

Bruce A. Measure
Chair
Montana

Rhonda Whiting
Montana

W. Bill Booth
Idaho

James A. Yost
Idaho



Dick Wallace
Vice-Chair
Washington

Tom Karier
Washington

Melinda S. Eden
Oregon

Joan M. Dukes
Oregon

September 8, 2010

MEMORANDUM

TO: Power Committee

FROM: Jeff King

SUBJECT: Overview of small hydropower development

At its September meeting, the Council will have the opportunity to tour two new small hydropower projects. These are the 3.3 megawatt Juniper Ridge project by the Central Oregon Irrigation District (under construction and scheduled for completion in October), and the 0.75 megawatt Ponderosa project by the Swalley Irrigation District (completed in May, 2010). Both projects are "conduit" hydroelectric projects using existing diversions and flows to produce power from formerly dispersed energy.


Though relatively little new hydropower has been developed in the Northwest for many years, financial incentives, relaxed licensing requirements for certain types of projects and state renewable portfolio standards are driving an increased rate of development in recent years. Staff will provide a brief overview of recent hydropower development in the Northwest and review some of the factors contributing to this activity. The presentation is attached.

Northwest Power & Conservation Council
Power Committee

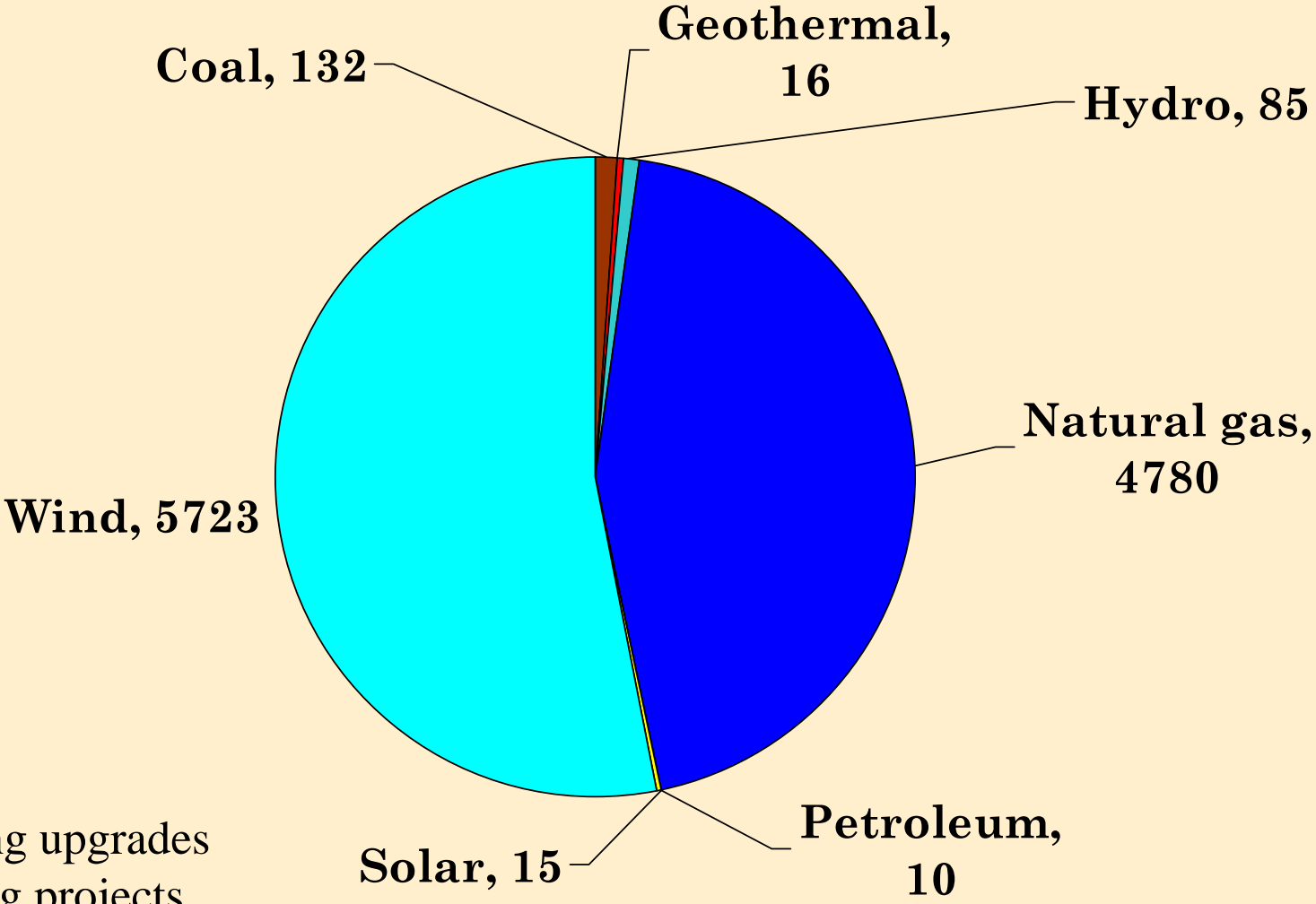
Hydropower Development Activity

Jeff King
September 21, 2010

New hydropower potential

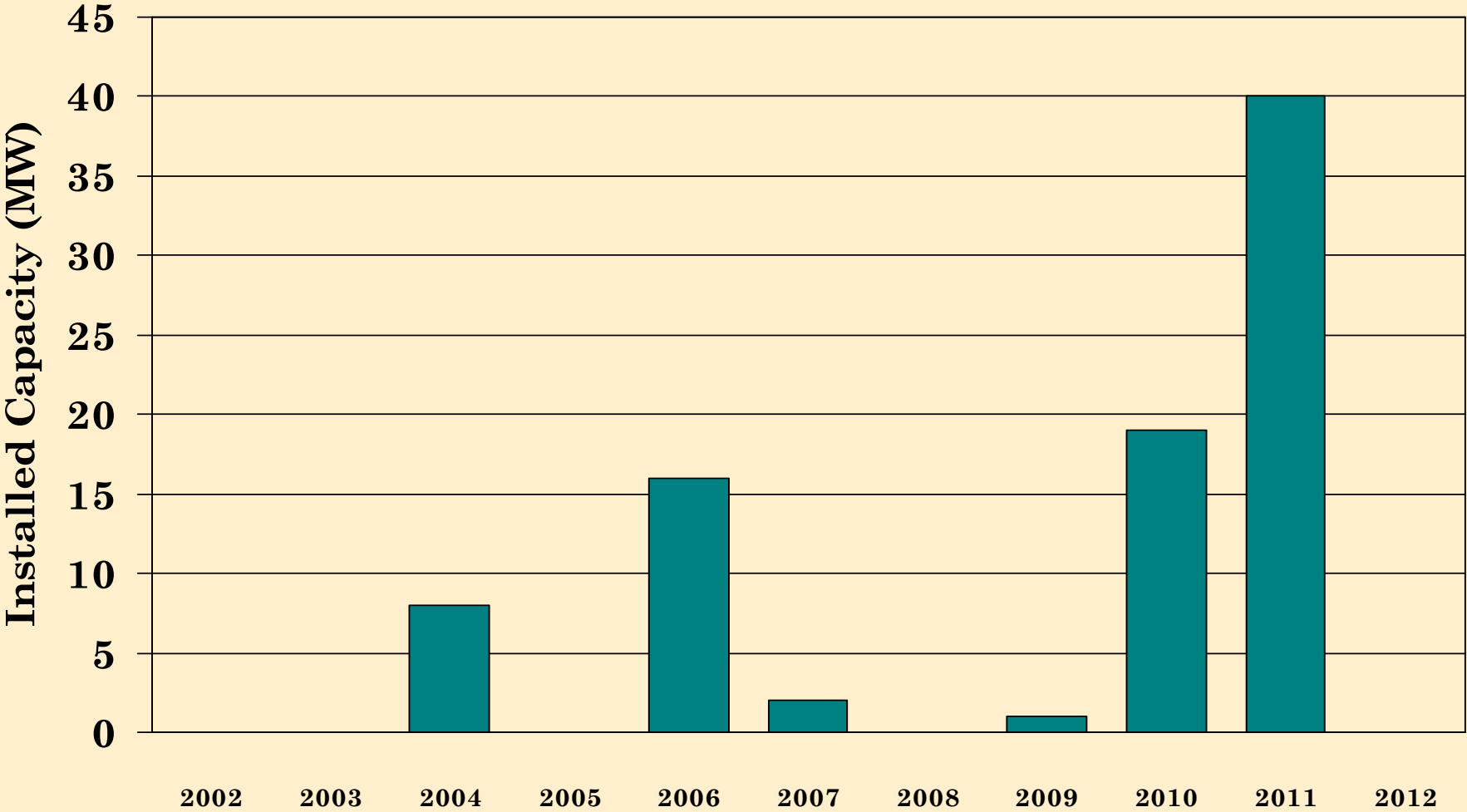
- Upgrades to existing projects
- New conventional projects 
- In-stream hydrokinetic projects
- Wave and tidal energy projects
- Pumped storage projects

