

The following is a summary of the July 25 webinar *Making Smart Cities Smarter with Sustainable Sensors*, hosted by the Green Electronics Council (GEC) and supported by the GSMA. The webinar featured four presenters:

1. Nancy Gillis, CEO of the Green Electronics Council
2. Dr. Christine Kendrick, Smart City PDX Coordinator for the City of Portland, Oregon
3. Rob Beckius, President & CEO of Apis, Inc.
4. Jason Nelson, Executive Director for Partner Engagement at the Smart Cities Council

Nancy Gillis, CEO, Green Electronics Council (GEC)

GEC is a mission-driven non-profit that envisions a world in which only sustainable information technology (IT) products are designed, manufactured, and purchased. GEC is known for its flagship EPEAT program, the leading IT ecolabel used by institutional purchasers around the world. EPEAT requirements are easily integrated into the procurement process and give purchasers access to a broad number of sustainable IT products, including mobile phones, desktop and laptop computers, imaging equipment, and televisions. An EPEAT category for servers will launch shortly.

The City of Portland, Oregon, approached GEC about the City's plan to embed thousands of sensors as part of its Smart City initiatives. GEC worked with the City to consider the sensors' full lifecycle and determine how criteria in the City's procurement process could drive the purchase of sustainable sensors. These conversations led to the integration of recycling and reuse requirements in the City of Portland's Smart City proposal to the National Institute of Standards and Technology (NIST). The procurement had a positive influence on both the City of Portland and one of its sensor suppliers. The hope is that other cities will follow Portland's lead to help ensure sensors don't add to the global e-waste issue. GEC will continue to partner with the City of Portland to bring sustainability aspects to Smart City initiatives.

Dr. Christine Kendrick, Smart City PDX Coordinator

Dr. Christine Kendrick's role is to make Portland a place where data and technology improve people's lives and support community-driven goals and values. The City's Air-Quality (AQ) Sensor Pilot was developed in response to community interest in more localized AQ data. Sensors could address the cost and space-constraint issues often associated with traditional monitoring methods. However, Dr. Kendrick recognized GEC's concern that the use of sensors could increase e-waste if sustainability factors were not included in City projects.

GEC and the City developed procurement criteria that described specific device requirements such as minimum and maximum detection limits, weatherproof housing, and the ability to upgrade or modify the sensors to minimize e-waste. These requirements influenced sensor design prior to purchase. The City selected modular

sensors that have now been deployed at three co-located locations so the City can better understand how each sensor performs and their best uses for future projects.

Rob Beckius, President & CEO, Apis, Inc.

Apis is an environmental monitoring company that provides low-cost AQ monitoring in high-density locations. Its modular sensors are being used in the City of Portland project and for another Smart City project in San Antonio, Texas. Mr. Beckius said poor AQ is the number-one global health hazard and is responsible for three million deaths per year.

Apis' solution uses electrochemical sensors that have a common form factor. The company had initially planned to stop using a reusable socket in its sensor design. After speaking with Dr. Kendrick, Apis realized its initial design with the reusable socket was important to keep. With the modular design, Apis can reuse almost every piece of the sensors. As sensors become more commonplace, the problem of e-waste has the potential to increase. Modularity and reuse can reduce the amount of solid and liquid waste entering waste streams. Apis is trying to reuse as many electronics as possible.

Jason Nelson, Executive Director for Partner Engagement, Smart Cities Council

The world population is expected to grow to 9.7 billion people by 2050, putting intense pressure on the world's resources. Urban populations will grow even more quickly, with two-thirds of the world population living in urban environments by 2050. Mr. Nelson noted that the world needs to grow in ways that are livable, workable, and sustainable.

It is estimated that 75% of the United States' infrastructure must be renovated or replaced by 2030. Cities like Portland are thus transforming rapidly and are in a race to compete for economic development. These Smart Cities are embracing technology to collect, compute, and control data in order to address many urban challenges. Some of the key drivers for Smart Cities are larger urban populations, climate change, improving resilience, and being globally competitive. The Smart Cities Council has several initiatives underway and many resources available to support these efforts.