ARIZONA STATE UNIVERSITY

GENERAL STUDIES PROGRAM COURSE PROPOSAL COVER FORM

Courses submitted to the GSC between 2/1 and 4/30 if approved, will be effective the following Spring.
Courses submitted between 5/1 and 1/31 if approved, will be effective the following Fall.

(SUBMISSION VIA ADOBE.PDF FILES IS PREFERRED)

DATE January 9, 2012

1. ACADEMIC UNIT: School of Sustainability

2. COURSE PROPOSED: SOS 194 The Thread of Energy 3
   (prefix) (number) (title) (semester hours)

3. CONTACT PERSON: Name: Susan Ledlow Phone: 5-8645
   Mail Code: 5502 E-Mail: ledlow@asu.edu

4. ELIGIBILITY: New courses must be approved by the Tempe Campus Curriculum Subcommittee and must have a regular course number. For the rules governing approval of omnibus courses, contact the General Studies Program Office at 965-0739.

5. AREA(S) PROPOSED COURSE WILL SERVE. A single course may be proposed for more than one core or awareness area. A course may satisfy a core area requirement and more than one awareness area requirements concurrently, but may not satisfy requirements in two core areas simultaneously, even if approved for those areas. With departmental consent, an approved General Studies course may be counted toward both the General Studies requirement and the major program of study. (Please submit one designation per proposal)

Core Areas
- Literacy and Critical Inquiry—L
- Mathematical Studies—MA
- Humanities, Fine Arts and Design—HU
- Social and Behavioral Sciences—SB
- Natural Sciences—SQ

Awareness Areas
- Global Awareness—G
- Historical Awareness—H
- Cultural Diversity in the United States—C

6. DOCUMENTATION REQUIRED.
   (1) Course Description
   (2) Course Syllabus
   (3) Criteria Checklist for the area
   (4) Table of Contents from the textbook used, if available

7. In the space provided below (or on a separate sheet), please also provide a description of how the course meets the specific criteria in the area for which the course is being proposed.

CROSS-LISTED COURSES: □ No ☒ Yes; Please identify courses: GCU 194

Is this an all-section course?: □ No ☒ Yes; Is it governed by a common syllabus? 

Sander van der Leeuw
Chair/Director (Print or Type)

Date: 01/06/12

Chair/Director (Signature)

Rev. 1/94, 4/95, 7/98, 4/00, 1/02, 10/08
Description of How GCU 194/SOS 194—The Thread of Energy—Meets the Global Designation

The School of Sustainability, as a part of the Global Institute of Sustainability, stresses the global nature of sustainability in all its courses. Sustainability is, in its essence, global in scale. Energy development, distribution, and utilization will continue to be key elements in building a sustainable future everywhere on the planet. The course emphasizes how energy supply, demand, location, trade, and policies in one location affect sustainability on a global scale.

This course introduces students to the relationships between human societies around the globe to the larger energy system. An understanding of scale, from local to global, is an explicit learning outcome of the course, and one of the concepts that is reinforced in each unit.

The course description and schedule include topics such as:
- The role of energy in global society
- The impact of energy on global climate change
- Energy poverty and inequalities across nations and cultures
- National and international security and energy

The texts we selected for this course, "Energy for Sustainability" and "The Energy Reader" are both global in their orientations with specific chapters addressing global aspects of Energy.

The developer and teacher of the class, Dr. Martin Pasqualetti, is a geographer who specializes in the ties between energy, geography, environment, society, and security. He has offered his course, "Energy in the Global Arena", regularly during his tenure, and he will ensure that a global perspective is also woven through the choice of supplemental materials, lectures, and discussion boards for GCU 194/SOS 194 as well.

The weekly journals comprise 20% of students' grades. The journal prompts and follow-up comments by the teaching assistants reinforce the concept that sustainability is a global concern that transcends national boundaries.
Arizona State University Criteria Checklist for

GLOBAL AWARENESS [G]

Rationale and Objectives

Human organizations and relationships have evolved from being family and village centered to modern global interdependence. The greatest challenge in the nuclear age is developing and maintaining a global perspective which fosters international cooperation. While the modern world is comprised of politically independent states, people must transcend nationalism and recognize the significant interdependence among peoples of the world. The exposure of students to different cultural systems provides the background of thought necessary to developing a global perspective.

