The Agriculture Market Today
Held Logic Model Working Session

Interviews with Agriculture Sector

Attended Trade Show

Analyzed FRIS Data and 2010-2015 Program Data

Attended ETCC Meeting

Incorporated USDA Data Analysis

Compared 6th Power Plan with 7th

Consulted with Irrigation Experts
What do we know about agriculture within BPA’s territory?
What do we know about irrigation in BPA territory?
In BPA’s territory, there is roughly four times as much irrigated agriculture in the Columbia River Basin than in Idaho.
What types of irrigation systems are located in BPA territory?
What do we know about efficiency of irrigation systems?
Two Types of Efficiency for Irrigation Systems

Pumping Efficiency

Application Efficiency
Pumping Efficiency

definition

Tracks the amount of energy that is transferred from the motor to the pump to the water.
Ways to Increase Pumping Efficiency

- New Pump
- Testing
- Trim Impeller
- Add VFD
Perceived Market Barriers to VFDs

High Cost

Simple Payback

Year 1
Year 2
Year 3
Year 4
Year 5
Pumps in the Current Program

1. Irrigation Pump Testing and System Analysis
2. VFDs in Ag Turbine Pump Applications
3. Green Motors Rewind Initiative
Application Efficiency

**definition**

The amount of water that ends up in the soil compared to the amount that leaves the sprinkler heads.
Application Efficiency Has Two Key Components

1. Sprinkler Type
2. Proximity of Sprinklers to the Ground
Sprinkler Type: Inefficient
Sprinkler Type: Efficient
Proximity of Sprinkler to the Ground

vs.
Water Uniformity
Changes in Sprinkler Efficiency in the Market

Impact on Top

MESA

LESA/LEPA
Perceived Barriers to LESA/LEPA
Strategy for Sprinklers in EE Programs

PUSH VS. MAINTAIN
What do we know about the volume of water applied?
Scientific Irrigation Scheduling

A strategy to apply only the amount of water to the field that the crop needs
Perceived Barriers to SIS

1. Cost

2. Growers’ preference to walk fields and check moisture level rather than automated.
Controls

- On/Off
- Direction
- Constant Speed
- Pump On/Off
- Variable Speed Irrigation (VSI)
- Variable Rate Irrigation (VRI)
Tech-savvy farm hands and knowledgeable agronomists required

Only cost-effective with the right terrain

Payback is 5+ years

Perceived Barriers to VRI and VSI
What We Learned About How Water is Applied

Low/Medium Intensity Management
Less Work, Less Payback

High Intensity Management
More Work, More Payback

WHEAT BEANS
OATS CORN
POTATOES GRAPES
ONIONS CARROTS
The amount of water applied matters for quality of crops
What are the different crop types that are irrigated in BPA’s territory?
So in summary, we now know…
Takeaway No. 01

Most opportunity for EE in agriculture in BPA territory is with center pivot irrigation in the Columbia Basin.
Takeaway No. 02

Two Types of Efficiency for Irrigation Systems:

Pumping Efficiency
Application Efficiency
Takeaway No. 03

Market already transitioned to more efficient sprinkler
Takeaway No. 04

Very few growers are using LESA/LEPA in the Columbia Basin
Takeaway No. 05

Strategy for amount of water applied varies based on crop type
Takeaway No. 06

Push vs. Maintain
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Part 2: Ag Irrigation Market Opportunities

December 13, 2016
10:00 - 11:30 am
Appendix: Types of irrigation systems in BPA territory
Wheel Line
Hand Move
Drip System
Solid Set