

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.

#38 EXECUTIVE SUMMARY

BC HYDRO, POWER SMART, HIGH EFFICIENCY MOTORS PROGRAM

Each year over 300,000 horsepower (HP) of 3-phase integral electric motors are purchased by British Columbia Hydro (BCH) customers, including standard and high-efficiency motors. The goal of the High-Efficiency Motors Program has been to transform the market in the province and to make sure that most if not all of these motor sales are high-efficiency motors. Given the low electricity costs in British Columbia, many B.C. Hydro customers have opted to pay the low initial costs of standard efficiency motors despite the lifecycle benefits of high-efficiency motors. Overcoming this barrier, has been the essence of the High-Efficiency Motors Program.

B.C. Hydro launched the Energy-Efficient Motors Program in 1988 and in 1989 it became a full-scale Power Smart initiative with rebates for participating customers. In 1990, a vendor incentive was added to further encourage stocking and sales of high-efficiency motors. In 1990, a Buy-Back option was added to accelerate the change out of the installed stock of standard motors. For participants in the program incentives are offered in the form of rebates of \$293 (\$350 Canadian) per kW saved. Another \$59/kW (\$70 Canadian) is offered to distributors under the vendor incentive.

One of the difficulties of implementing a motors program is that motors are sold in three ways, through direct sales, whereby the motor manufacturers' representatives contact and sell large orders to industries directly; through Original Equipment Manufacturers (OEMs) which embed motors in equipment; and by local distributors, or what are commonly called vendors in this profile. B.C. Hydro has been successful at implementing change in all three areas, with particular success in swaying the incorporation of high-efficiency motors in OEM equipment, a most difficult challenge. Six of the ten major motor vendors in the province sell motors to OEMs and these large vendors suggest that 18% of their sales volume is to OEMs, and 63% of that is high-efficiency motors.

The total costs for the program over the 3.25 years in study are \$4,080,800. As of December 1991 the program resulted in total annual savings of 47.0 GWh. Note that the program's annual savings have been increasing from 11 GWh in 1989 to 15 GWh in 1990 to 21 GWh in 1991. In terms of peak capacity BCH estimates that the program's net savings are 6.6 MW. But perhaps more important than the overall savings and costs, is the basic fact that the High-Efficiency Motors Program has effectively transformed the motors market in British Columbia. As this profile documents, the province has experienced a dramatic turnaround in the percentage of high-efficiency motors sold in a mere four years. This has clearly been a function of increased awareness and properly calculated incentives strategically placed for maximum effectiveness.

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BC HYDRO, POWER SMART High-Efficiency Motors Program

Sector: Industrial

Measures: High-efficiency motors, efficient gear speed reducers, synchronous belts.

Mechanism: Participant and vendor rebates.

History: Started in 1988, became a Power Smart Program in 1989.

1991 Program Data

Energy savings: 21 GWh

Lifecycle energy savings: 418.3 GWh

Peak capacity savings: 3.30 MW

Cost: \$1,817,700

Cumulative Data (1988 - 1991)

Energy savings: 47 GWh

Lifecycle energy savings: 949 GWh

Peak capacity savings: 7.49 MW

Cost: \$4,080,800

CONVENTIONS

For the entire 1992 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. Dept of Labor's Consumer Price Index and the International Monetary Fund's International Financial Statistics Yearbook: 1991.

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.