BONNEVILLE POWER ADMINISTRATION

POWER IN EFFICIENCY

Agriculture Sector Update

Chaired by:
Dick Stroh, Agricultural Engineer
Idaho Falls, ID

Welcome and Introductions

- RC&D – Robert Wallace
- Ag Pump VFD results – Dick Stroh
- Marketing Ag programs – Vic Hubbard

Welcome and Introductions

- Introduce Robert Wallace….of WyEast RC&D

RC&D's Help Ag Conservation

- Save Water Save Energy w/ RC&D's available throughout BPA Service Area.
- RC&D's are existing organization with ties to the communities served by each Utility.
- Each RC&D covers multiple counties with existing networking capabilities. **"Get the word out"** about Ag Energy Conservation Programs.
- Leverage Utility funding with other programs.

RC&D's Help Ag Conservation

- RC&D's act as an "**Extension of the Utility**"
- Providing both Technical and Project Funding
  - "Boots On The Ground"
  - Locate additional funding for Ag Conservation Projects
- Utility is in charge of the program
  - Utility can ramp up or ramp down
  - Choose to focus on specific target areas
  - Choose measures to participate with
- Not to add significant work to the Utility

RC&D's Help Ag Conservation

- Save Water Save Energy Goals
  - Gain additional Ag Energy Conservation
  - Build relations with Producers, Utilities, SWCD, NRCS, Watershed Councils, Irrigation Districts, ect…
  - Maximize funding leverages from NRCS, SWCD's, other **project** funding sources.
  - New NRCS Energy Program
    - All Energy Sources (Diesel, Electricity, Fertilizer/Chemical, ect)
    - Farm Audit Assistance
    - Funding for Practices for Energy Conservation

Save Water Save Energy History

- Spring 2010 - Pilot Program started w/ (2) Oregon RC&Ds
- Spring 2011 – Program released to entire BPA Service area.
- Obtained other funding sources for projects
  - Oregon Dept of Energy (4 Ag groups in OR had Grants)
  - NRCS – EQIP program
  - Multiple water conservation funding sources

Sample Projects

North Unit Irrigation District

2,000 ac of new Scientific Irrigation Scheduling

Savings Ag Producers

- 135,633 kWh for the 2011 Irrigation Season
- $8,000 +/- Electrical Expense
- 522 AcFt of Water

Project Funded by:
Central Electric Coop /BPA
Pacific Power & Light /ETO
Oregon Dept of Energy - ARRA

Sample Projects

Wasco County Pump Change Out

Custom Project

40hp to 30hp pumping station

Savings for Producer

- **9,027 kWh/yr**
- **$500+/yr pumping cost**

Project Funded by:
Wasco Electric Coop/BPA
Rebate = $2,461

Sample Projects

Jefferson County VFD

60hp VFD for Irrigation Pump Station

Savings for Producer

- **23,700 kWh/yr**
- **$1,280 /yr**
- **34% of Energy Cost**

Project Funded by:
Central Electric Coop /BPA
NRCS - EQIP
Oregon Dept of Energy - ARRA

Contact

For more information, contact:

