



Energy Commission Study of British Columbia Run-of-River Hydroelectric for California's Renewables Portfolio Standard

**WebEx Workshop
February 24, 2012**

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California Energy Commission**



Workshop Overview



- Workshop Goals:
 - Share preliminary areas of consideration that staff plans to address in the study.
 - Develop any additional considerations based on information and comments from stakeholders to further guide the study.
- Agenda 1:30 – 4:00
 - Presentation by Energy Commission staff
 - Comments by phone-in participants
 - Comments from online participants via WebEx (raise hand)
 - Final comments by phone-in participants
- WebEx will be recorded and posted on Energy Commission website
- Encourage written comments submitted by March 2nd

Senate Bill 1X-2 Directs BC Hydro Study



The California Renewable Energy Resources Act (SB 1X-2) accelerated the increase in the amount of electricity from eligible renewable energy resources per year so that it equals 33 percent of total retail sales by December 31, 2020.

- This new statute directs the Energy Commission to study and provide a report to the Legislature that analyzes run-of-river hydroelectric generating facilities in British Columbia and whether they are, or should be, RPS-eligible.
- The Energy Commission must consider the effect that inclusion of these resources as RPS-eligible would have upon:
 - Emissions of carbon dioxide and other greenhouse gases.
 - Emissions of air pollutants.
 - Water quality, recreation, and fisheries.
 - Any other environmental impact caused by run-of-river hydroelectric generating facilities.

World Perspective – We're not alone!



Governments throughout the world are focusing energy policy strategy to address the following goals:



- Reduce and mitigate climate change impacts (pollution, GHG)
- Support economic growth & competitiveness
- Strengthen energy security by reducing dependence on oil
- Eliminate fuel poverty by diversifying with environmentally-friendly resources

CA's Advocacy for Renewable Energy



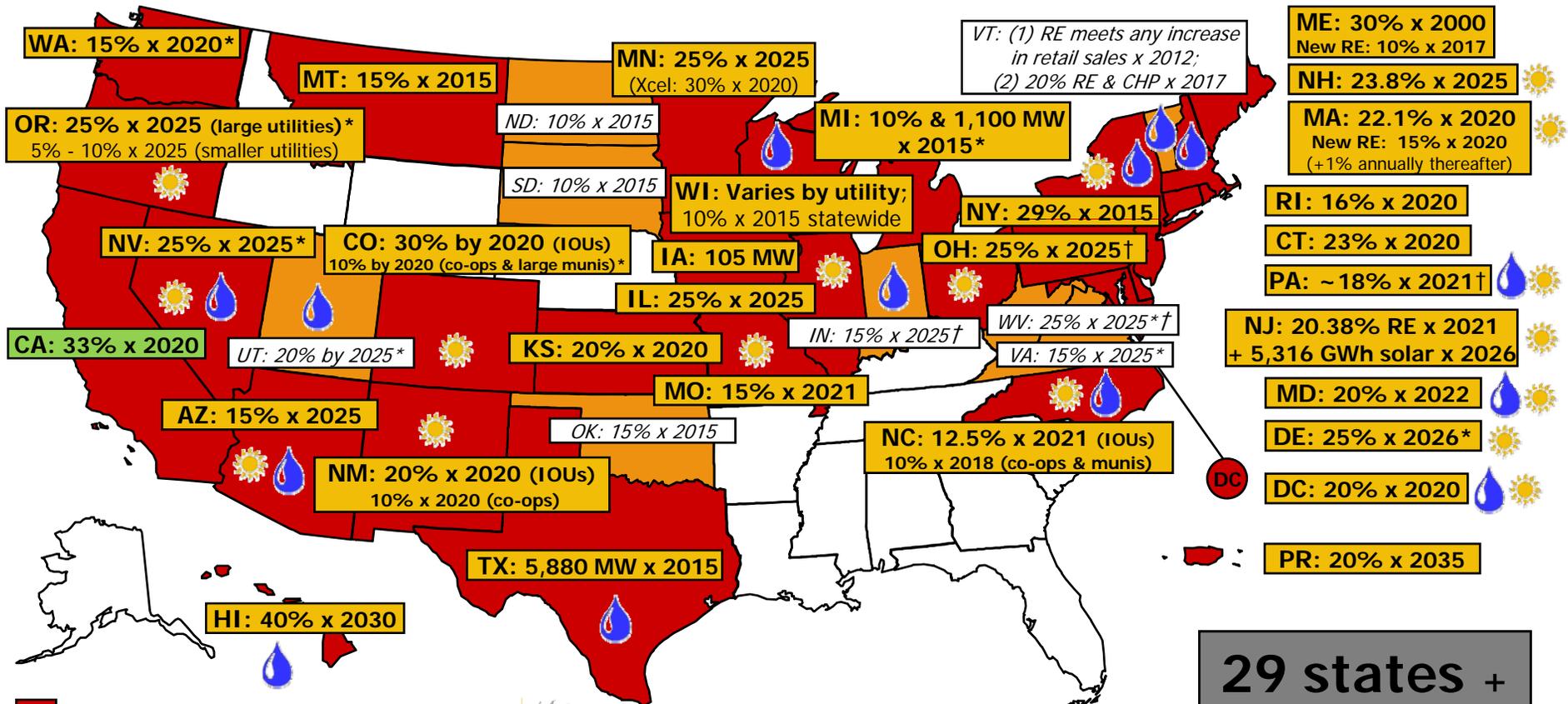
California has made electricity generation from renewable resources a priority since the 1970s

