reflect prefiling consultation requirements. Commensurate with the scope and degree of environmental impact, it must include a description of the project's environmental setting, the expected environmental impacts, and proposed measures to protect the environment.

! Exhibit G is a set of drawings showing the project structures and equipment.

! Identification of all Indian tribes potentially affected.

! Appendix containing evidence that the applicant has the necessary real property interests in any nonfederal lands. 18 CFR 4.107

! Fish and wildlife agency reimbursement fees must accompany filed applications. 18 CFR 4.302

6.3.2 Development of Terms and Conditions

The procedural steps for a 5 MW or less exemption application are essentially the same as those that govern applications for license, including the three-stage consultation process or alternative licensing process. See chapters 4 and 5 for descriptions of the procedures, from initial actions through the public notice declaring the application ready for environmental analysis. After completion of the EA, the procedural steps for an exemption application differ from those for a license application.

The Commission must include those terms and conditions that the fish and wildlife agencies determine, in a timely manner, are appropriate to prevent loss of, or damage to, fish and wildlife resources. 18 CFR 4.34(f)(2)

Deadlines and procedures for filing comments and terms and conditions are the same as those that govern license applications (see chapter 2).

The Commission then prepares an EA and determines whether an exemption is to be granted. In granting an exemption from licensing, the Commission will impose certain standard terms and conditions (see 18 CFR 4.106)and may set additional non-standard terms and conditions. 18 CFR 4.105(b)(2)

If the exemption application is dismissed, the process is terminated. There is no opportunity to convert the exemption application to an application for license.