



Air Management Technologies, Inc.
Building Energy & Environmental Services



Guaranteed Solutions:

Process Cooling

- ◆ Mixer & Sponge Systems
- ◆ Chilled Ingredient Water
- ◆ Finished Product Cooling
- ◆ Blast Freezing
- ◆ Refrigeration

Process Heating

- ◆ Water Heating
- ◆ Steam & Hot Water Systems

Environment Conditioning

- ◆ Proofing/Retarding
- ◆ Spiral (Finished) Products
- ◆ Oven Steam
- ◆ Mold & Particulate Control

Industrial HVAC

- ◆ Makeup Air Systems
- ◆ Spot Cooling
- ◆ Space Pressurization
- ◆ Filtration
- ◆ Mechanical Cooling
- ◆ Ventilation

Waste Heat Recovery

- ◆ Ovens & Oxidizers
- ◆ Solar/Fuel Cells
- ◆ Compressed Air
- ◆ Industrial Fryers

Specialized Technologies

- ◆ Absorption Refrigeration
- ◆ Cascade Refrigeration
- ◆ Industrial Heat Pumps
- ◆ Solar/Fuel Cells
- ◆ Organic Rankine Cycle

Closed-Loop Energy Systems Wholesale Baking Facilities



Closed Loop Energy Systems (CLES) are typically defined as capturing “waste” from the production process and returning it as input energy to offset what otherwise would be required to support the process. In the wholesale baking industry, significant potential is available by recovering the waste heat from ovens which is sufficient in most cases to provide enough energy to support a majority of the process requirements. It is a mistake to underestimate the ovens exhaust energy potential. Technologies exist with industrial heat pumps & balancing techniques to provide efficiencies many times that of traditional boilers. Ovens are not the only source of waste heat. In other applications such as “Proof Freeze” the refrigeration systems can actually provide the necessary waste heat. Some typical end uses include proofing, water heating, basket & pan washing, space heating, feed water preheat and when absorption cooling is used, mixer and ice water refrigeration.

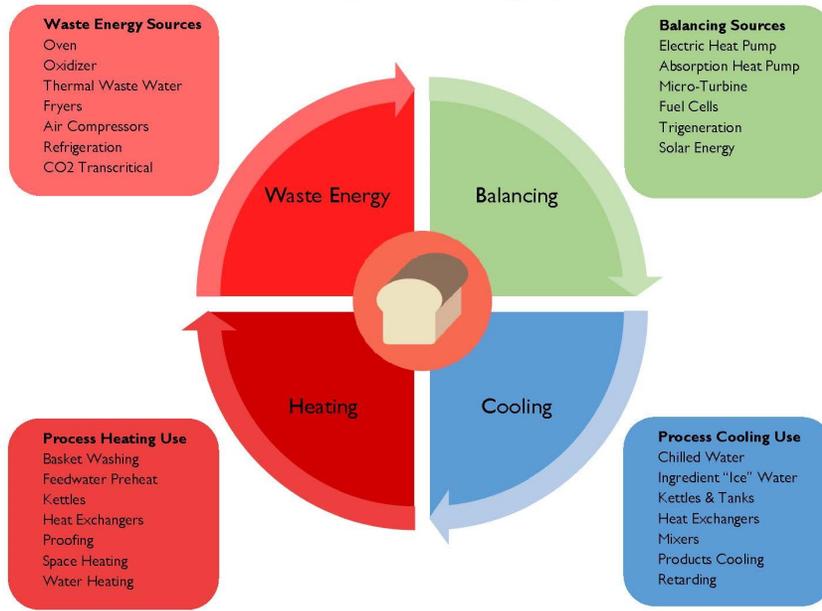
Capital Investment

Capital investment is almost the same as traditional systems when designed as part of a new facility design. The return is immediate or short term with savings that will last for a lifetime. Existing facilities are more difficult to achieve an acceptable return especially since natural gas prices have fallen and many times capital cost avoidance does not exist unless boilers or end uses need to be replaced. In this case, a “Pathway to Sustainability” is devised that assesses the existing system and allows a phased approach over the long term as various end uses and finally the boiler is replaced. It may take 15 years until the CLES is in place; however, it will provide an alternative to the cycle of installing inefficient systems to replace inefficient systems.

Food Production & Environmental Stewardship

Thermal Processing Facilities

Closed-Loop Waste Energy Systems



System Operation

Numerous options exist depending on the application but the basis of design is the same to first examine what end uses exist and simply balance with generation. It does not make sense to generate more energy than can be used. Once this is defined, the most cost effective method to harness the energy potential is determined and a utility created that will meet the process demands. System distribution is normally through piping from the generation source to end uses and "peaking" systems are integrated into the design to facilitate cold starts and provide complete backup in the event that the "free" energy source is not available. Systems can be monitored locally and remotely to facilitate efficient operation with viewing through a graphic interface with a BTU meter documenting savings.

Sustainability & Cost Saving Benefits

It is not uncommon to see Greenhouse Gas emissions reduced by a 1,000-tons or more per year and energy savings will vary depending on various factors; however, in many cases, this can exceed \$100,000 in high speed facilities that have both bread and bun lines. In addition, maintenance costs are dramatically reduced when compared with traditional steam systems with increased controllability and not having steam and water conditioning requirements. Food Safety, in regards to chemical exposure, may also be a benefit in cases where boiler steam is directly injected into proofers.

About Us

Air Management Technologies has delivered energy, thermal process conditioning, and environmental solutions for over twenty years. Our written performance guarantee places the responsibility in our hands and the life cycle benefits in yours. Cost conscious decisions are made with the customer in mind and every project is guaranteed to operate as specified.