New hydropower* represents about 1% of 2002-11 new installed capacity

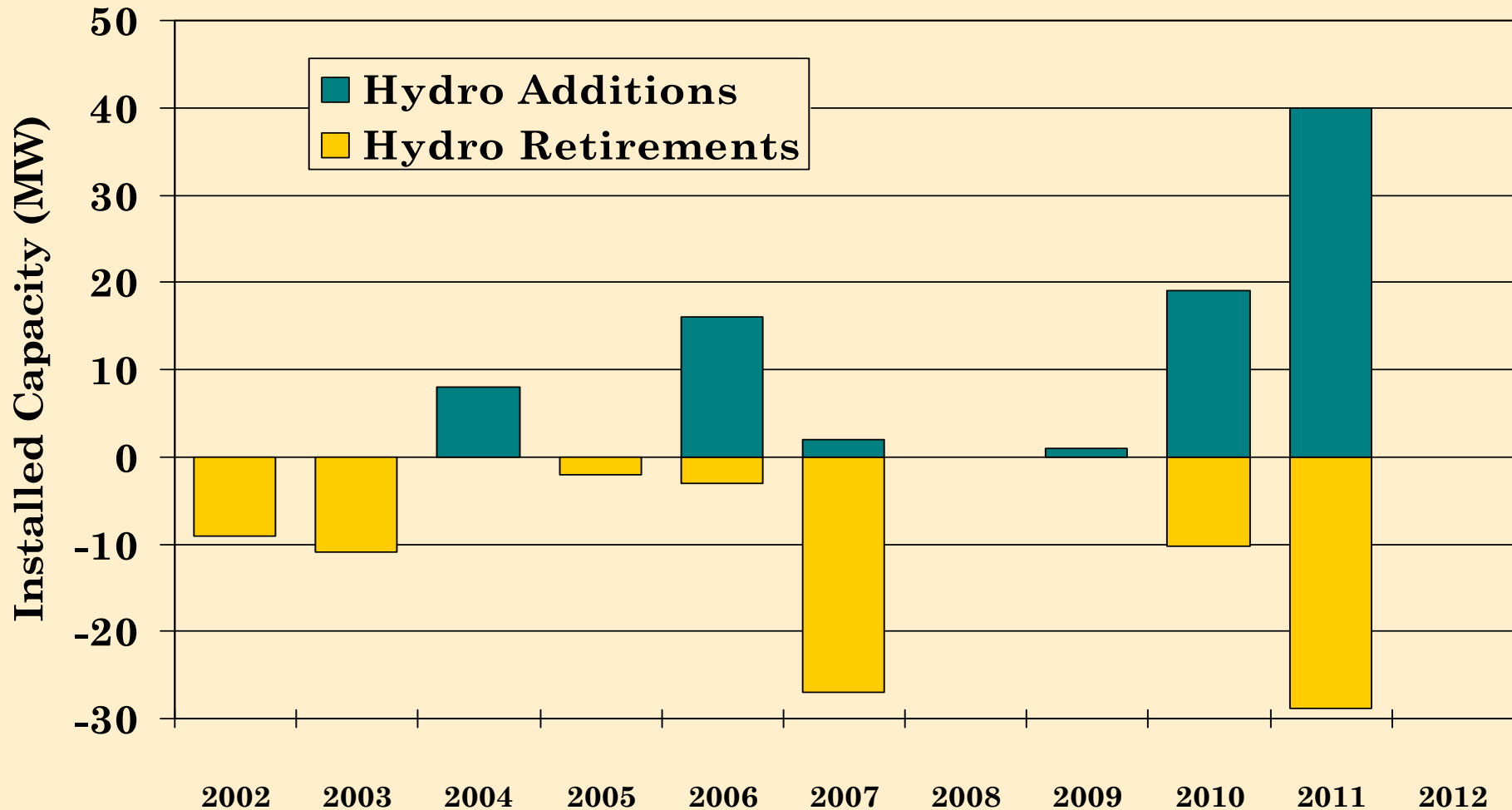


* Excluding upgrades to existing projects

