





Due to manufacturer's policy of continuous product improvement, the manufacturer reserves the right to make changes without notice. Drawings in this submittal are representations of the equipment shown. Contact the factory for specific unit drawings.

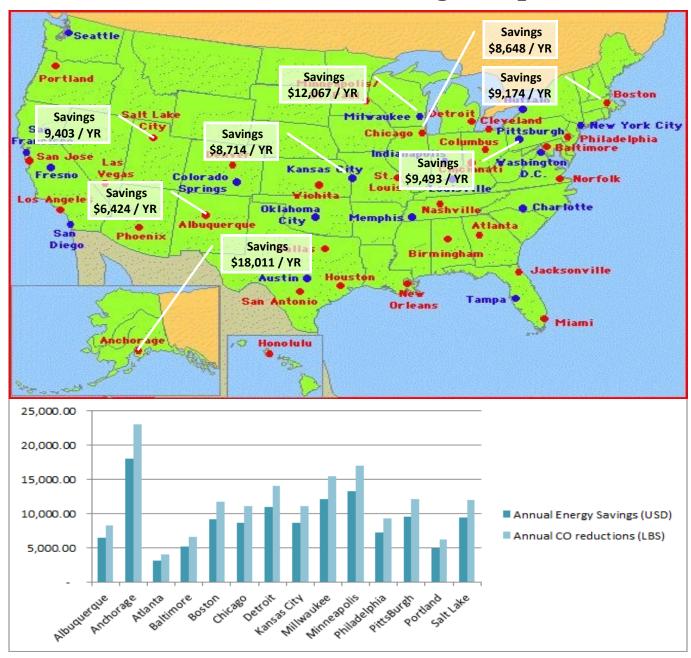
### TABLE OF CONTENTS

USA Savings Map	2
CANADA Savings Map	3
AuraCool Economizer Technology Introduction	4





# **United States Savings Map**



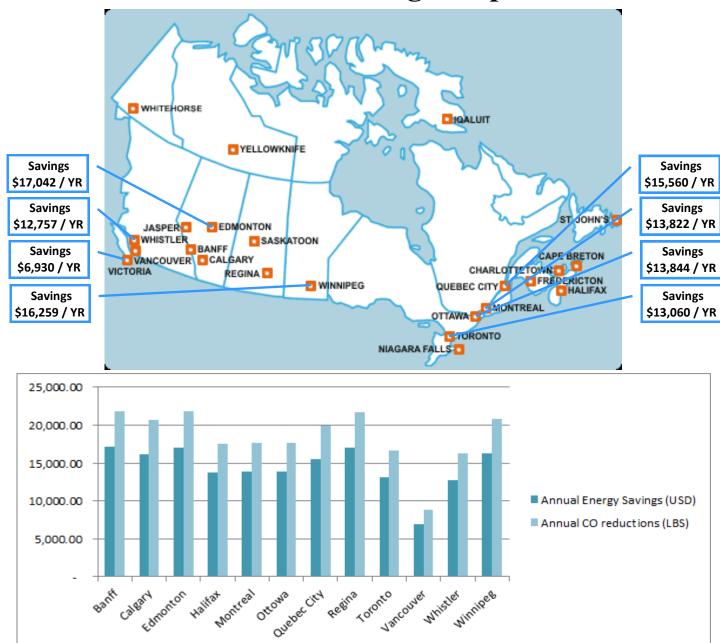
**Research Criteria:** Legacy AuraCool Model AES600-T5-R1, plumbed in a "Chiller Parallel" configuration connected to a Legacy PAC760D3-T5-Z package chiller equipped with Dual Copeland ZR380KCE Scroll compressors. Chiller running 40% P.G. with a process return of 55F (12.7 C). Site is a 24/7/365 operation with chiller loading ranging from 90% to 95%.

Data was calculated using Legacy's XL based Energy Audit tool (V2.2). Historical average high and low temperature data for each city was acquired by www.weather.com. <u>Free copies of Legacy's Chiller Energy Audit tool are available at www.legacychillers.com</u>





## Canada Savings Map



**Research Criteria:** Legacy AuraCool Model AES600-T5-R1, plumbed in a "Chiller Parallel" configuration connected to a Legacy PAC760D3-T5-Z package chiller equipped with Dual Copeland ZR380KCE Scroll compressors. Chiller running 40% P.G. with a process return of 55F (12.7 C). Site is a 24/7/365 operation with chiller loading ranging from 90% to 95%.

Data was calculated using Legacy's XL based Energy Audit tool (V2.2). Historical average high and low temperature data for each city was acquired by www.weather.com. Free copies of Legacy's Chiller Energy Audit tool are available at www.legacychillers.com



## Introduction

#### What is an Economizer?

The term Economizer, as used in the HVAC industry outlines the process of using a readily available cooling medium, such as outdoor air, to exchange heat at a low cost. The ultimate goal of an Economizer is to reduce the need to deploy higher cost cooling systems, such as refrigeration compressors, to achieve the

cooling effect. In response to ever increasing electrical grid demand, many municipalities have mandated higher energy efficiencies for US businesses and this trend is sure to continue. Economizers have historically been a cost effective way to help meet such mandates while providing a good return on investment.

mon

Legacy Chiller System's AuraCool Economizer System has transformed common fluid coolers to a new level by integrating the latest Bacnet digital control technology. Since Legacy's introduction of the Economizer System in 2007 customers have enjoyed KWH reductions up to 50% while dramatically reducing carbon footprint.

# Why retrofit chillers with AuraCool Economizer Technology?

For process applications, chillers have been used for a variety of specialty and MISSION CRITICAL applications such as MRI, Lasers, Semiconductors, Advanced Military systems, Data Centers and Surgical Rooms.

One of the key advantages of using process chillers over direct expansion



cooling is that chillers can offer enhancements in overall system efficiency while offering very tight temperature control.

Running parallel to popular air-side Economizers used in commercial air-conditioning, there is a new emerging market for chiller based (or water-side) Economizers. Until recently, deployment of Economizers on chillers have been limited to larger

tonnage (150 tons and up) applications mainly due to costs associated with controlling the Economizer systems to deploy at the right time under optimal environmental conditions.

In early 2004, Legacy Chiller Systems took a close look at large scale production of Economizers for chiller applications. We found there was a market for deployment of Economizer technology on small to medium size chiller applications. After three years of product development, Legacy was successfully awarded a US Patent for process chiller based Economizer Systems. Since initially going to market with integrated Economizer systems as an option on production chillers, the demand for such technology has been impressive. In 2011, Legacy will introduce its AuraCool line of retrofit Economizer systems that can be used on any brand process chiller application with impressive R.O.I.

## **Industry Quotes**

Data Center professionals must look beyond the short term-"the perception that designing for efficiency equates to a larger up-front investment"-and realize the big efficiency and cost picture: "the lower the PUE, the shorter the ROI on your investment"

Sun Microsystems, 2008

A water-side Economizer system can go a long way in achieving project design goals where an air-side Economizer is impractical for such applications as Data Centers, historic buildings, or where structural or aesthetic constraints are an issue.

Carl C. Schultz, P.E ,V.P. Advanced Engineering Consultants