

Master of Science in Sustainability Management

Energy and Sustainable Development - PS5150 **3 Credits**

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Course Overview

Perspectives Examined

Sustainable energy and sustainable development are multi-dimensional. While it may seem that international agreements, meetings and institutions are the driving force of change, there are many perspectives to consider as potentially more important to actual change. This course examines many of these.

1. Customer and End-user-What are the factors that influence the purchase of more or less sustainable energy by consumers?
2. Country and National Government-What conditions dictate a country's path to a more or less sustainable energy and sustainable development future?
3. International Organizations and Agreements-What goals, priorities, activities and resource allocations point to a more sustainable future?
4. Programs-Which country and regional activities tend to increase energy availability and advance sustainable development?
5. Product and Service Businesses-What are the fundamental considerations when selling more sustainable energy goods and services in "frontier" markets?
6. Project Developers-What issues face grid and off-the-grid sustainable energy project developers and operators?
7. Grid Utilities-What sustainability issues confront the traditional central station utility?
8. Financier-What factors influence making an investment decision in sustainable energy in frontier markets?
9. Regional or Specialized Perspectives-What are the similarities and differences among regional or "special" perspectives such as least developed countries or small islands?

Issues Explored

Energy is a necessary but not sufficient condition to all manner of economic, human, social and sustainable development. It cuts across

- Health, Nutrition and Air Quality
- Climate Change Mitigation and Adaptation
- Gender, Youth and Opportunity Creation
- Agriculture, Food and Natural Resource Management
- Migration and Refugees

Method and Learning Objectives

The following complementary activities are undertaken in this course.

- Review of Briefing Materials (provided on Canvas-Courseworks) in advance of class
- (Classroom) Introductory Remarks, Class Q&A and Discussions
- Semester-long Research of an Assigned Country
- Formulation of a Country-specific Program, Project or Business
- Three Short, "Building Block" Assignments Leading to a Final Paper

Its primary learning objective is to expose participants to methods that will allow objective analysis while at the same time sensitizing participants to the inherent ambiguities and "grey" issues (e.g., vested interests and subsidies).

Secondary learning objectives involve (1) exposure to analytical frameworks and tools useful beyond the energy for sustainable development space in the practical evaluation of programs, projects and businesses students may encounter; and, (2) taking a retrospective look at what seem to be merely current issues, recognizing the progress or lack of progress that has characterized the discussion of sustainability since 1980.

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Workload

1. You will research one of these countries: Bolivia, Cambodia, Colombia, Haiti, Jamaica, Uganda or Zambia.
2. You will prepare three short assignments, a summary slide deck and a final paper:
 - Short Assignment 1 will consist of an analysis and summary of the market, policies, programs and enterprise activities (public sector, private sector, and hybrid) that characterize conditions in your selected country.
 - Short Assignment 2 will consist of identifying a “short list” (at least two, no more than four) of initiatives that appear appropriate to the conditions identified in your research.
 - Short Assignment 3 will select a final initiative and identify the conditions that will likely determine its success or failure. This will include a basic feasibility analysis.
 - Three “draft” slides that summarize your research and thinking.
 - Final Paper will consist of a synthesis of your three short assignments, including a set of recommendations and next steps that you believe will be instrumental in determining success. Appended to this ten-page paper will be the research documentation you have gathered throughout the semester, and the “final” version of your three slides.
3. You will read and critically evaluate documents found on Courseworks / Canvas, visit websites and prepare for weekly in-class discussions.
4. You will have the opportunity (voluntary) to self-organize with classmates to compare notes on your chosen country, your research findings, and your thinking regarding creating a viable energy enterprise.

Grading

- Three Short Assignments - 10 points each – for 30% of grade
- Final Paper and Slides – 40% of grade
- Weekly Participation and Summary Slides – 30%

School Policies

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Class Schedule

Class	Readings*	Assignments	Issues and Perspectives	Technologies	Tentative "Discussion"
1	"Syllabus"		Affordability Country; Social Enterprise; Customer	Solar PV	"Energy and Sustainability: What do we mean by sustainable development?"
2	"Expectations Concerning Assignments" "Conducting Country Research"	Country Selected	Goals and Progress Reporting; Health; Credit Multi-market versus Local Manufacturer; Customer	Improved Cook Stoves and Fuels	"Energy and Development: What is the appropriate 'unit of analysis' and planning?"
3	"2019-Tracking SDG 7, The Energy Progress Report" (selections)		Climate; Low-Carbon Energy Technologies Global Advocacy Groups and IGOs; Donors; Technology R, D & D; Sectors	Power, Fuel Supplies; Industry; Transport; Buildings	"What is the state of energy decarbonization and what is the role of technology in market transformation?"
4	Visit these websites...Green Climate Fund, FMO, Global Environment Fund, GIZ, IFAD, Shell Foundation, CleanStart, Clean Cooking Alliance ... more to be added and workload divided...		Food; Agriculture; Nutrition Intermediaries; Donors	Solar Pumping; Water Chain; Cold Energy Efficiency	"Where is the money and support to enable energy for sustainable development at early stages of market transformation?"
5	"Mobisol Folder"	Assignment 1 is due	Scale; Return Expectations Tech Driven Enterprises; Investors	Pay-Go	"Where is the money to grow sustainable energy and sustainable development?"
6	"Female Microenterprise Creation-Multiple Randomized Experiments"		Migration & Refugees; Triple Bottom Line Charities; Relief Agencies; NGOs	Energy Efficiency; Energy micro-enterprises	"More than Money"

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7	“BSP-Making Markets Work for the Poor-Nepal”	Assignment 2 is due	Public-Private-Coordination Country – Government Tech Deployment; Project Developers and Contractors	Waste to Energy; Biogas; Grid-Connected RE	“Large-scale ‘top-down’ deployment of technology”
8	“Making Energy Affordable for Africa and Viable for Utilities”		Affordability; Viability Utility; Development Finance	Various; Grid-Connected RE	“Are even weak utilities underutilized assets?”
9	“Electrifying Africa—Minigrids—5 Lessons from Tanzania”		Reliability; Viability; Gender Project Developer-Operators	Minigrids	“Where should the energy priorities be set? Are these the same as priorities for energy and sustainable development?”
10	“Future Climate Risk from Compound Events”	Assignment 3 is due	Scale; Incentives Market Transformation and Sustainability Management Professionals	Efficiency; Energy Access Tech	“Mitigation, adaptation or resilience”
11	“Financing Development with Fossil Fuel Subsidies”		Int’l Negotiations; Program Cooperation Geographic Regions		“Is sustainable development affordable?”
12	“Nepal SDG Report”	Three Draft Slides are due	Int’l Negotiations; Program Cooperation Specialized Groups		“Global versus Country”
13		Final Paper Due	Sustainability Yours		