- The 1970s oil crises gave rise to concerns over dependency on fossil fuels and resulted in the passage of federal legislation, the Public Utility Regulatory Policies Act (PURPA) of 1978, which provided guidelines to support growth of nonutility power producers. In California, many of these independent generators were renewable. PURPA was aggressively implemented in the early 1980s.
- From its peak in the early 1990s, renewable generation declined amid market uncertainties.
- In 1996, AB 1890 placed a surcharge on electricity sold by investor-owned utilities to be used to fund public interest programs, including renewable energy.
- The Energy Commission designed the **Renewable Energy Program**, a financial incentive mechanism to support renewable development in a market environment.
- This method for supporting renewables, however, was impacted by the energy crisis of 2000 and 2001 and led to the creation of the **Renewables Portfolio Standard** in 2002.

State Renewables Portfolio Standards



California's RPS Goal for New Renewable Generation is the Most Aggressive in the Country



Renewable portfolio standard

Renewable portfolio goal

Solar water heating eligible

DSIRE: www.dsireusa.org

Minimum solar or customer-sited requirement

* Extra credit for solar or customer-sited renewables

† Includes non-renewable alternative resources

29 states + DC and PR have an RPS
(8 states have goals)

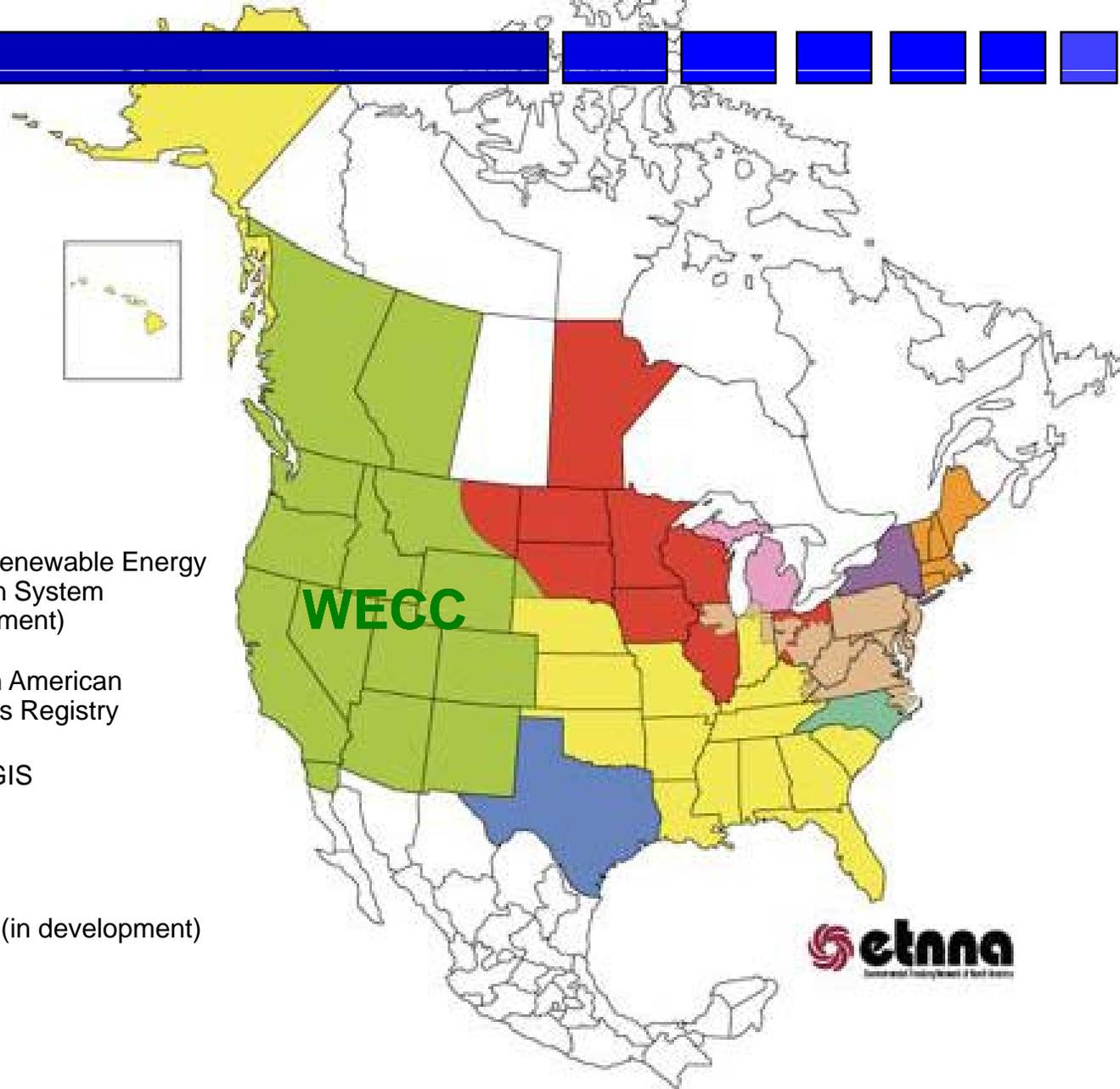
June 2011

Attribute Tracking Systems

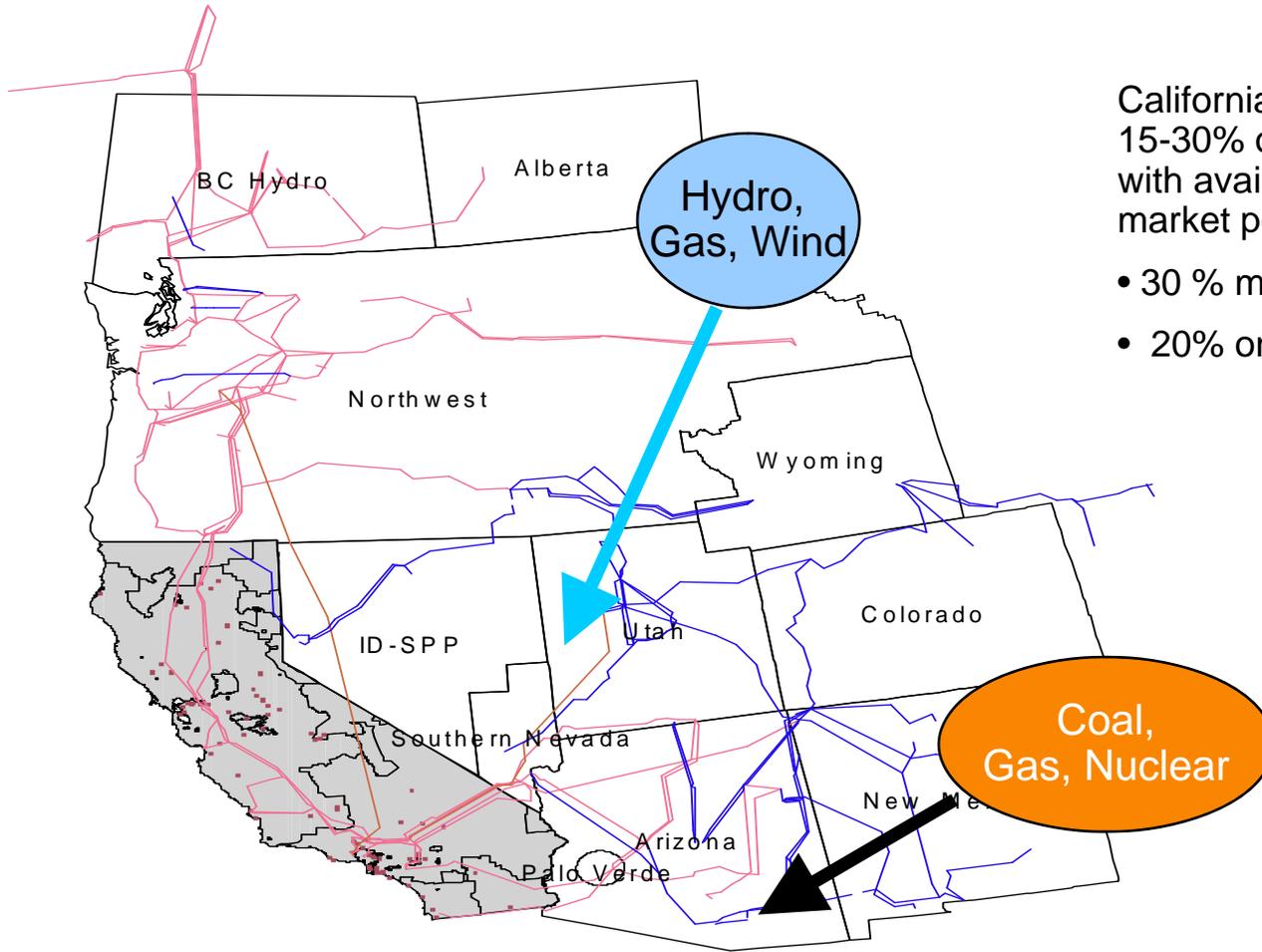


KEY

-  ERCOT
-  M-RETS
-  Michigan Renewable Energy Certification System (in development)
-  NAR: North American Renewables Registry
-  NEPOOL-GIS
-  NC-RETS
-  NYSERDA (in development)
-  PJM-GATS
-  **WREGIS**



The Interconnected Western Electric Grid



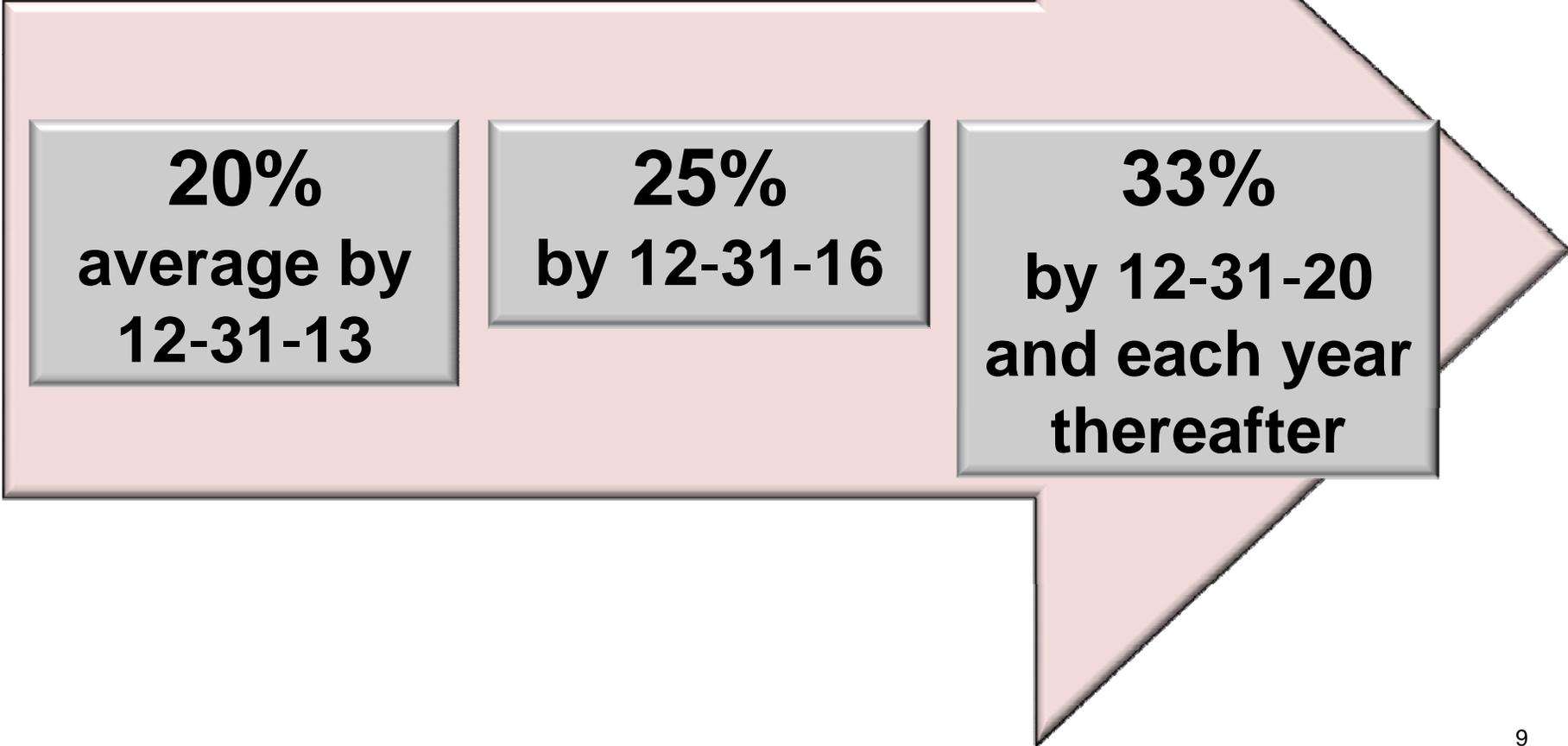
California has historically imported 15-30% of its electricity, fluctuating with availability of surplus spot market power.