The rate of new hydropower additions appears to be increasing

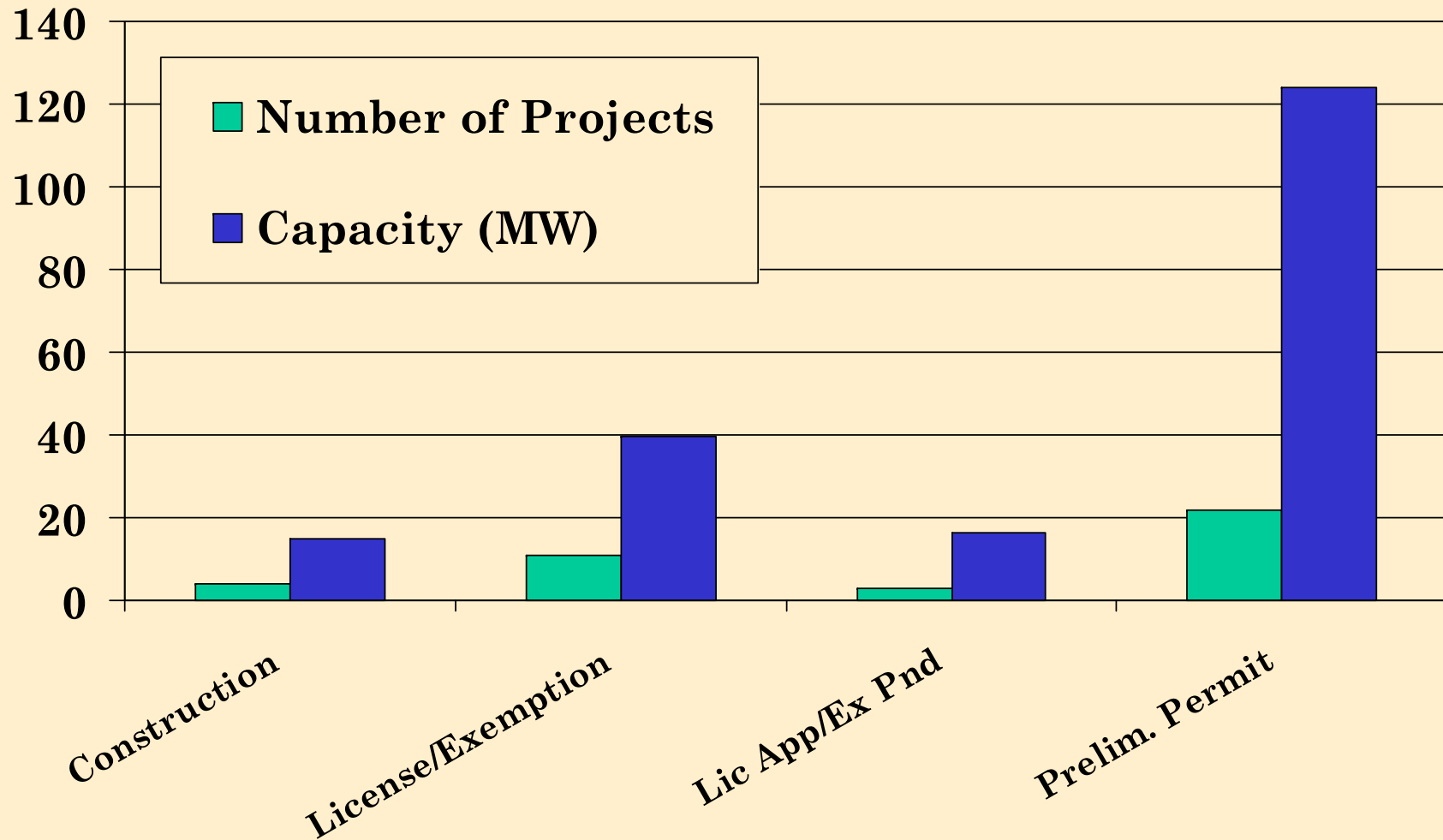


However, hydropower additions (85 MW) have not exceeded retirements (91 MW)