Robert Wallace
Executive Director/Certified Energy Manager
Wy'East Resource Conservation and Development
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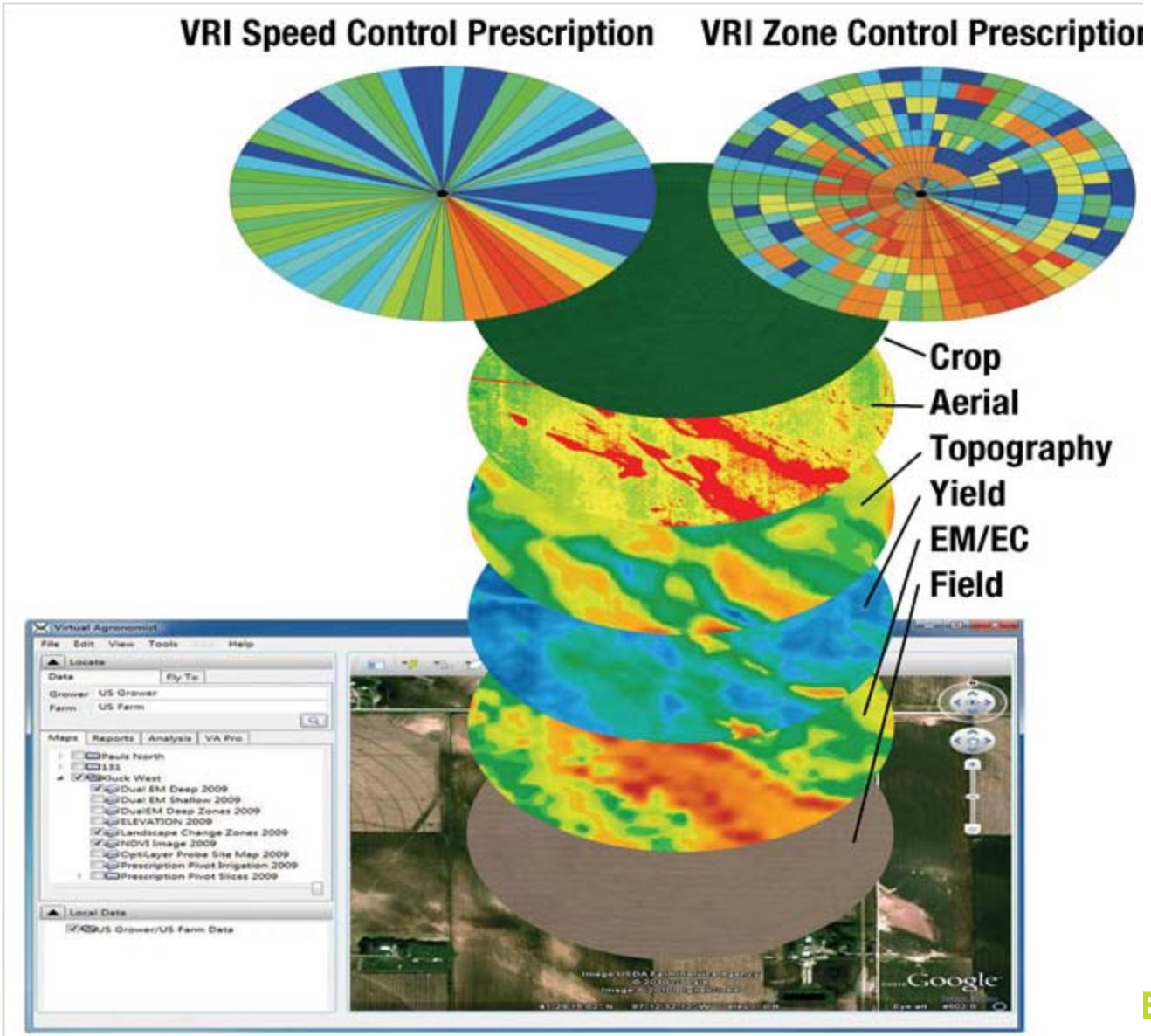
Segway back to BPA

Current Ag Sector Efforts

- Keep the sprinkler widget offering
- Eliminate the premium motor rebate 10/1/12
- BPA and WSU LEPA demo (start soon)
- NEEA and OSU VRI demo (start 3/12)
- Push for turbine pump VFD rebate
- Look into centrifugal pump VFD savings

LEPA

VRI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Dual EM Deep 2009
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DualEM Deep Zones 2009
ELEVATION 2009
Landscape Change Zones 2009
NDVI Image 2009
OptiLayer Probe Site Map 2009
Prescription Pivot Irrigation 2009
Prescription Pivot Slices 2009
Local Data
US Grower/US Farm Data
Google

