In the early and mid 1990s The Results Center produced 126 case studies of the most successful energy efficiency and renewable energy programs in the United States and around the world. With the support of the John D. and Catherine T. MacArthur Foundation, Ted Flanigan directed a research team at Colorado-based IRT Environment to produce and distribute these exceptional examples.

#85 EXECUTIVE SUMMARY

BONNEVILLE POWER ADMINISTRATION, WATERWISE PROGRAM

Bonneville Power Administration's WaterWise program is an agricultural initiative that has evolved into a comprehensive effort that results in the triple benefits of energy and water savings and often increased crop yields thanks to the precision application of water. WaterWise dates back to 1979 when BPA first addressed irrigated agriculture's energy use by developing a pilot program that focused on pump testing and evaluating farmers' irrigation systems. A few years later BPA instituted the program on a regional basis and added incentives to the program for equipment retrofits. Then in 1991 these early programs were dramatically ramped up to create WaterWise, a program that addresses the needs of farms of varying sizes. In its current form, WaterWise is implemented by 39 retail utilities within BPA's service territory.

A focus on saving water may sound ironic to those unfamiliar with BPA's service territory since the Northwest is well known for its high levels of precipitation. East of the Cascade Mountains that bisect the states of Washington and Oregon, however, the climate is dramatically different and quite arid. There farmers depend on irrigation. Large irrigators and irrigation districts draw water directly from the Snake and Columbia Rivers using extensive pumping and piping systems to ultimately feed massive sprinklers. Huge water lines, as big as 72 inches in diameter, provide sustenance to crops such as peas, wheat, corn, alfalfa, onions, and potatoes. Small farms tend to pump groundwater. In each case, WaterWise provides technical, financial, and informational services.

The WaterWise Program consists of three main features: System Testing and Design Work for new and expanding systems, a wide array of Hardware Retrofits, and a new concentration on Irrigation Management. This last feature reflects the sophistication of the program. Through its retail utilities and consultants, BPA stays in close communication with participating farms through a number of channels. The program provides announcements through local media. Staff at retail utilities also maintain direct contact with farmers, and directly-linked computer connections are used to link program consultants with large farms to provide farmers with detailed information on weather patterns and evapotranspiration rates so that the farmers can optimize crop watering.

In the program's decade-long history BPA has invested nearly $25 million in improving the efficiency of irrigated agricultural systems in its service territory and has saved 11 aMW to date. Currently WaterWise is operating with an annual budget of $2 million resulting in annual energy savings of 2 aMW.

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BONNEVILLE POWER ADMINISTRATION
WaterWise Program

Sector:	*Agricultural*
Measures:	*Low pressure, mainline, and pump modification equipment*
Mechanis	*BPA funded irrigation system testing, design assistance, and hardware incentives, coupled with focus on irrigation management techniques*
History:	*Pilot in 1979, Irrigated Agriculture Retrofit in 1982, revised to WaterWise program in 1991*

1993 PROGRAM DATA

Energy savings:	*14.9 GWh*
Lifecycle energy savings:	*223 GWh*
Annual capacity savings:	*1.6 aMW*
Cost:	*$2.2 million*

CUMULATIVE DATA (1983-1993)

Energy savings:	*506.3 GWh*
Lifecycle energy savings:	*1,419 GWh*
Capacity Savings:	*11.0 aMW*
Cost:	*$24.5 million*

CONVENTIONS

For the entire 1994 profile series all dollar values have been adjusted to 1990 U.S. dollar levels unless otherwise specified. Inflation and exchange rates were derived from the U.S. Department of Labor's Consumer Price Index and the U.S. Federal Reserve's foreign exchange rates.

The Results Center uses three conventions for presenting program savings. Annual savings refer to the annualized value of increments of energy and capacity installed in a given year, or what might be best described as the first full-year effect of the measures installed in a given year. Cumulative savings represent the savings in a given year for all measures installed to date. Lifecycle savings are calculated by multiplying the annual savings by the assumed average measure lifetime. Caution: cumulative and lifecycle savings are theoretical values that usually represent only the technical measure lifetimes and are not adjusted for attrition unless specifically stated.