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## **Green Steam: The energy-efficient urban solution**

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When it comes to energy efficiency and renewable energy, building owners and developers have a multitude of options to consider. Many of these options are well-publicized solutions such as solar panels, wind turbines or LED lighting. However, one of the most impactful energy solutions has a much lower profile, although it has proven its ability to deliver a significantly positive impact. This solution entails recycling the waste heat from power generation, through the use of combined heat and power (CHP) technology and district energy.

Traditional power plants burn a fossil fuel (such as natural gas) and inefficiently discharge a significant percentage of the fuel as waste heat into the air or a nearby body of water. What many don't know is that the waste heat can become useful energy when it is converted it into steam and distributed directly to buildings via the pipes in a district energy network for space heating, domestic water, and space cooling needs.

CHP technology is highly-efficient because it typically converts up to 85% of the fuel into useful thermal energy, which equates to roughly 40% less fuel consumed than when heat and power are produced separately in boilers and power plants, respectively.

Boston and Cambridge benefit from CHP technology by utilizing the waste heat that was formerly discharged into the Charles River to heat hundreds of buildings in Boston. Approximately 50% of the steam used by the Boston district energy network is energy-efficient, "green" steam that is imported from a CHP plant in Cambridge. The "green" steam model continues to grow with Boston's commercial building development, and has proven to be an efficient energy solution for building developers. For the past two years, the Boston network has been recognized by the International District Energy Association (IDEA) for adding and renewing the most buildings of any network in North America.

The combination of "green" steam from CHP and the district energy networks in the Boston and Cambridge area will soon result in a reduction of annual carbon dioxide emissions equivalent to more than 50,000 cars being removed the streets. To give this a renewable energy perspective, area buildings would have to install 600 football fields' worth of solar PV panels on their rooftops to achieve the same level of carbon dioxide emissions. "Green" steam through CHP and district energy is an efficient and impactful urban energy solution that benefits buildings and city residents alike.

Rowan Sanders is director of marketing and communications of Veolia Energy North America, Boston and is a monthly contributing Energy Efficient Solutions author for the New England Real Estate Journal's Green Building section.

New England Real Estate Journal - 17 Accord Park Drive #207, Norwell MA 02061 - (781) 878-4540