



Solar Microgrid Methodology (SMM) Curriculum

Empowering the Next Generation of Clean Energy Professionals

The Clean Coalition's Solar Microgrid Methodology (SMM) is a comprehensive, five-step framework for sizing a Solar Microgrid and analyzing its technical and economic feasibility. Each step serves as a building block, with outputs from each step informing the next. The five-step SMM framework was translated into a 6-week curriculum in partnership with Santa Barbara City College (SBCC).



The 6-week SMM Curriculum was designed to equip students with the practical skills and knowledge necessary to size, analyze and design Solar Microgrids capable of providing any site with an unparalleled trifecta of economic, environmental, and resilience benefits. This cutting-edge curriculum integrates seamlessly into existing energy, engineering, or environmental science courses, preparing the workforce of tomorrow for the rapidly evolving clean energy sector by offering experience with real-world applications and smoothing the transition from academia to careers in renewable energy.

Key Features

- **Hands-on Learning:** Students work with industry-standard tools to design and analyze real-world Solar Microgrid projects.
- **Comprehensive Methodology:** Students learn to tier loads (find critical loads), plan for electrification, size distributed energy resources (DER), and design Solar Microgrids.
- **Flexible Integration:** The SMM can be incorporated into existing courses or offered as a standalone class.
- **Expert Support:** Clean Coalition can provide training and support for instructors.

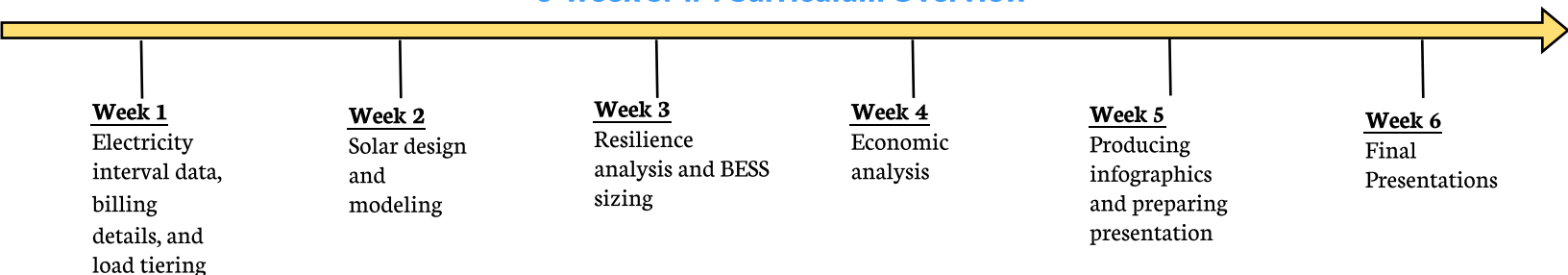
Who is it for?

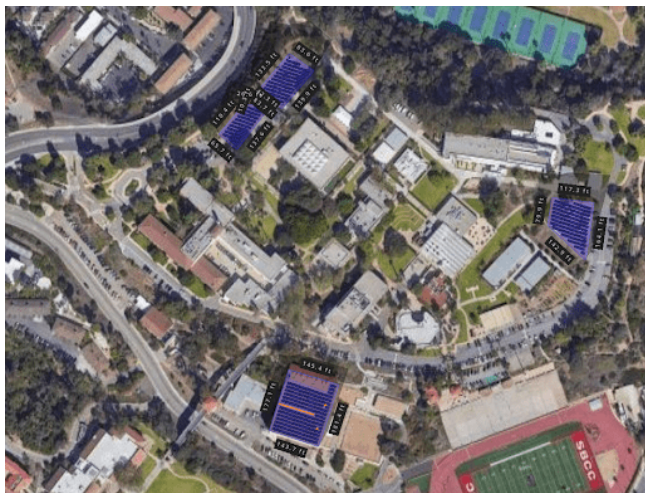
- **Students:** Aspiring professionals in energy, engineering, and environmental sciences or related fields.
- **Instructors:** Faculty members in energy, engineering, or environmental science departments.
- **Institutions:** Colleges and universities looking to enhance their clean energy offerings.