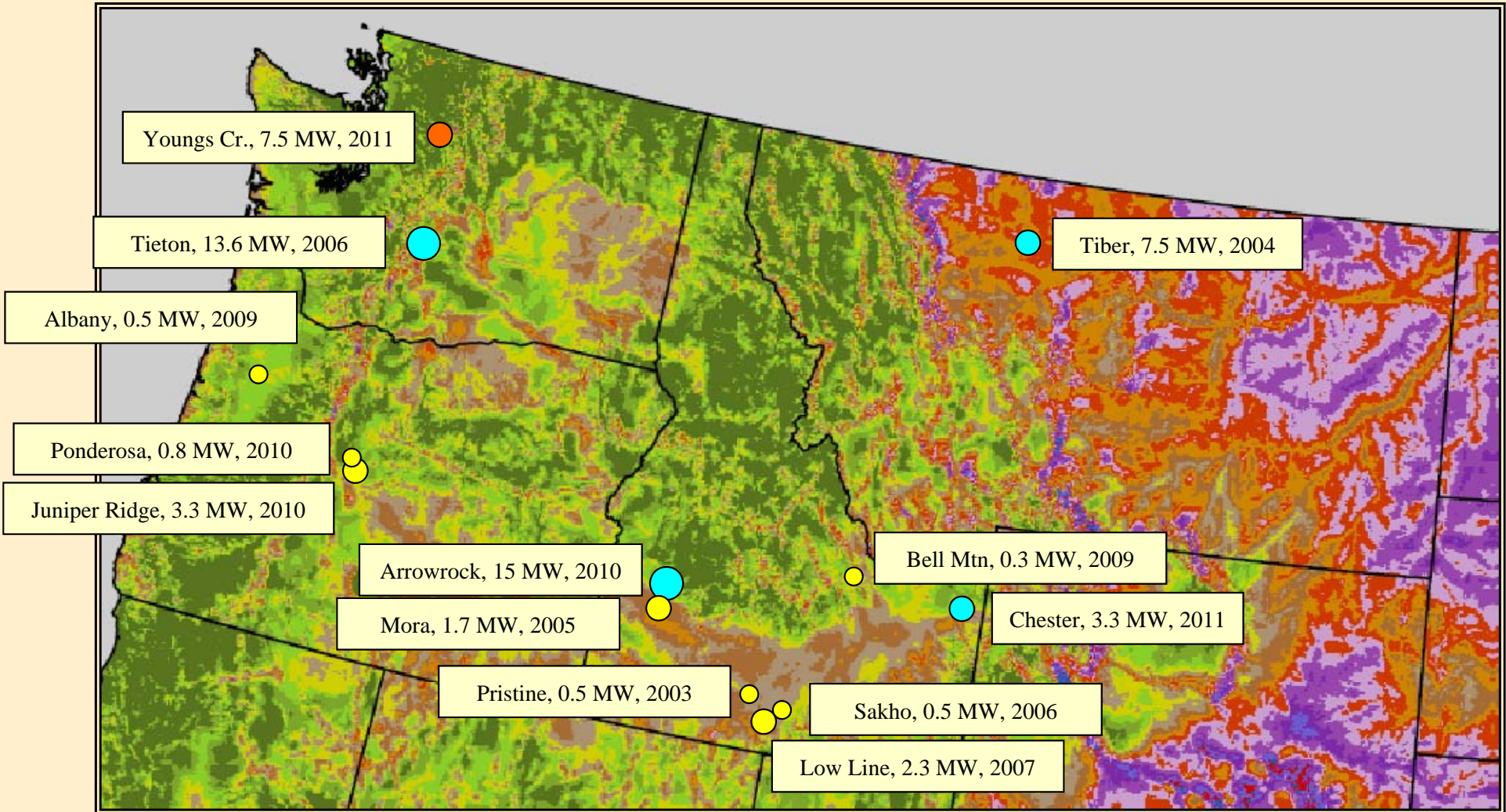
* Excluding upgrades to existing facilities.

