



## Course Number and Title: NRG 205 Solar Policy and Financing

**Campus Location:**

Georgetown, Dover, Stanton

**Effective Date:**

2018-52

**Prerequisite:**

NRG 201, NRG 250

**Co-Requisites:**

none

**Course Credits and Hours:**

3.00 credits

2.00 lecture hours/week

2.00 lab hours/week

**Course Description:**

In this course, students explore policy mechanisms related to energy, with a focus on solar energy. Students investigate the impact of policy on the solar and renewable industries in general and its impact on economic viability of solar photovoltaic (PV) projects. Students investigate and practice technical sales techniques.

**Required Text(s):**

Obtain current textbook information by viewing the [campus bookstore - https://www.dtcc.edu/bookstores](https://www.dtcc.edu/bookstores) online or visit a campus bookstore. Check your course schedule for the course number and section.

**Additional Materials:**

None

**Schedule Type:**

Classroom Course

Hybrid Course

Online Course

**Disclaimer:**

None

**Core Course Performance Objectives (CCPOs):**

1. Engage in professional behavior. (CCC 1, 3, 4, 5)
2. Investigate history of energy policy in the United States. (CCC 1, 2, 3, 5, 6; PGC 5)
3. Analyze local, state, and national energy policies. (CCC 1, 2, 3, 5, 6; PGC 5)
4. Describe the process by which energy incentives are awarded. (CCC 1, 2, 3, 5, 6; PGC 5)
5. Determine customer and site suitability for a solar installation. (CCC 1, 2, 3, 4, 5, 6; PGC 5, 6)
6. Create a solar sales proposal. (CCC 1, 2, 3, 4, 5, 6; PGC 4, 5, 6)

See Core Curriculum Competencies and Program Graduate Competencies at the end of the syllabus. CCPOs are linked to every competency they develop.

### Measurable Performance Objectives (MPOs):

Upon completion of this course, the student will:

1. Engage in professional behavior.
  1. Demonstrate punctuality when attending class, participating in off-site projects, and submitting assignments.
  2. Communicate using industry-appropriate language during presentations, reports, and homework.
  3. Demonstrate appropriate professional behavior when working with others.
2. Investigate history of energy policy in the United States.
  1. Define *energy policy* and *public policy*.
  2. Summarize prominent past environmental legislation in the United States, and investigate the sociopolitical issues associated with them.
  3. Describe the United States' oil stocks and their impact on policy and society.
  4. Investigate the impact of hydraulic fracturing on the energy regime and energy policy in the United States.
  5. Describe the impact of climate change science and politics on energy policy and the United States' energy regime.
3. Analyze local, state, and national energy policies.
  1. Compare and contrast state-, regional-, and locality-specific energy policies.
  2. Analyze the impact of differing state, local, and regional policies on the solar industry.
  3. Define *investment tax credit*, *production tax credit*, *accelerated depreciation*, *renewable portfolio standard*, *renewable energy certificate*, *solar renewable energy certificate*, *tax credit*, *energy grant*, *net metering*, *low interest loan*, *property tax exemption*, *rebates*, *transfer credits*, *time of use rates*, *cost escalation*, and *sales tax exemptions*.
  4. Navigate the Database of State Incentives for Renewables and Efficiency website.
  5. Analyze political actions and ideologies that impact energy policies.
4. Describe the process by which energy incentives are awarded.
  1. Describe the role of public utility commissions and public service commissions related to energy policy.
  2. Describe the Solar Renewable Energy Certificate (SREC) Procurement Program in Delaware and other states as applicable, including issues related to program tiers, system eligibility, and the auction process.
  3. Analyze the role of special auctions in the SREC market.
  4. Indicate the process by which tax incentives and grants are awarded.
5. Determine customer and site suitability for a solar installation.
  1. Determine if a site is physically suitable for solar by performing a remote analysis.
  2. Describe the factors that render a potential customer eligible for local, state, and federal solar incentives.
  3. Demonstrate professional customer service techniques.
  4. Explain the benefits of solar PVs to a potential customer based on expressed and implied customer needs and characteristics.
  5. Determine the impact of local and state policies on the viability of the customer and site, including identification of all available incentives.
6. Create a solar sales proposal.
  1. Calculate internal rate of return, simple payback, simple return on investment, net present value, discount rate, cash flow, and life cycle cost.
  2. Analyze the impact of financing options on the economics of a solar proposal, including home equity loans, consumer loans, and utility loans.
  3. Create a power purchase agreement proposal by analyzing all relevant site-specific policy and economic considerations.
  4. Provide a simplified system conceptual design.
  5. Analyze the non-financial benefits of the proposal, including greenhouse gas emissions avoidance and associated environmental metrics and benefits.

### Evaluation Criteria/Policies:

Students must demonstrate proficiency on all CCPOs at a minimal 75 percent level to successfully complete the course. The grade will be determined using the Delaware Tech grading system:

92	-	100	=	A
83	-	91	=	B
75	-	82	=	C
0	-	74	=	F

Students should refer to the [Student Handbook - https://www.dtcc.edu/handbook](https://www.dtcc.edu/handbook) for information on the Academic Standing Policy, the Academic Integrity Policy, Student Rights and Responsibilities, and other policies relevant to their academic progress.

### Core Curriculum Competencies (CCCs are the competencies every graduate will develop):

1. Apply clear and effective communication skills.
2. Use critical thinking to solve problems.
3. Collaborate to achieve a common goal.
4. Demonstrate professional and ethical conduct.
5. Use information literacy for effective vocational and/or academic research.
6. Apply quantitative reasoning and/or scientific inquiry to solve practical problems.

**Program Graduate Competencies (PGCs are the competencies every graduate will develop specific to his or her major):**

1. Utilize building system and energy technology hardware and software to gather data on building lighting systems operation and energy consumption.
2. Calculate, analyze, and verify the energy use of buildings based upon the interaction of energy consuming building systems.
3. Evaluate residential buildings and make recommendations for optimized building performance and occupant comfort.
4. Prepare and present technical reports.
5. Analyze the economic, environmental, and business implications of potential energy measures.
6. Perform preliminary and in depth site and customer suitability evaluation of potential applications for solar use.
7. Design and calculate the output of an optimal site-specific array by deriving panel configuration and specifying components.

**Disabilities Support Statement:**

The College is committed to providing reasonable accommodations for students with disabilities. Students are encouraged to schedule an appointment with the campus Disabilities Support Counselor to request an accommodation needed due to a disability. A listing of campus Disabilities Support Counselors and contact information can be found at the [disabilities services - https://www.dtcc.edu/disabilitysupport](https://www.dtcc.edu/disabilitysupport) web page or visit the campus Advising Center.