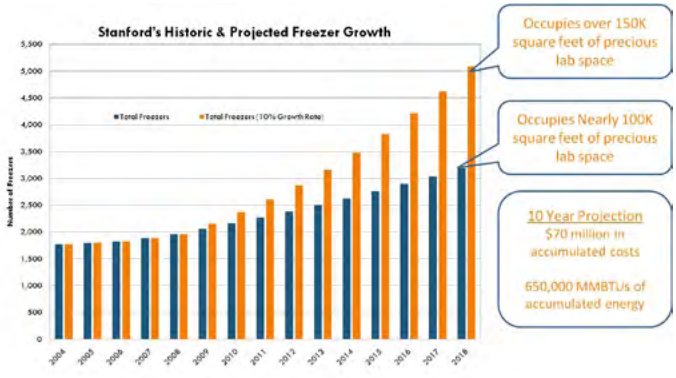
FACT SHEET: ROOM TEMPERATURE BIOLOGICAL SAMPLE STORAGE

SUSTAINABILITY OPPORTUNITY

Stanford University has completed a pilot project to evaluate a novel technology with the potential to reduce energy consumption, achieve sustainability goals, and optimize laboratory space. Using this proprietary stabilization technology, laboratories can store biological samples that are typically stored frozen at room temperature, thus reducing dependency on costly freezers, energy consumption, and their carbon footprint. The pilot was designed to assess the current economic and environmental impact of freezer-based storage, provide "hands-on" experience with this new technology, and demonstrate the potential benefit of room temperature sample storage to the entire campus. Based on the spring 2009 pilot results, the Department of Sustainability and Energy Management partnered with the School of Medicine to offer a rebate program to incentivize early freezer retirement and the adoption of room temperature storage technology..

IMMEDIATE NEED & DEMAND

- Almost 2,000 freezers currently on campus
- Protection of biological and clinical samples and related intellectual property is critical to the Stanford's mission
- Observed rapid increase in rate of sample creation
- Cold environment is costly and difficult to manage - vulnerable to power disruption
- Historical growth is unsustainable; predicted growth is a crisis



PILOT PROJECT HIGHLIGHTS

- Enthusiastic response from over 20 School of Medicine and Department of Biology laboratories for participation
- Pilots validated room temperature storage technology for DNA and RNA samples
- Between 9 million and 13 million samples (20-25% of campus-wide total) identified as potential candidates
- Simple payback of 2 - 3 years
- Potential annual savings up to 2.4 million kWh of electricity and 1100 tons of CO_2 emissions

INITIAL PROGRAM IMPLEMENTATION

- Stanford's Department of Sustainability and Energy Management and the School of Medicine launched a "cash for clunkers" rebate program in fall 2009 to encourage replacement of ultra-low temperature (-80) freezers
- Cash incentives for the following actions:
  - Retirement without replacement
  - Retirement with an energy-efficient replacement and/or room temperature storage
  - Placing new samples directly into room temperature storage
- Educational symposium held in March 2010 showcased pilot project success with room temperature storage and increased publicity and awareness
- Program participation in FY10 exceeded expectations with freezer retirement, but did not meet adoption goals for room temperature storage

REMOVE BARRIERS / NEXT STEPS

- The FY11 program will be reshaped to address identified barriers:
  - 1st costs of room temperature storage technology
  - Labor costs for room temperature storage conversion
- Refocused educational campaign will promote room temperature storage as industry leaders work to develop technology to store proteins, complex samples, assays, and cells

MORE INFORMATION

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SUSTAINABLE STANFORD