AGENDA

CLOUD SEEDING COMMITTEE
MEETING

August 15, 2014 at 1:00 pm

Members May Participate by Phone
Idaho Fish & Game Magic Valley Regional Office
Conference Room
324 South 417 East, Suite #1, Jerome, ID 83338

1. Introductions
2. Report by Idaho Power on current status of cloud seeding
3. Proposal for expansion of operations
4. Adjourn

Committee Members – Jeff Raybould, Peter Van Der Meulen, Vince Alberdi, John “Bert” Stevenson

Americans with Disabilities
The meeting will be held in facilities that meet the accessibility requirements of the Americans with Disabilities Act. If you require special accommodations to attend, participate in, or understand the meeting, please make advance arrangements by contacting Department staff by email Mandi.Pearson@idwr.idaho.gov or by phone at (208) 287-4800.
Expanded (West) Cloud Seeding Program, 2015

- Radiometer
- Rawinsonde
- Met Tower
- Idaho Power Dams
- Payette/Boise Shared
- Boise/Wood River
- Boise/Boise Shared
- Flight Lines
- Basins Targeted
- Target Area

Date: 8/14/2014
## Cloud Seeding Expansion - Combined Upper Snake and Boise & Wood Basin Capital Expenses

<table>
<thead>
<tr>
<th>Water Yr</th>
<th>Equipment for Expansion in Upper Snake</th>
<th>Equipment for Expansion in Boise and Wood</th>
<th>Total Request</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>IPC Generators</td>
<td>Precipitation Gauges</td>
<td>Capital</td>
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<tr>
<td>2015</td>
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*Cost Share Summary Combined*
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<tr>
<th>Water Yr</th>
<th>Type</th>
<th>Henry's/Teton Salt &amp; Wyoming Range Cost</th>
<th>Total Cost</th>
<th>Forecasting &amp; Operations</th>
<th>Total</th>
<th>Funding Allocation, $</th>
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<tr>
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<td>O&amp;M</td>
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<td>$216,300</td>
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**Cost Summary**

Fixed Costs: Aircraft + Forecasting & Operations $412,000
Variable Costs (based on assumptions below) $357,956 These costs will vary based seeding opportunities.

**Assumptions:**

**Operational Season - November 1 - April 30**

IWRB covers 40% of equipment costs (Generators, Precipitation Gauges)

**Ground Generators**

New - estimate based on approximately 50 hrs / unit, includes solution, materials, and travel (no labor).

**Aircraft**

Estimate based on Payette aircraft expenses.

Storms per season 20
Flight time (season) 50
Ejectable flares 800
End Burning flares 180
Fuel Cost $6 per gallon

**Radiometer**

**Weather Balloon**

Estimate based on following costs:

Launches per season $75
Sondes and Helium $166 per launch (price of helium varies)
Launch Labor $75 per launch
Facility Rental $2,000 per season

**Forecasting and Operations**

An additional aircraft will require additional meteorological support.
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<thead>
<tr>
<th>Year</th>
<th>O&amp;M Cost</th>
<th>Capital Cost</th>
<th>Aircraft Cost</th>
<th>Weather Balloon Cost</th>
<th>Radiometer Cost</th>
<th>Remote Ground Generators Cost</th>
<th>Forecasting &amp; Operations Cost</th>
<th>Total Cost</th>
<th>Funding Allocation, $</th>
<th>Funding Allocation, %</th>
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<td>$181,291</td>
<td>26%</td>
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<td>$181,291</td>
<td>26%</td>
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</tbody>
</table>

**Cost Summary - 2015**

**Boise**
- Fixed Costs: Aircraft + Forecasting & Operations = $61,200
- Variable Costs (based on assumptions below) = $112,891 These costs will vary based on seeding opportunities.
- Variable Costs: Aircraft + Forecasting & Operations = $61,200
- Variable Costs (based on assumptions below) = $73,291

**Assumptions:**

**Operational Season - November 1 - April 30**
- IWRB covers 40% of equipment costs (Radiometer, Weather Balloon, Generators)
- Ground Generators
  - Boise & Wood (new) - estimate based on approximately 50 hrs / unit, includes solution, materials, and travel (no labor). Units may be used to target Wood River Basin under some conditions.
  - Boise (existing) - estimate based on approximately 25 hrs / unit targeting Boise, includes solution, materials, and travel (no labor)
- Boise / Wood (shared) - these generators will essentially target both the Boise and Wood Basins, and costs are split 50%/50%

**Estimate**
- Boise Basin irrigation interests (Boise Project and others) will cover 50% of variable costs (flight time, fuel, flares), and 10% of aircraft fixed costs and Wood River Basin will cover 50% of variable costs and 10% of aircraft fixed costs.
- Aircraft flight tracks may be established to target the Boise and Wood Basins
- Payette flight tracks may be extended to better target the Boise
  - Storms per season: 20
  - Flight time (hrs / season): 50
  - Ejectable flares, season: 800
  - Ejectable flares per season: 180
  - Fuel Cost: $6 per gallon
- Radiometer
  - Estimate assumes Boise Basin irrigation interests (Boise Project and others) will cover 50% of operating costs (internet access, calibration) and Wood River Basin will cover 50%

**Weather Balloon**
- Estimate assumes Boise Basin irrigation interests (Boise Project and others) will cover 50% of weather balloon operating costs (launch fees, sondes, helium, facility) and Wood River Basin will cover 50%
- Launches per season: 75
- Sondes and Helium: $166 per launch (price of helium varies)
- Launch Labor: $75 per launch
- Facility Rental: $2,000 per season

**Forecasting and Operations**
- Estimate assumes Boise Basin irrigation interests (Boise Project and others) will cover 50% of forecasting, reporting, and operation expenses
- Includes daily forecasts, compliance reporting, monthly reports, annual report, operation of remote ground generators, operation of seeding aircraft