

## Heat Recovery Absorption Heat Pump

### **Disclosure Number**

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### **Technology Summary**

The invention relates to heating systems and more specifically to a Heat Recovery Absorption Heat Pump for improved efficiency. Conventional gas-fired boilers release flue gas to the atmosphere at temperatures higher than the water vapor dew point resulting in thermal efficiencies less than 80%. Although condensing boilers have been developed in the 1970s to recover the heat by condensing the water vapor in the flue gas, the present market share of condensing boilers is still below 2%. The major reason is that the temperature of the return water in typical hot water heating system is typically very close to the dew point of the water vapor in the flue gas, resulting in limited improvement in thermal efficiency. This invention suggests new concepts of Heat Recovery Absorption Heat Pumps (HRAHP) which effectively recover the energy in flue gas to improve boiler efficiency by 10-15%.

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