Green Education – A New Frontier

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Examples of Frontiers:
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Some Common Factors:
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The New Green Economy
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Emerging Technologies & Opportunities
The “Green Economy” could create 4.2 million jobs in the next 30 years.

More than 3 million would come from a switch to renewable power and alternative fuels.

Source: U.S. Conference of Mayors
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Profiles of 200 green jobs currently in California

Details on 45 job types for high school grads, many paying over $25 per hour

Information on job training and placement programs

Listings of valuable apprenticeship programs

www.edf.org/cagreenjobs
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1 Low Carbon Power & Renewable Power
2 Carbon Capture & Storage
3 Energy Storage Equipment & Systems
4 Energy Efficient and Demand Response
5 Green Buildings
6 Transportation
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7 Carbon Markets: Trading & Projects
8 Climate Change Adaption
9 Public-sector / Government
10 Consulting & Research
11 Waste Reduction & Management
12 Non-Profit Sector
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About

Pierce College
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Pierce College Project Examples:
Woodrow W. Clark II, MA³, Ph.D.
Director, Renewable Energy Program
Los Angeles Community College District (LACCD)
18 February 09
Agile Energy Infrastructures:
Central grid and On-site generation

The shape of grids to come?

Conventional electrical grid
Centralized power stations generate electricity and distribute it to homes, factories and offices.

Energy Internet
Many small generating facilities, including those based on alternative energy sources such as wind and solar power, are orchestrated using real-time monitoring and control systems.

Offices or hospitals generate their own power and sell the excess back to the grid. Hydrogen-powered cars can act as generators when not in use. Energy storage technologies smooth out fluctuations in supply from wind and solar power.

Distributing power generation in this way reduces transmission losses, operating costs and the environmental impact of overhead power lines.

Source: The Economist 2008
Programs in Sustainability

Cities and Climate Change
A Solutions Oriented Conference
University of Southern California
Davidson Conference Center
Thursday, April 30, 2009
9:00 AM - 4:30 PM

Keynote Address by Dr. Phillip Duffy
Senior Director of Climate Central, Director of the University of California Institute for Research on Climate Change and its Societal Impacts, and Professor in the School of Natural Sciences, UC Merced
Conference participants include representatives from Arcos, the California State Senate, BPI, C4LA, SCOPE/Apollo Alliance, Urban-ReLeaf, USC, the Ventura City Council, VerdeXchange, and other organizations.

While cities have contributed their fair share to climate change - think belching factories and clogged freeways - they might also be more promising than problematic in the future. On April 30th, we will turn to urban solutions, like energy efficient office buildings, mass transportation, and cleaner industry, that might curb climate change.

We’ve asked policy makers, practitioners, justice advocates, and business leaders to join us in exploring these three questions in relation to Southern California: How do we build better cities? How will our health be affected? How will the green economy relieve the pressure, especially as folks in the chronically disadvantaged...
First Hybrid Automobile

1903 Lohner-Porsche Carriage
Hybrid Technologies Today: The Near-Term Transition

Economist
Technology Quarterly Special Section
4 December 04, pp: 1-39
"Why the Future is hybrid” p. 26-30.
Green Building Hybrid Systems
NRDC (Santa Monica)

- Water recycling & conservation
- Solar panels, natural light, energy efficient fixtures and appliances
- Recycled/recyclable materials in furniture & construction
- Platinum LEED
Row upon row...... "A sea of green sustainable energy"
Other Roofing Applications
All Electric Car: No Tail Pipe
Fuel Cell Basics

A fuel cell is a device that generates electricity by a chemical reaction.
WindJet Demonstration Technology
Renewable Energy Generation
Urban Wind Power

Architectural Windmills
- Designed for light wind
- Deploy multiple units
- 1 to 6kW output each
- Bird friendly
It’s not easy *becoming* green!

