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June 3, 2014

MEMORANDUM

TO: Power Committee

FROM: Gillian Charles, Energy Policy Analyst

SUBJECT: Pacific Northwest Hydropower Potential Scoping Study

In April 2014, the Department of Energy released a hydropower potential assessment that cited almost 85 gigawatts of developable hydropower in new stream reaches in the United States. The largest potential was found to be in the Pacific Northwest with about 25 gigawatts identified. To put this number in perspective, the region's current hydropower nameplate capacity is around 33 gigawatts.

This assessment is the latest of several studies that have been performed at the national and regional level over the past decade. The studies vary in scope and objective and the methodologies used to determine potential. While this latest study focuses on new stream reaches, other studies have looked at potential at existing non-powered dams, upgrades at existing hydropower facilities, and varying size, site or region-specific assessments. In addition, the studies use various parameters and screens to narrow down and define potential. For example, some studies may exclude hydropower potential located within the region's Environmental Protected Areas, while others may only exclude potential found in federally designated wilderness and protected areas.

As a result, there are a wide range of estimates of hydropower potential for the Pacific Northwest. While these estimates are often based on physical potential, they do not always take into account environmental impacts and cost-effectiveness.

The last major regional hydropower potential assessment undertaken by the Council was developed for its Fourth Power Plan. The Council's Sixth Power Plan cited the Fourth Plan and included an analysis of reported costs of recently developed projects, and identified the need for an updated assessment in its action plan.

Therefore, Council staff is proposing to issue a request for proposals for a regional hydropower potential scoping study. The selected consultant will review in detail the existing studies and develop a matrix that categorizes and defines how each study determined its potential (scope, parameters, screens) and establish if a reasonable assumption for physical hydropower potential in the Pacific Northwest can be drawn. Council staff will use the Generating Resources Advisory Committee (GRAC) and hydropower subgroup to review the results of the scoping study and recommend next steps.

One result of this initial scoping study may be a subsequent study where further analysis is performed to determine the cost-effectiveness and environmental feasibility of the physical hydropower potential identified.

Staff anticipates the scoping study will take about three months to complete and is therefore hoping to have results to present to the Council by November. The overall budget is estimated to be between \$20,000 and \$25,000. Power Planning Division staff will oversee the scoping study, with participation from the Fish & Wildlife Division including to ensure the Council's designation of protected areas is properly reflected.



Pacific Northwest Hydropower Potential Screening Study

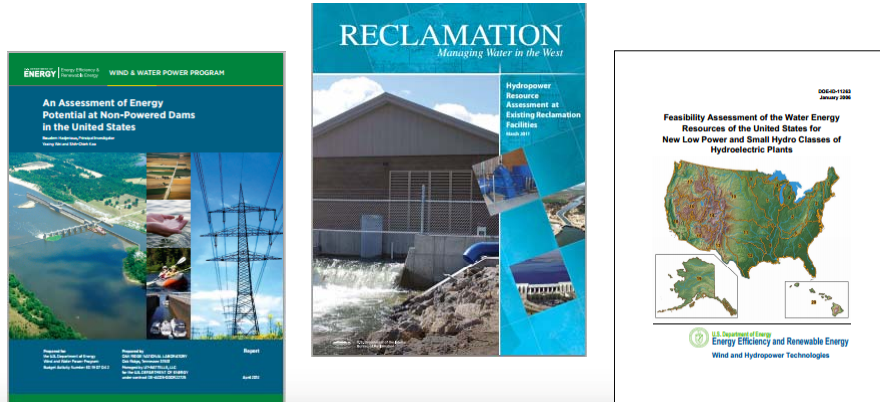
Gillian Charles
Power Committee
6/10/14

Overview

Staff is proposing the release of an RFP for a hydropower potential scoping study

- **Several high profile assessments have been conducted recently that identify large quantities of hydropower development potential in the PNW**
- **Scoping study to review and inventory assessments and determine if realistic estimate for region can be drawn**

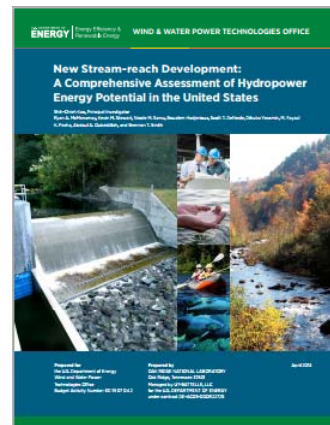
Hydropower potential studies at both National and Regional level over past decade

