

Renewable Energy in Higher Education—HEEA



Renewable Energy Supplier Summit
Austin, Texas
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U.S. Higher Education

- Nearly 4,100 colleges and universities
- Nearly 15 million students
- Annual expenditures nearly \$300 billion

Higher Education Associations

- Association for the Advancement of Sustainability in Higher Education (AASHE)
- Society for College and University Planning (SCUP)
- National Association of College and University Business Officers (NACUBO)
- The Association of Higher Education Facilities Officers (APPA)

American College and University President's Climate Commitment

- Led by presidents and chancellors
- High visibility
- Joint action to leverage change
- Action plan for climate neutrality
- Research and education
- Develop societal capacity

ACUPCC Signatories to Date

- 667 colleges and universities
- As of February 15, 2010

ACUPCC—5 Goals

- Greenhouse gas inventory
- Become climate neutral
- Reduce greenhouse gas
- Sustainability curriculum
- Action plan public

Colleges and Universities

- Agnes Scott College
- Ball State University
- College of Menominee Nation
- The George Washington University
- Harvard University
- Los Angeles Community College District
- Massachusetts Institute of Technology
- Middlebury College
- The Pennsylvania State University
- Stanford University
- University System of Georgia
- University of California, Los Angeles
- University of Colorado at Boulder
- The University of Maryland
- The University of North Carolina at Chapel Hill
- University of Washington

Associations

- Association for the Advancement of Sustainability in Higher Education
- APPA: The Association of Higher Education Facilities Officers
- National Association of College and University Business Officers
- Second Nature
- Society for College and University Planning
- U.S. Partnership for Education for Sustainable Development

Energy Conservation

- Retrofit all energy-consuming elements
 - Lights, fans, pumps, etc.
- Install conservation features in all buildings
 - Insulation, low-E glass, white roof, green roof
- State-of-the-art and new technologies
 - Occupancy sensors
- Metering and monitoring systems

Renewable Energy Program

Solar PV



Thin Film



Mission College Solar Farm



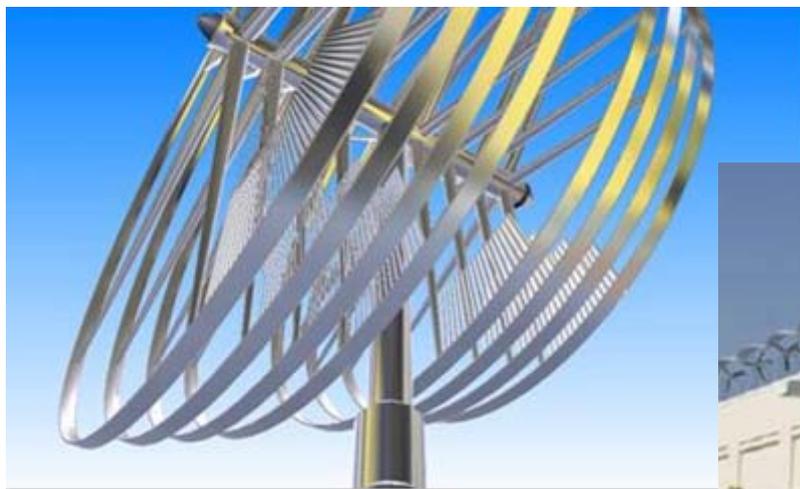
Concentrator



East L.A. College Solar Farm

Renewable Energy Program

Urban wind



**Commercial Building
Energy Alliances**

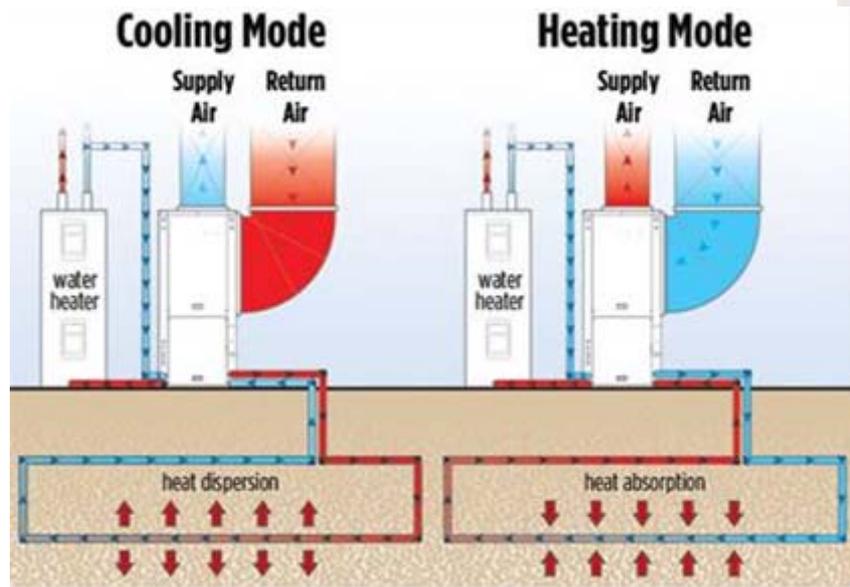
Renewable Energy Program

Solar thermal



Renewable Energy Program

Geothermal



Renewable Energy Program

Ice storage

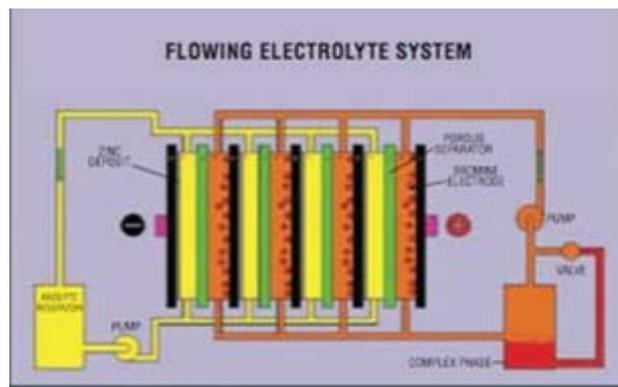
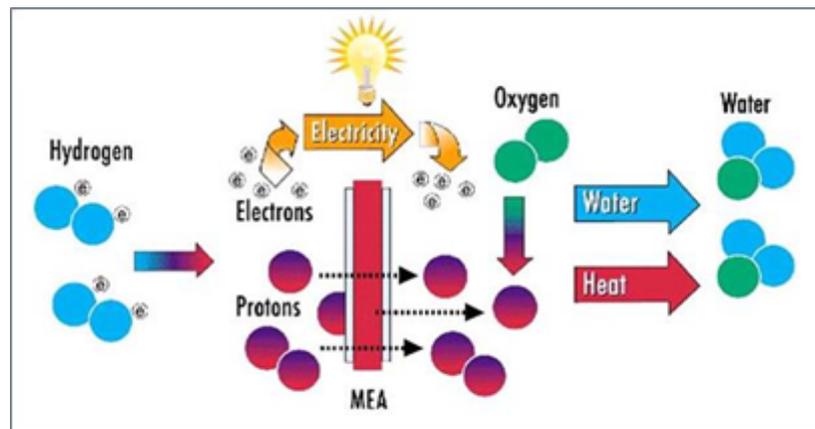


Commercial Building
Energy Alliances

Renewable Energy Program

Energy Storage

- Thermal
- Electrolyzer
- Solid-state hydrogen
- Fuel cell
- Lithium ion battery
- Flow battery



Questions?