

United Power Association

Off-Peak Program

United Power Association's (UPA) off-peak load management program accounts for the large majority of the utility's DSM expenditures and savings. The off-peak program formally began in 1980, following participation in a Department of Energy electric thermal storage demonstration project. In 1981, a system-wide load control system was put in place covering 95% of UPA's service territory using a VHF (very high frequency) one-way radio system to control participating loads. By controlling customer loads UPA is able to shift demand to off-peak hours, reducing peak demand.

UPA controls this system by generating and transmitting signals to keep the related equipment off during the peak periods. The system is comprised of a master controller, transmitters, and receivers. Depending on the system load and the time of day, the master controller instructs the transmitters when to send the appropriate "off" commands to the receivers controlling participating customers' loads.

Loads eligible to participate in the program include: electric thermal storage space heating, electric thermal storage water heating, dual fuel space heating, interruptible air conditioning, and controlled irrigation. The different eligible loads have different control times assigned to them by UPA. Approximately 98% of the program participants are residential customers.

The off-peak program has flattened out UPA's load shape very effectively. In 1992, UPA's load management programs controlled approximately 14% of winter peak demand and 7% of summer peak demand. Program participation is encouraged through lower electricity rates, equipment rebates, and equipment financing. Through 1992 UPA had achieved cumulative winter peak demand reductions of 92 MW and cumulative summer peak demand reductions of 46 MW. In 1992, 5,853 loads joined the off-peak program. UPA controls a grand total of 56,244 loads, with 17.4% of their customers participating in the program.

In 1992, total off-peak program expenditures were \$4,843,100. Of this amount UPA contributed \$1,533,740 and UPA's member cooperatives provided \$3,309,360. Incentive costs for the year totaled \$399,500, advertising costs totaled \$55,700, and the remaining expenditures (\$4,387,900) went towards administration and implementation. In 1991, UPA spent \$1,820,354 on the program and member cooperatives spent \$3,426,646, for a program total of \$5,247,000.

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UNITED POWER ASSOCIATION Off-Peak Program

Sector: Residential

Measures: ETS space heating, ETS water heating, dual fuel space heating, controlled air conditioning, and controlled irrigation

Mechanism: Reduced electric rates, rebates, and financing available to participating customers

History: Started in 1980

1992 Program Data

Energy savings: 44.1 GWh
Peak demand reduction (w): 6 MW
Peak demand reduction (s): 7 MW
Cost: \$4,843,100

Cumulative Data (1980 - 1992)

Energy savings (1991-1992): 68.9 GWh
Peak demand reduction (w): 92 MW
Peak demand reduction (s): 46 MW
Cost (1991-1992): \$10,090,100

The Results Center produced 126 profiles of the most successful energy efficiency and renewable energy programs in the United States and around the world in the early and mid 1990s. 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. Thanks to strong demand for solid case studies, The Results Center was supported by dozens of major utilities and energy associations worldwide. Today, The Results Center is managed again by Ted Flanigan, now at California-based EcoMotion Incorporated, a firm focused on strategic consulting, information dissemination, program design, outreach services, and aggressive implementation. To nominate highly successful programs, contact: The Results Center, c/o EcoMotion, 15375 Barranca Parkway, F-104, Irvine, CA 92618, (949) 450-7155, or TFlanigan@EcoMotion.us