Northwest **Power** and **Conservation** Council

October 2, 2018

MEMORANDUM

TO: **Power Committee Members**

FROM: **Tina Jayaweera**

SUBJECT: **Agricultural Energy Efficiency Potential Study**

BACKGROUND:

Presenter: Tina Jayaweera

Summary: In April 2018, Council staff contracted with Applied Energy Group (AEG) to perform an energy-efficiency potential assessment for the agricultural sector. This work will be used as part of the development of the conservation supply curves in the Eighth Power Plan. The project has now concluded, and staff will provide a brief overview of the findings from the assessment.

In this study, AEG has identified approximately 87 aMW of technical achievable savings potential. Measure cost-effectiveness was not evaluated. The study includes many of the same measures identified in the Sixth and Seventh Plans, but added a few measures not previously analyzed, including variable rate irrigation, pump efficiency improvements, advanced ventilation and cooling fans (high volume slow speed and efficiency high speed fans), and circulating block heaters. The savings in this assessment are less than the Seventh Plan, primarily due to baseline efficiency improvements.

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Relevance: The Seventh Plan estimated cost-effective potential in the agricultural sector of around 121 aMW. The estimate was based on a staff-completed assessment, using methodology similar to the Sixth Power Plan.

Workplan: C.1. Conservation Resources – Data development to enhance or improve estimates for conservation supply curves.

More Info: The Council decision memo to contract for this study is available here: https://www.nwcouncil.org/sites/default/files/6agcons.pdf

Agricultural Energy Efficiency Potential Study Contract

Power Committee

Oct 9, 2018

Northwest Power and Conservation Council

Background

- Council contracted with Applied Energy Group in April to perform an energy-efficiency potential assessment for the agricultural sector
- This assessment will inform the supply curves for the 8th Plan

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Project Tasks

1. Interview regional experts to explore potential new measures and measure applicability
2. Develop measure list
3. Estimate number of units
4. Estimate achievable technical potential

New Measures

- Variable rate irrigation – ability to apply different amounts of water to different areas of field
- Energy free stock watering tanks – super insulated livestock watering tanks that do not require electric heating
- Pump efficiency improvements – incorporates new proposed DOE rating
- High-volume low speed fans/efficiency high speed fans – for use in dairy barns to provide ventilation

Estimated Savings Potential

Application	20-year potential (aMW)
Dairy	8
Irrigation	57
Lighting	13
Motors/Pumps	8
Other*	1
Total	87

*Other includes energy-free stock water tanks and circulating block heaters

NOTE: These estimates are draft and may be updated prior to 8th Plan

Next Steps

- Update measure assumptions as new data are available
  - RTF review
  - Updated US Department of Agriculture Survey data (expected early 2019)
- Review with Conservation Resources Advisory Committee
- Incorporate into 8th Plan EE supply curves