- 30 % most days
- 20% on peak days

33% RPS by 2020 Codified in April 2011



Senate Bill 1X-2
Retail sellers and POU's are to adopt these RPS procurement goals:





California's RPS Eligible Resources



- Biodiesel
- Biomass
- Conduit hydroelectric
- Digester gas
- Fuel cells using renewable fuels
- Geothermal
- Hydroelectric (incremental generation from efficiency improvements)
- Landfill gas
- Municipal solid waste (limited)
- Ocean wave, ocean thermal, tidal current
- Photovoltaic
- Small hydroelectric (30 MW or less; up to 40 MW for water supply or conveyance systems that were under contract in 2005)
- Solar thermal electric
- Wind



California's RPS Eligibility Requirements



All facilities must:

- Be located in California or near the border with a first point of interconnection to a California balancing authority area
or
- Satisfy the out-of-state or out-of-country eligibility requirements.
 - Have the first point of interconnection to the transmission system network outside the state, but within the WECC service area.
 - Facility commences initial commercial operations in or after 2005.
 - Facility does not cause or contribute to any violation of a California environmental quality standard within California.
 - If located outside the United States, the facility is developed and operated in a manner that is as protective of the environment as would a similar facility be if it were located in California.
- Facilities using biodiesel, biogas, biomass, small hydroelectric or conduit hydroelectric, municipal solid waste (MSW) resources, or fuel cell technologies, must meet fuel-specific requirements.

Initial Outreach



Consultation with governmental entities.

Energy Commission staff has engaged in consultations with interested organizations and governmental entities, in order to better understand British Columbia's:

- regulatory processes and permitting requirements for run-of-river projects
- regulations/ monitoring and reporting.

This workshop continues and extends our outreach and information gathering process.

Preliminary Areas of Consideration for Study



Permitting and Licensing

- Regulatory considerations for run-of-river projects in B.C. include:
 - Environmental Assessments are required only for projects that are greater than 50 MW;
 - B.C. Strategic Land and Resource Plans and Management Plans for Crown land are meant for forest management and not run-of-river projects;
 - Local agency involvement and approval may be limited.

Preliminary Areas of Consideration for Study



Impact Analysis

- Run of river projects may cause a variety of impacts
 - Construction impacts;
 - Water levels/ water diversion impacts;
 - Fish and wildlife habitat impacts;
 - Fish migration impacts;
 - Cumulative Effects Analysis.

Preliminary Areas of Consideration for Study



Construction Impacts

- Emissions of air pollutants and greenhouse gases;
- Direct harm to species and sensitive species habitat;
- Erosion and spread of invasive species;
- Local socioeconomics.

Preliminary Areas of Consideration for Study



Fish and Wildlife

- Penstocks, powerhouses, transmission lines and access roads may affect terrestrial environments and wildlife movement/ mortality;
- Water levels/ water diversion impacts;
- Fish and wildlife habitat impacts;
- Fine sediment accumulation and sediment movement can cause downstream effects;
- Fish migration impacts;
- Cumulative Effects Analysis.

Required Considerations



Effect that inclusion of these resources as RPS-eligible would have upon:



Brandywine Creek
Photograph by Run of River Power Inc.

- Emissions of carbon dioxide and other greenhouse gases.
- Emissions of air pollutants.
- Water quality, recreation, and fisheries.
- Any other environmental impact caused by run-of-river hydroelectric generating facilities.



Comments & Next Steps

- Written comments are due March 2, 2012
- Include “Docket #11-RPS-01” and “RPS”
- Submit comments to BOTH:
 - docket@energy.ca.gov
and
 - RPS33@energy.ca.gov
- Next Steps:
 - Staff draft report released spring 2012
 - Energy Commission workshop to follow
 - Final draft report for Energy Commission adoption late spring/ early summer 2012



Thank You for your Time

Contact Information

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