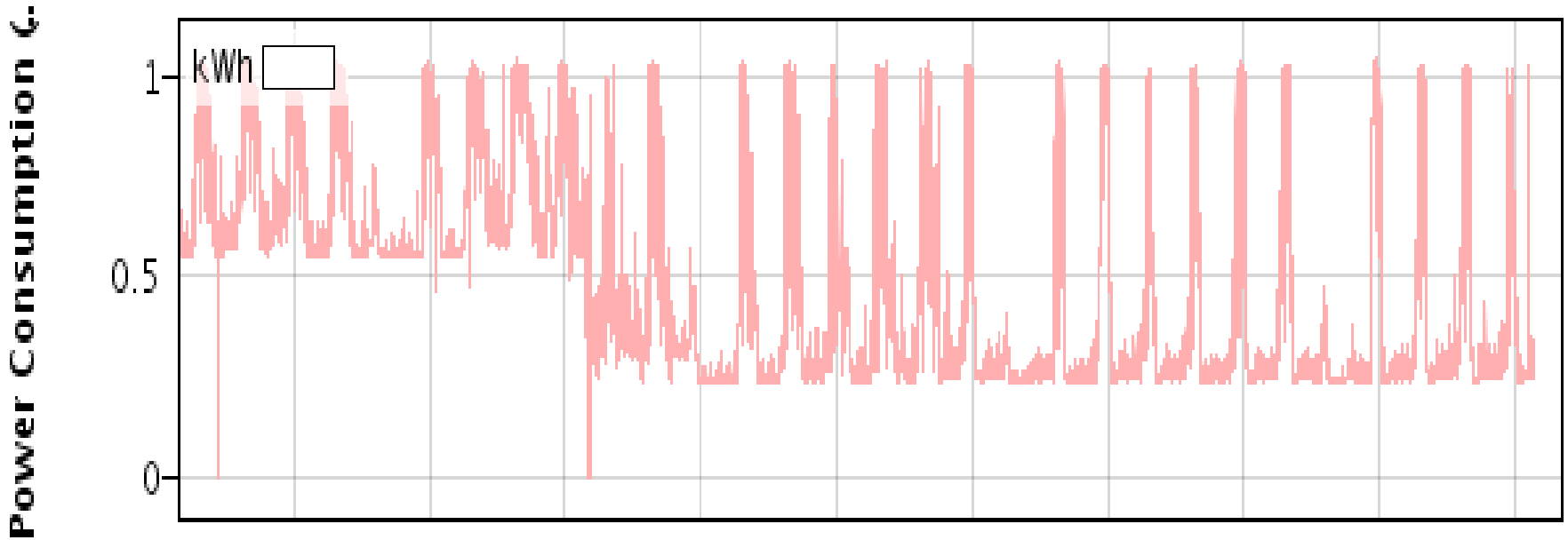
Ag Pump VFD Results

- Presented VFD CPP results to RTF in July 2009
- Only 11 projects with BPA, 10 PP&L
- Average savings 325 kWh per HP
- Needed more projects in more areas
- BPA developed provisionally deemed approach at 400 kWh per HP ($80/HP)
- Collected and reviewed data
- Look at different calculators and locations
- Thank YOU!