A CEO Perspective
Bob Garber
President, Pierce College
A Sustainable Vision

- Planning for a new bond
- Developing a plan for the future
- Building a sustainable vision
- Educational
- Economic
- Environmental
Campus Projects
Future Facilities Planning

- LEED Certified projects
- Green Technology
- Digital Arts and Media
- Alternative Fuels
- Campus energy initiative
- Supply
- Demand
- Sustainable horticulture
- Storm water mitigation
- Green Tech Incubator
Sustainability Strategies

- Degrees online – Title V
- STEM funding
- EPA Manure Team
- I-Pass – subsidized public transit
- Campus recycling program
- Sustainable Building Policy
Educational Sustainability

- Developing curriculum
- Green Technologies
- Digital Arts
- Alternative Fuels
- Horticulture
- Sustainability across the curriculum
- Future funding – grants, partnerships
- Student engagement
We must be the change we want to see.

Mahatma Gandhi
LA Pierce College

“Vision and Process for the Development of Sustainable and Green Programs at Pierce College and their Role in Shaping the Community”

Jose Luis Fernandez, M.B.A.
February 18, 2009
Vision

Sustainable & Green Programs
Create, revitalize and maintain premier, world class, sustainable and green programs.

Role in Shaping the Community
Prepare students with the skills necessary to competitively perform in the diverse industries of the region, enhance business competitiveness and add value to a sustainable, green and vibrant economy.
Create Infrastructure

Develop a Sustainable and Green Industry Executive Advisory Task Board - tasked to develop and guide the implementation of a business plan, to create and maintain a premier, world class Sustainable and Green Programs.
Creating the Organization

Membership:

- CEOs and/or GMs
- WIB Executive Personnel
- Industry Association Representatives
- College President (& a Trustee)
- Academic Managers
- Grants & Foundation Director
- Faculty and Department Chairs
Sustainable & Green Business Plan

Market Environment Analysis/Scan (Forces, Trends, Opportunities, Threats and Implications)

- Economy
- Technology
- Resources (Workforce)
- Social/Cultural/Demographics
- Political and Legal
- Competition
Sustainable & Green Business Plan cont.

Elements of Business Plan:

1. Vision
2. Values
3. Mission
4. Goals/Objectives
5. Programs/Certificates/Workforce Training, Distance Education Strategy
Elements of Sustainable & Green Business Plan cont.

6. Organizational Structure Strategy (example)
Elements of Sustainable & Green Business Plan cont.

7. Personnel Strategy - Credit Instruction and Workforce Training, Support Staff
8. Facilities Strategy
9. Technology and Equipment Strategy
10. Faculty Development Strategy
11. Student Internship Strategy
12. Marketing, Enrollment Development/Retention Strategy
Elements of Sustainable & Green Business Plan cont.

13. Financial Strategy

- Industry Contributions: Cash, Technology, Equipment, Training, Professional Personnel, Time, Scholarships, Paid Internships, Faculty Development Opportunities...

- Federal and State Grants

- Private Foundation Grants

- Contract Workforce Training...
Elements of Sustainable & Green Business Plan cont.

14. Internal Organizational Strategy

• President, Chancellor and Trustees Support
• Collaboration of Management Team
• Active Participation of Academic Senate and Curriculum and key Committees…
• Involvement of Grants & Foundation Director
• Cross Departmental Faculty Integration & Support: Basic Skills, Academic Programs, Counseling and Career Disciplines
• Dept. Chairs & Faculty in Leadership Roles
Vision for a Sustainable and Green Institute

• Partners with industries and community organizations to analyze trends in demographics, resources, technologies, legal, political, economic and other forces
• Identify new business opportunities and workforce training needs in the region
• Support local business and industry in achieving sustainable economic solutions and competitiveness
• Offers entrepreneurship, management and technical training and consultation for existing and new businesses
• Informs college community of current and future dynamic changes in demographics, workforce needs and other economic forces and issues
• Centralizes marketing and promotion for business development consultation, career and workforce training