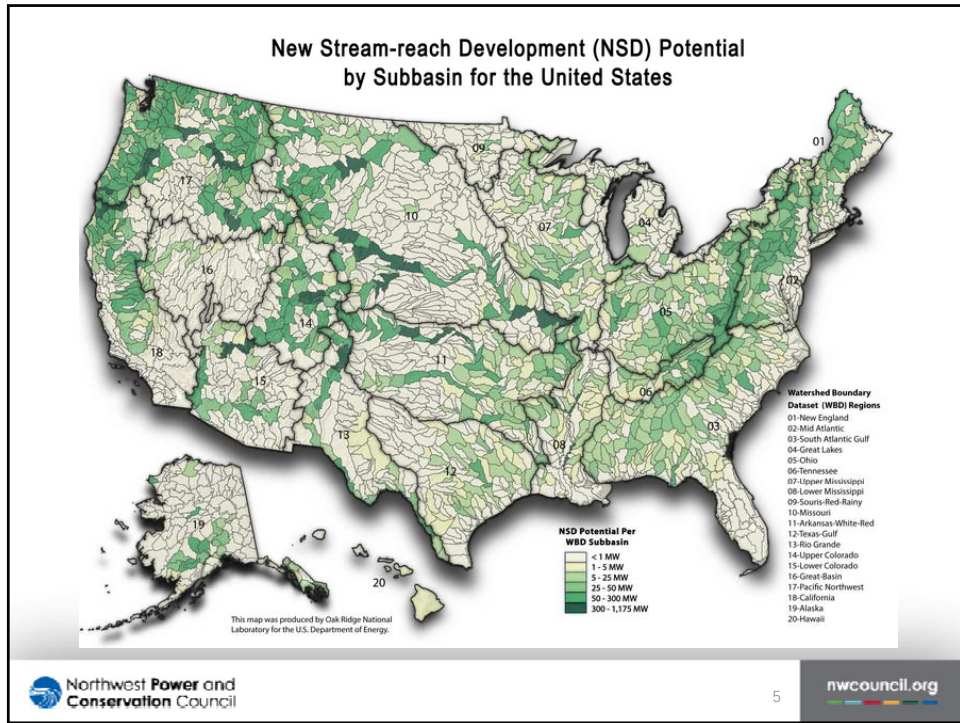


Latest Hydropower Potential Study Creating a Buzz

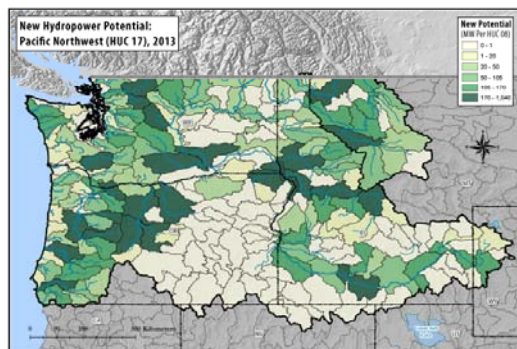
2014 DOE study on undeveloped stream reaches

- 84.7 GW undeveloped hydropower capacity in the US
- Highest potential found in the PNW (~25 GW)



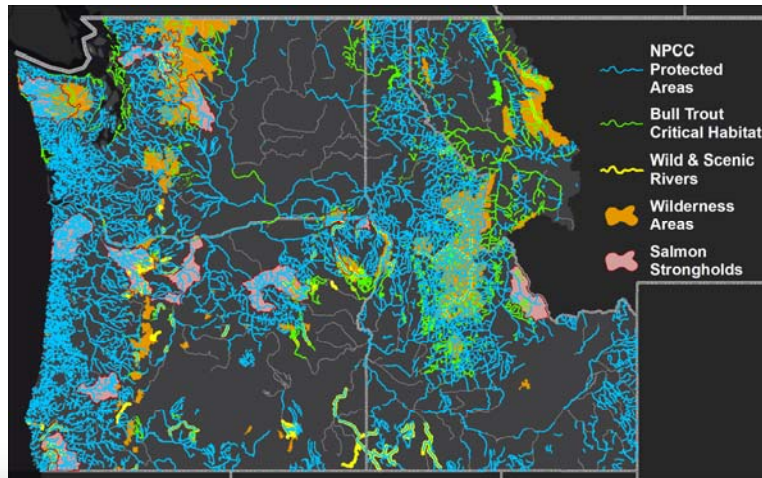


Study claims that PNW has ~25GW
new stream hydro potential



- ~ 16 GW Potential in undeveloped stream reaches >1 MW
- ~ 9 GW Potential in undeveloped stream reaches <1 MW
- ~33 GW Current existing hydropower in the PNW

Environmental Protected Areas



Are these assessments realistic?

- **Most of these studies determine only physical potential**
 - Include a high level screening of constraints due to environmental, political, legal factors
- **Other factors to consider:**
 - Pacific Northwest Environmental Protected Areas and critical habitats
 - Cost-effectiveness
- **Can we determine an estimate of hydropower potential for the Pacific Northwest from these studies?**

Council Scoping Study Objectives

- Hire consultant to review inventory of recent studies and reports, characterize parameters used to determine potential, and draw conclusions
- Determine if reasonable assumption for hydropower potential in the PNW can be drawn from the various reports
 - Focus on new stream reaches, opportunities at existing non-powered dams, and upgrades at existing hydropower facilities

Preliminary Schedule

- June 10 - Present proposed study to Power Committee; release RFP
- Mid-July – Select consultant; kick-off meeting
- October/November – Conclude study; present results to GRAC; present to Council and determine next steps