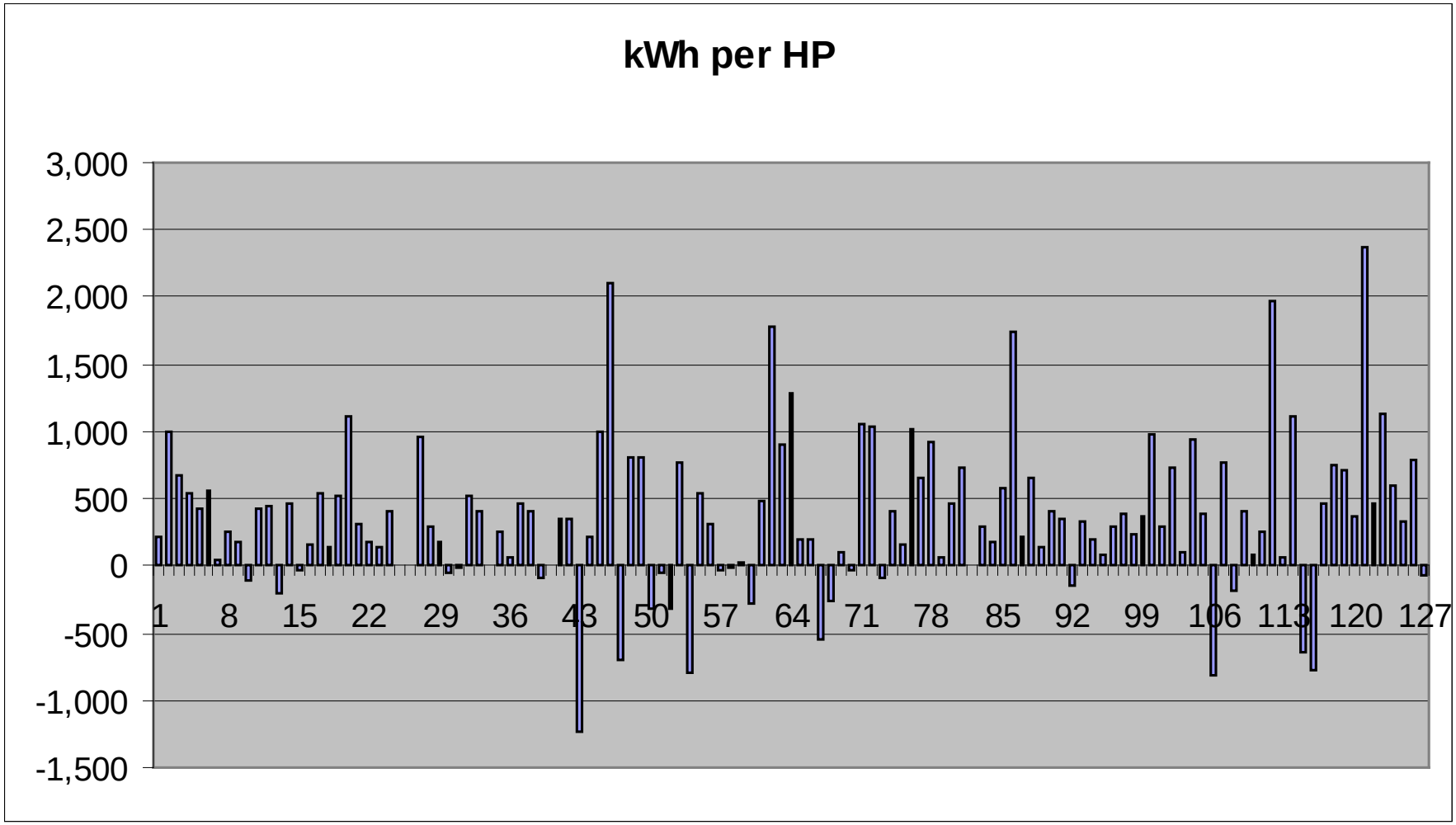
Ag Pump VFD Results

- 277 projects
- 125 deemed, 25 CPPs, IPCO, Grant PUD
- Looked at kWh per HP
- All project average = 239 kWh per HP
- Huge variation in results
- Submetered a few installations
- Centrifugals don’t show much savings