Cultural learning is present in many disciplines. Exposure to perspectives on art, business, engineering, music, and the natural and social sciences that lead to an understanding of the contemporary world supports the view that intercultural interaction has become a daily necessity. The complexity of American society forces people to balance regional and national goals with global concerns. Many of the most serious problems are world issues and require solutions which exhibit mutuality and reciprocity. No longer are hunger, ecology, health care delivery, language planning, information exchanges, economic and social developments, law, technology transfer, philosophy, and the arts solely national concerns; they affect all the people of the world. Survival may be dependent on the ability to generate global solutions to some of the most pressing problems.

The word university, from universitas, implies that knowledge comes from many sources and is not restricted to local, regional, or national perspectives. The Global Awareness Area recognizes the need for an understanding of the values, elements, and social processes of cultures other than the culture of the United States. Learning which recognizes the nature of others cultures and the relationship of America’s cultural system to generic human goals and welfare will help create the multicultural and global perspective necessary for effective interaction in the human community.

Courses which meet the requirement in global awareness are of one or more of the following types: (1) indepth area studies which are concerned with an examination of culture-specific elements of a region of the world, country, or culture group, (2) the study of contemporary non-English language courses that have a significant cultural component, (3) comparative cultural studies with an emphasis on non-U.S. areas, and (4) in-depth studies of non-U.S. centered cultural interrelationships of global scope such as the global interdependence produced by problems of world ecology, multinational corporations, migration, and the threat of nuclear war.
Proposer: Please complete the following section and attach appropriate documentation.

<table>
<thead>
<tr>
<th>YES</th>
<th>NO</th>
<th>Identify Documentation Submitted</th>
</tr>
</thead>
<tbody>
<tr>
<td>![X]</td>
<td>![ ]</td>
<td>1. Studies must be composed of subject matter that addresses or leads to an understanding of the contemporary world outside the U.S. Syllabus, Textbook TOC</td>
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<tr>
<td>![ ]</td>
<td>![X]</td>
<td>2. The course must match at least one of the following descriptions: (check all which may apply):</td>
</tr>
<tr>
<td>![ ]</td>
<td>![X]</td>
<td>a. In-depth area studies which are concerned with an examination of culture-specific elements of a region, country or culture group. The area or culture studied must be non-U.S. and the study must contribute to an understanding of the contemporary world.</td>
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<tr>
<td>![ ]</td>
<td>![X]</td>
<td>b. The course is a language course for a contemporary non-English language, and has a significant cultural component.</td>
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<tr>
<td>![ ]</td>
<td>![X]</td>
<td>c. The course is a comparative cultural study in which most, i.e., more than half, of the material is devoted to non-U.S. areas.</td>
</tr>
<tr>
<td>![X]</td>
<td>![ ]</td>
<td>d. The course is a study of the cultural significance of a non-U.S.-centered global issue. The course examines the role of its target issue within each culture and the interrelatedness of various global cultures on that issue. It looks at the cultural significance of its issue in various cultures outside the U.S., both examining the issue’s place within each culture and the effects of that issue on world cultures.” Syllabus, Textbook TOC</td>
</tr>
</tbody>
</table>
Explain in detail which student activities correspond to the specific designation criteria. Please use the following organizer to explain how the criteria are being met.

<table>
<thead>
<tr>
<th>Criteria (from checksheet)</th>
<th>How course meets spirit (contextualize specific examples in next column)</th>
<th>Please provide detailed evidence of how course meets criteria (i.e., where in syllabus)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAMPLE: 2d: study the cultural significance of a non-U.S. centered global issue</td>
<td>SAMPLE: The course examines the cultural significance of financial markets Japan, Korea, and the UK.</td>
<td>SAMPLE: Module 2 shows how Japanese literature has shaped how Japanese people understand world markets. Module 3 shows how Japanese popular culture has been changed by the world financial market system. Modules 4 &amp; 5 do the same for Korea and modules 6 &amp; 7 do the same for the UK.</td>
</tr>
<tr>
<td>1: Leads to an understanding of the contemporary world outside of the US</td>
<td>Energy is a key challenge to building a sustainable future in a rapidly developing social world. Scale is one of the themes of the course— all modules emphasize how energy policies and decisions in one location affect and are affected by sustainability on a global scale.</td>
<td>All modules are presented from a global/comparative perspective. In all written assignments students are asked to consider global as well as national scales in their analyses (see case analysis attached). Module 3, energy resources, looks at global distribution of resources. Module 4, energy in the global arena specifically addresses the global nature of energy issues and how they affect international relations.</td>
</tr>
<tr>
<td>2d: Study the cultural significance of a non-US centered global issue</td>
<td>Energy is a global issue. Every one of the topics is presented from a global perspective, and uses examples from around the world. Only one meeting in the course is devoted purely to the US (day 28 that looks at energy regulations)</td>
<td>Again, all modules are presented from a global/comparative perspective. Module 7, energy and society, specifically addresses cross-cultural and cross national issues like poverty and inequality. Module 11, energy and sustainability, specifically addresses international development.</td>
</tr>
</tbody>
</table>
Instructor Information

