

# White Paper:

## Businesses take another look at energy conservation as a competitive advantage



As World geopolitical events have sparked a new round of energy concerns, businesses are considering ways to turn energy conservation into a competitive market advantage. Old thinking would be to pass increased operating costs through to customers in the form of price inflation. New thinking is to invest in new energy saving strategies that can help stabilize, or even reduce, operating costs. As competitors pursue 'business as usual' and raise prices, new thinkers can maintain or reduce prices and pick up market share. **More importantly, reductions in energy usage will reduce a businesses "Carbon Footprint". In doing so, your business will help address the potentially devastating effects of Global Warming.**

## Legacy Chiller Systems offers a new solution to help businesses reduce costs

Legacy Chiller Systems, Inc., the number one provider of process fluid chillers in the USA, has developed the first fully automated chiller Economizer system. The Legacy Economizer system is designed to make use of FREE COOLING conditions that exist in many climate regions throughout the year. Depending on regional ambient temperatures and the chiller's design fluid leaving temperature, annualized energy savings can range from 35-60% with Return on Investment (ROI) ranging from 1-3 years.

In addition to the direct economic benefits of utilizing free cooling opportunities, businesses who invest in economizers will help to reduce harmful greenhouse gases that are generated to make electricity.



"Legacy Chillers provides an outstanding product with a variety of option available to fit your specific application and superior factory support to ensure a quality installation!"

**Dwayne Dennis - Quality Air Solutions  
San Ramon - CA**

### Industry Quotes

"Is Water Back in the Data Center?"

**The Data Center Journal  
2-10-11**

"The United States faces a choice today: will we lead in innovation and out-compete the rest of the world or will we fall behind? To lead the world in clean energy, we must act now. We can't afford not to.

**Secretary Steven Chu  
US Department of Energy  
2-14-2011**



# Energy Saving Solutions

## Legacy Economizer System - Basics

**Basic function is relatively simple.** As the outdoor ambient temperature drops, the opportunity to save energy by way of an Economizer increases.

**For example,** with a chiller set-point of 45F, the refrigeration system will cycle normally to maintain set-point. At night or cold days when the outside ambient temperature is 40F (or lower), an opportunity for Economizer deployment exists. As the temperature difference (TD) between set-point and outdoor ambient increases, the chiller's compressor will run less, saving increasingly more energy. At about 20F TD, the Economizer will be 100% deployed and the compressor will no longer be needed.

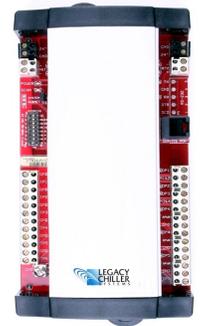


## Key components of the Legacy Economizer system



**The Chiller:** The Legacy integrated tank model chiller system is an ideal platform for an Economizer option. These 316SS tank equipped chillers are "closed loop" applications and are Economizer compatible from 1 to 20 tons. Legacy offers both air-cooled and water-cooled condenser configurations. **In Q2 of 2011, Legacy will begin production on its AuraCool retrofit Economizer systems.** The AuraCool system can be deployed on any brand chiller application.

**The controller:** At the heart of the Legacy Economizer system is our intelligent and reliable control system. Legacy patented control software is designed to extract every btuh possible from the Economizer system. In addition to rock solid reliability, the Legacy Economizer control module is BacNet enabled also providing optional remote dial-in, remote IP and remote wireless fault alarming via fax, email or text.



**The Economizer:** The Legacy Economizer outdoor fan-coil is made of only top quality copper tube, aluminum fin materials. Each free standing unit comes with a high CFM outdoor rated fan(s). Our cabinets are made of all heavy duty steel for many years of trouble free operation with proper maintenance. Vertical rack mount and ultra quiet (550 RPM) systems are also available



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## How the Legacy Economizer system works

The self-calibrating Economizer controller (EC) monitors the chiller (CH) set-point and outdoor ambient temperature real-time. When the outside air temp (OSA) drops to 5.0F below CH setpoint, the Legacy EC will open valve 1, closing valve 2 and start ECO fan(s). While ECO is deployed, the EC carefully monitors cooling performance and begins to reduce compressor run time until the ECO becomes fully deployed at about 20F differential between set-point and outdoor air temperature. The EC records and trends all aspects of energy savings for local or remote download 24/7/365 over optional dial-up or IP Intranet or Internet communication protocols.



Legacy Tank model chiller (CH)



Economizer controller (EC)



Legacy Economizer (ECO)

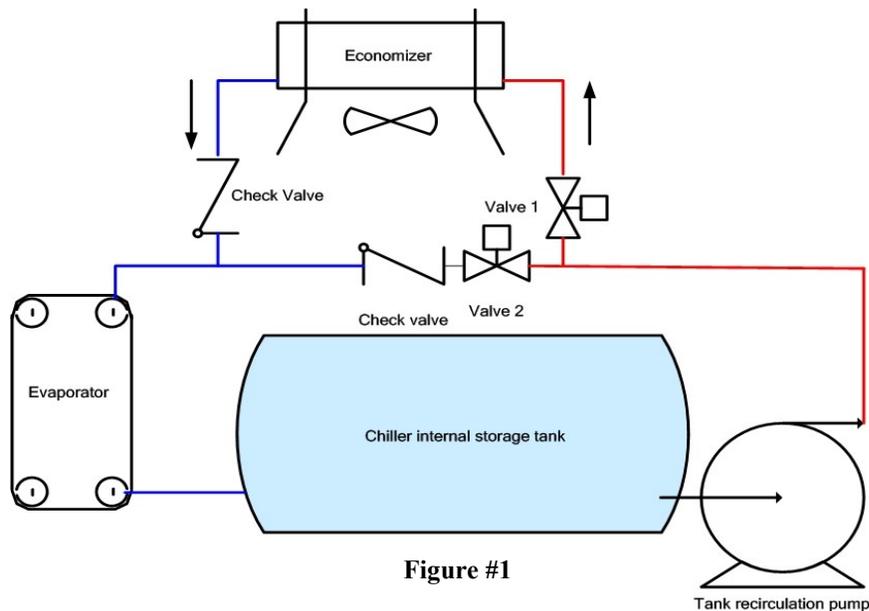


Figure #1



# Energy Saving Solutions

## Conclusion:

If sized, installed and maintain properly, chiller Economizers can provide commercial and industrial users with excellent return on investment ranging from 20 to 30 percent APR. At the same time, reductions in electrical usage means environmentally concerned business are doing their part by reducing greenhouse gasses created as part of the electrical production process.

## Comments:

- The Legacy Chiller Economizer System is U.S. Patent Pending design - all rights reserved.
- Legacy provides a FREE chiller energy audit tool. This program can be requested at the Legacy main website: [www.Legacychillers.com](http://www.Legacychillers.com).
- Questions or comments:

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