About 195 MW in the pipeline, excluding pumped-storage & upgrades

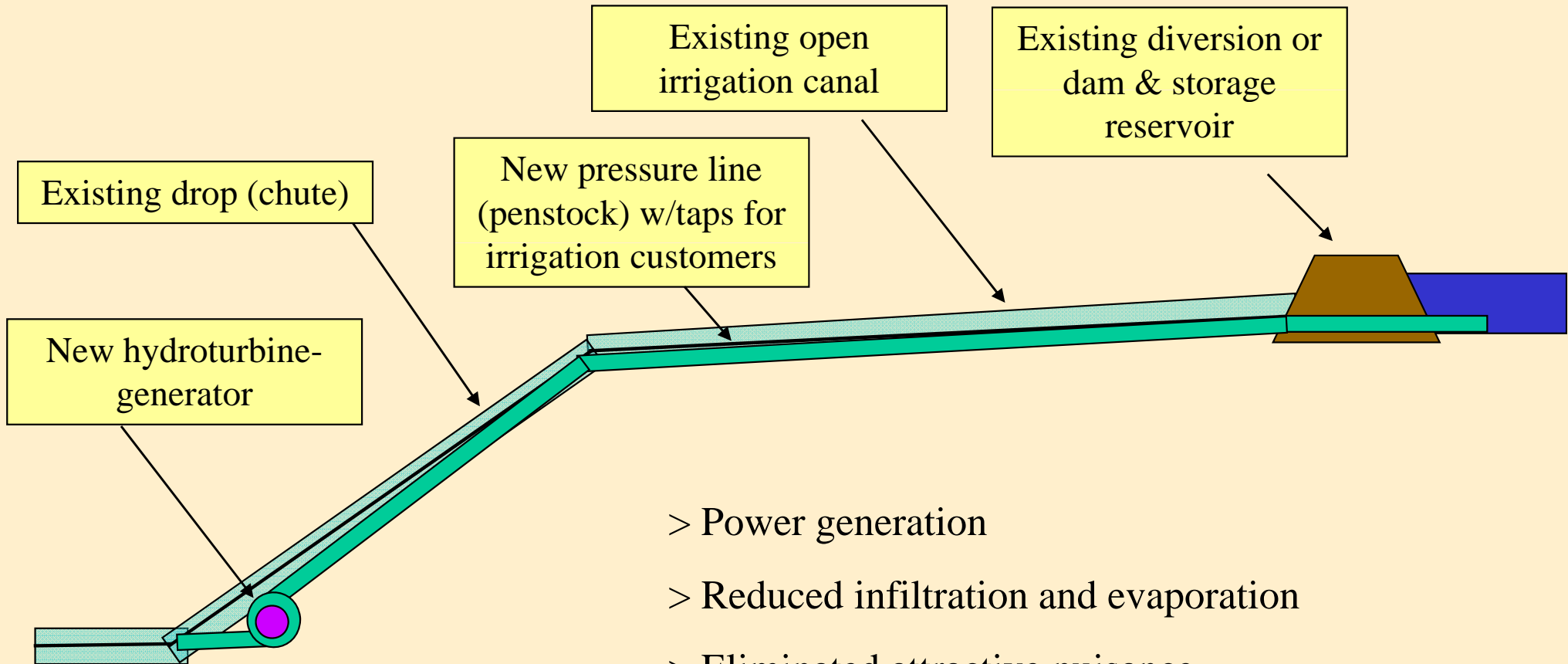


Hydro projects 2003 - 11

- New power @ existing dam
- New power @ existing canal
- New power @ new dam or diversion



Typical conduit project



- > Power generation
- > Reduced infiltration and evaporation
- > Eliminated attractive nuisance

Observations

- All recent projects, save one, consist of new power generation facilities at existing water control structures
- Canal projects often incorporate lining and piping, reducing water loss
- Incentives may be leading to uptick in projects being developed
 - Federal renewable production tax credit (~\$10/MWh)
 - OR RPS - Any new hydro outside NPCC Protected Areas
 - ID QF policy
 - CA RPS - New hydro up to 30 MW
 - MT RPS - New hydro up to 15 MW at existing canal or reservoir
 - WA RPS - New hydro in existing pipes and canals, no additional diversion
 - FERC small hydro and small conduit exemption policy
- Assessment of new hydro potential is a Sixth Plan Action