Martin J. Pasqualetti, Professor School of Geographical Sciences and Urban Planning
Senior Sustainability Scientist, Global Institute of Sustainability
Arizona State University
Email Address: pasqualetti@asu.edu

Course Description

This course follows the thread of energy through every aspect of our lives. It discusses the social, legal, technical, and policy contexts of all energy resources, including present and unconventional fossil fuels, nuclear power, and renewable resources. It addresses energy use throughout history, the influence of energy on quality of life, the role it plays in political strategies and environmental quality, how it shapes our neighborhoods and cities, its contribution to our personal comfort and national security, and how its importance is reflected in the worlds of business and the humanities. The course emphasizes energy as a global concern throughout all topics. The course is designed to have a dual role both as a stand-alone introduction, and as a first step to more advanced studies in the natural, technical, and social sciences.

Course Outcomes and Key Concepts

This course is appropriate for all freshmen students enrolled at ASU. It is meant to serve as an introductory exposure to energy which can serve as a foundation for more focused classes in energy issues within several colleges such as the School of Sustainability, engineering, geography, business and law. The course is unique in that a holistic view of the various aspects of energy will be covered by invited speakers with diverse skills and teaching and research backgrounds. Emphasis will be placed on providing a systems-thinking competence rather than any one specialized aspect of energy.

This course, as all courses in the School of Sustainability do, emphasizes the following themes:

**Systems Dynamics**
Social systems and environmental systems are linked. Changes in any part of any system have multiple consequences or cascading effects that reach far beyond the initial change. While some of the consequences of the decisions that we make are intended, unintended consequences, both positive and negative, are common.

**Scale**
Sustainability problems exist across multiple spatial scales. Solving a problem at a local level is a very different thing than solving a problem across international boundaries. Local activities might have impacts on other regions and even on the global scale.

**Long Term Development**
Sustainability hinges on an understanding of long-term consequences of the decisions that we make today. Solutions that work in the short term may pose problems over a longer time frame. Challenges that seem small in the present may magnify over time.

**Tradeoffs**
There is no one “solution” to address sustainability. Solving almost all problems related to sustainability involves tradeoffs involving the socio-economic needs of multiple stakeholder groups and environmental capacities. There are rarely perfect solutions with no costs, and there are often winners and losers.

**Collaboration and Participation**
Sustainability problems are caused by, and affect, multiple stakeholders with specific experiences, resources, perspectives and preferences. Solving sustainability problems requires strong collaborations and negotiations among scientists of all disciplines, politicians, entrepreneurs, artists, farmers, business and community leaders, and you.
Within the context of these themes, this class is designed to provide students basic understanding and appreciation of the following energy topics:

- Key role of energy in modern-day global society (present consumption patterns and future needs)
- Energy resources: fossil-based and renewable
- Basic science of different types of energy and energy conversion systems
- The importance of energy conservation
- The social aspect of energy use within and across cultures and nations
- The effect of geographic/spatial equilibrium
- Impact of energy on the environment and the atmosphere
- Energy research process
- The nexus between energy and national security
- The present and future of the energy business
- Legal and policy issues surrounding the future of energy

Specific learning outcomes for each module in the course may be found on the course website

Assigned Textbook

Laura Nader, editor. The Energy Reader. Wiley-Blackwell

Gilbert Manners, Energy for Sustainability, Island Press

Course Website

- This course has an accompanying myASU website. Log in to the site at http://myasucourses.asu.edu/ using your ASURITE ID and password. You should see “GCU/SOS 194: The Thread of Energy. The website contains the slides of lectures, reading materials for each topic, assignments, solutions, links, and email addresses for all in the class.

- Note: myASU uses your email address from ASU’s student records. This means that the students will have to check their ASU email, or have it forwarded to their preferred account, to get information sent from instructors or from their classmates.

Instructional Methods

Instruction will rely on mini-lectures, in-class exercises, guest speakers, assigned self-study, videos, and discussion of case studies. Written assignments, weekly journals and summary of guest speakers oral presentations will enhance understanding and provide a proper appreciation of various facets of energy issues.