Ag Pump VFD Results



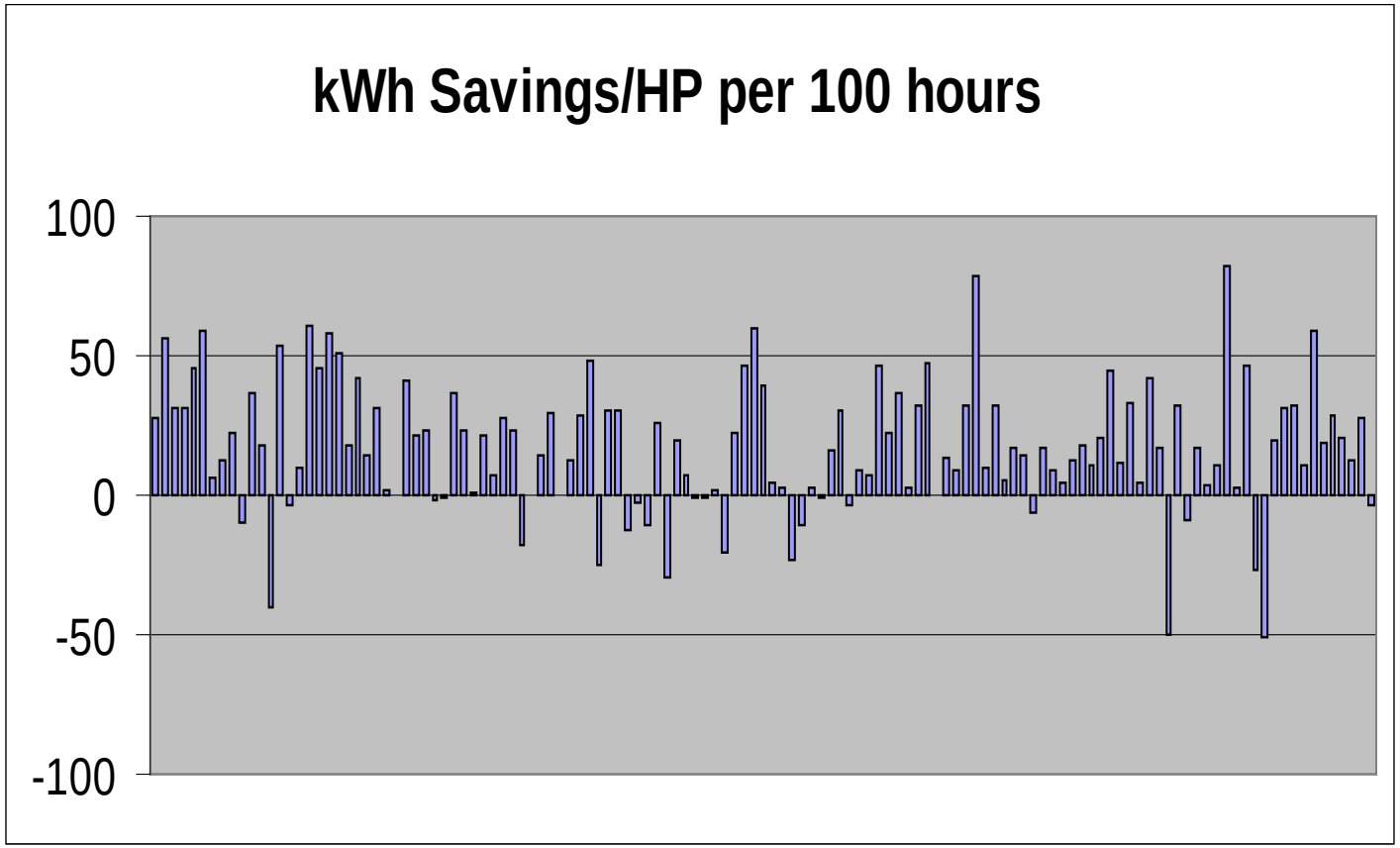
Ag Pump VFD Results



Ag Pump VFD Results

- Results may vary.
- Poor data input, change in crop rotations, weather, operator, water availability, system changes, multiple pumps on one meter, etc.
- Even calculators had a lot of variation (garbage in garbage out..mainly related to operation schedule)
- My desire is to keep it simple, but increase accuracy
- Looked at kWh per HP per 100 hours operation
- Hours of operation calculated from billing history
- More in Mid C, less in Willamette Valley and N. MT.

Ag Pump VFD Results



Next Steps

- Presented findings to RTF technical staff
- New RTF process identified
- Present to RTF sometime this summer
- Respond to RTF recommendations
- Make recommendations for IM changes
- Oct 1, 2012 new program approach

Segway to Franklin PUD

- Marketing Ag VFD program –

Vic Hubbard, Franklin Co PUD in Pasco, WA

FPUD Variable Feed Drive Program

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FRANKLIN PUD
THE POWER IS YOURS

The Projects – Observations and Lessons Learned

- Vendors are Salesmen
- Savings Occur on the Shoulders of the Season
- Pump Size – Staging – Trim Impact on Efficiency
- Crop Rotation
- Pressure Reducing Valves

Why Do We Do It?

- FPUD Program Incentive
- Acquisition to Offset Power Purchase
- Irrigation Rate Discount

- Share experience and handouts

Comments?

- RC&D – Robert Wallace, Wy'East 541-815-5503
- Marketing Ag VFD program – Vic Hubbard, Franklin PUD 509-542-5904
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THANK YOU!