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August 8, 2017

MEMORANDUM

TO: Power Committee

FROM: Tina Jayaweera, Senior Energy Analyst

SUBJECT: Innovations in Irrigation Energy Efficiency

BACKGROUND:

Presenter: Fred Ziari, President and CEO, IRZ Consulting

Summary: Mr. Ziari will discuss with the Council the advancement in irrigation technologies as it relates to both Water and Energy sustainability. Presentation will focus from both the global prospective and as it is practiced in Pacific Northwest.

Relevance: Efficiency measures in the agricultural sector for the Eighth Power Plan will likely be quite different from those reviewed in the prior plans, due to advances in irrigation practices.

Workplan: C.1. Prepare for the 8th Plan: Conservation

Background: Fred Ziari is an entrepreneur and innovator. His water resource and irrigation innovations in satellite soil-moisture monitoring and sensor technologies have resulted in savings of one hundred billion gallons of water and over 300 million kilowatt hours of electricity in just the last decade. He founded his first resource management company, IRZ Consulting, in 1984 and his fourth company in 2008. Through IRZ Consulting, he has assisted agricultural communities around the world to maximize our planet's precious resources.

In 2012, Mr. Ziari's three of four companies were acquired by Lindsay Corporation (NYSE:LNN) to capitalize on IRZ's innovative irrigation engineering and water resource management expertise and the increased efficiencies of water and power by expansion of offices throughout the world.

As a social entrepreneur he founded the non-profit organization, Farmers Ending Hunger (FEH). Last year FEH provided over five million pounds of food products to the Oregon Food Banks and was recognized by the Agri-Business Council of Oregon.

In 2002 Fred Ziari was inducted into the **OSU Agricultural Hall of Fame**. He received the prestigious **Weatherford Award** in 2010 from the Austin Entrepreneurship Program of OSU's College of Business. And, in 2011 he was honored by the Oregon Consular Corps and the City of Portland with their **International Business Award**. He is present board member of OPB and Oregon Institute of Technologies.

More Info: IRZ Consulting website: <http://www.irz.com>