Grading Policy

ASU’s +/- grading will be used: A (93-100%), A- (90-92), B+ (87-89), B (83-86), B- (80-82), C+ (77-79), C (70-76), D (60-69), E (<60), XE (failure due to academic dishonesty).
The final grade will be assigned on the basis of the following categories and according to the indicated weights:

- Weekly journals: 20%
- Assignments: 40%
- Quiz-1: 20%
- Quiz-2: 20%
- Total: 100%

**Pre-requisites**

There are no prerequisites for this course

**SCHEDULE**

<table>
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<tr>
<th>Meeting</th>
<th>Topics</th>
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<tbody>
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<td><strong>Module 1</strong></td>
<td><strong>The Thread of Energy</strong> (the importance of energy everything we do)</td>
</tr>
<tr>
<td>1.</td>
<td><strong>Energy in Your Lives</strong> (how energy is used in homes, cars, and so forth; with; ASU examples)</td>
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<tr>
<td>2.</td>
<td><strong>Energy and Transitions</strong> (including past and future, plus the motivations for transitions)</td>
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<tr>
<td><strong>Module 2</strong></td>
<td><strong>Energy Basics</strong></td>
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<td>3.</td>
<td>The physics and chemistry of energy</td>
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<td>4.</td>
<td>The energy fuel chain</td>
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<td>5.</td>
<td>Generating electricity</td>
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<td><strong>Module 3</strong></td>
<td><strong>Energy Resources</strong></td>
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<td>6.</td>
<td>Fossil</td>
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<td>7.</td>
<td>Nuclear</td>
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<td>8.</td>
<td>Renewables</td>
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<td>9.</td>
<td>Efficiency</td>
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<td><strong>Module 4</strong></td>
<td><strong>Energy in the Global Arena</strong> - Why energy geography matters; Spatial disequilibrium of supply and demand; World energy at a glance</td>
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<td>10.</td>
<td>Supply</td>
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<td>11.</td>
<td>Demand</td>
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<td>12.</td>
<td>Transportation</td>
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<td><strong>Module 5</strong></td>
<td><strong>Energy in the Built Environment</strong> (How it is integrated into where we live, how we live, and how we can improve)</td>
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<td>13.</td>
<td>Architecture and engineering</td>
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<td>14.</td>
<td>Transportation</td>
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<td>15.</td>
<td>Planning</td>
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<tr>
<td><strong>Module 6</strong></td>
<td><strong>Energy in the Natural Environment</strong></td>
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<td>16.</td>
<td>Air – from visibility to climate change</td>
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<td>17.</td>
<td>Land – evolving energy landscapes of energy</td>
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<td>18.</td>
<td>Water – chemical, thermal and physical changes</td>
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<td><strong>Module 7</strong></td>
<td><strong>Energy and Society</strong></td>
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<td>19.</td>
<td>Health and safety</td>
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<td>20.</td>
<td>Energy poverty</td>
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<td>21.</td>
<td>Energy security - Energy security as a nexus of policy decisions. Levels of security (e.g. personal to global, along with case studies); Costs of security (e.g. lifestyles, military presence)</td>
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<tr>
<td>22.</td>
<td>Decision making – Why people make the choices they do</td>
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<tr>
<td><strong>Module 8</strong></td>
<td><strong>Energy in Business</strong></td>
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<td>23.</td>
<td>Energy Economics</td>
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<td>24.</td>
<td>Energy Workforce</td>
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<td><strong>Module 9</strong></td>
<td><strong>Energy in Practice</strong></td>
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<td>25.</td>
<td>Energy Law - brief overview of the legal architecture for the regulation of production, distribution and use of energy in the United States; followed by discussion of legal tools for promoting sustainable energy including direct subsidization, tax credits, renewable energy portfolio requirements, climate change and environmental regulation, feed-in tariffs and others.</td>
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<td>26.</td>
<td>Energy Policy</td>
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<tr>
<td><strong>Module 10</strong></td>
<td><strong>Energy in the Arts</strong></td>
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<td>27.</td>
<td>Aural and visual</td>
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<tr>
<td><strong>Module 11</strong></td>
<td><strong>Energy Sustainability</strong></td>
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<tr>
<td>28.</td>
<td>The future of energy</td>
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</tbody>
</table>

**Course Communication**

During the work week (M-F, 8am-5pm) I will try to respond to e-mails received within 12-24 hours, if not sooner. I do not check e-mail frequently during the weekend, so if you send a message to me after 5pm on Friday afternoon, do not expect a response until Monday. If you do not receive a response from me within 48 hours, please re-send your message as it may not have found its way to my inbox.

All communications (electronic and otherwise) that you have with me and your fellow students in this course should be professional. This means using proper grammar and sentence structure in your communication. Finally, always make sure that your inbox is not full and that your ASU email address (or forwarding account) is functioning properly, as I often distribute course communication through Blackboard’s announcements and email system, which utilizes your ASU email address.
Academic Integrity

Cheating and plagiarism is not tolerated. This includes, but is not limited to using the ideas and material of others without giving due credit, and/or aiding another person to cheat either actively or passively (e.g., allowing someone to look at your exam/quizzes; writing someone’s paper for them). If a student is charged with academic dishonesty and found to be in violation, disciplinary action will be taken and a student’s name will be kept on file. Disciplinary action may result in the student receiving an XE on her or his transcript, suspension or expulsion from the academic unit and/or referral to Student Judicial Affairs. For further information, please read the Student Code of Conduct.

Disability Accommodations

If you need disability accommodations for this class, please contact the instructor as soon as possible, so that we may work with the Disability Resource Center (http://www.asu.edu/studentaffairs/ed/drc/) to meet your needs. Information regarding disability is confidential.

Sustaining Yourself

There are a number of offices on and off campus that help students succeed at ASU. Please take advantage of these services as needed.

Computer Help Desk provides assistance with computer-related problems and computer accounts. https://help.asu.edu

Counseling and Consultation provides confidential mental health and career counseling services for all ASU students. http://students.asu.edu/counseling

Disability Resources Center provides a comprehensive range of academic support services and accommodations for qualified students with disabilities. http://www.asu.edu/studentaffairs/ed/drc

Student Financial Aid Office offers information and applications for student funding such as grants, loans, scholarships and student employment. http://students.asu.edu/node/40

Campus Health Service provides non-emergency medical health care to all ASU students. All insurance plans are accepted. http://students.asu.edu/health

Student Recreational Center offers individual and group fitness opportunities, as well as information on nutrition and wellness, and massages. Use of the general facilities (weights, circuit training and cardio machines) are free, other services (yoga classes, massages) are fee-based. http://src.asu.edu

Student Legal Assistance provides legal advice and counsel free of charge to all ASU students in areas such as landlord-tenant law, credit reports and collection issues, taxability of scholarships and grants, etc. Notary service is also available at no charge. http://www.asu.edu/studentaffairs/nu/legal

Writing Center provides on-site tutors to help students increase their confidence as writers and improve writing skills free of charge. For information, see http://studentsuccess.asu.edu/writing/

EMPACT Crisis Hotline offers free 24-hour support for mental health crises. Call (480) 784-1500 in the Phoenix area, (866) 205-5229 for the toll-free number outside of Phoenix, and (480) 736-4949 for the sexual assault hotline in Maricopa County. All services are free and confidential. www.empact-spc.com
SOS 194: The Thread of Energy
Case Analysis Format

1. Background: (a one-page description of the problem or challenge). Include:
   a. Global, regional and local scale.
   b. Temporal scale
2. Stakeholders (community and cultural groups, government agencies, NGO’s, businesses, etc))
   a. Who is affected by this issue?
   b. How are they affected?
3. Social Issues, e.g., Fair pay, working conditions, poverty, justice
4. Economic Issues, e.g., ecosystem valuation, trade, long vs. short term profits
5. Environmental Issues, e.g., resource and energy conservation, habitat and biodiversity, water, pollution, climate change
6. Potential Solutions. Include:
   a. Tradeoffs involved in each possible resolution
   b. Winners, and losers for each possible resolution-globally and locally
Textbook #1 for GCU/SOS 194


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4. Introduction to the Steady-State Economy (Herman E. Daly).


5. Dimensions of the "People Problem" in Energy Research and "the" Factual Basis of Dispersed Energy Futures (Laura Nader and Norman Milleron).


7. The House that Uranium Built: Perspectives on the Effects of Exposure on Individuals and Community (Margaret Amalia Hiesinger).

8. Uranium Mining and Milling: Navajo Experiences in the American Southwest (Barbara Rose Johnston, Susan E. Dawson, and Gary E. Madsen).

**Part II: Mind-Sets – a Critical Perspective.**


10. On the Road to Riches (Henry Ford).


14. Energy as it Relates to the Quality and Style of Life (Laura Nader and Stephen Beckerman).


**Part III: The Politics of Energy.**
17. The Middle East: Geostrategy and Oil (Rashid Khalidi).
18. Winning the Oil Endgame (Amory B. Lovins).
20. The Overcharge in the Light Bill (US Senator Lee Metcalf and Vic Reinemer).
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24. There Was Blood (Caleb Crain).
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25. Unconventional Crude: Canada's Synthetic-Fuels Boom (Elizabeth Kolbert).
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27. Solar Possibilities (Denis Hayes).
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34. The Island in the Wind (Elizabeth Kolbert).


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