Tools and Technology

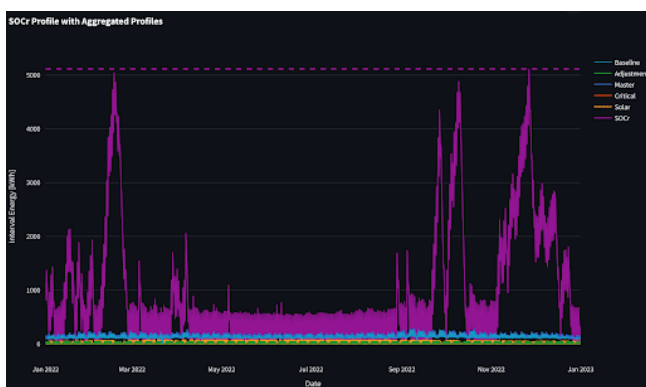
- HelioScope for solar design (industry leading software platform for producing solar layouts and solar generation profiles).
- Energy Toolbase for economic analysis (industry leading software platform for calculating economic outcomes of Solar Microgrids).
- The Clean Coalition's Solar Microgrid Analysis Platform (SMAP) for cleaning meter data, sizing battery energy storage system (BESS), and evaluating resilience outcomes.
- Costs include software licenses and Clean Coalition training and support and other potential costs based on specific needs.

6-week SMM Curriculum Overview

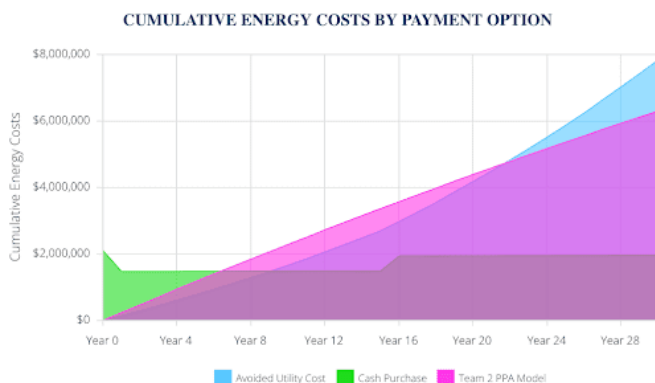




A student's solar layout, designed in HelioScope



A student's State of Charge required for resilience graph, designed in the Clean Coalition's Solar Microgrid Analysis Platform



A student's economic analysis results, designed in Energy Toolbase

Success Story: Santa Barbara City College

In Fall 2023, a class of Santa Barbara City College (SBCC) students served as the inaugural cohort, completing the SMM Curriculum, developing a comprehensive Solar Microgrid Feasibility Study for SBCC's Main Campus. The Clean Coalition trained Professor Bill Dinklage, who did not have any previous Solar Microgrid experience, to prepare the course. Now, Professor Dinklage teaches the course every semester. The program received enthusiastic feedback from students, faculty, and administration.

"Working with the Clean Coalition to guide my Energy and Natural Resources class through its Solar Microgrid Methodology was a fabulous professional development opportunity for me and gave the students a very practical and eye-opening taste of what it is like to apply the concepts of solar energy and energy storage to the real world. The Clean Coalition was there for me 100% to make the project a success." - **Bill Dinklage, Professor, Dept. of Earth and Planetary Sciences, SBCC**

"The Solar Microgrid curriculum was a truly eye-opening process. Learning about the intricacies of developing a Solar Microgrid while using the professional software that we had access to through the Clean Coalition in the real-world setting of our own campus made for an incredible hands-on experience. I really enjoyed the SMM curriculum, and both the technical skills and fascination with Solar Microgrid technology will stay with me for a long time." - **Nick Parker, Student of SBCC SMM Curriculum**

"I really appreciated the opportunity to see Professor Bill Dinklage's Fall ENVS 116 students present the potential applications of microgrids and microgrid technology on the SBCC campus. Our campus needs to be more "green" in its practices, especially as we begin to explore programs to support the "blue" economy here in Santa Barbara." - **Erika Endrijonas, Superintendent/President of SBCC**

Next Steps

1. Contact us at gregory@clean-coalition.org to learn more
2. Assess curriculum integration with your existing courses
3. Plan for instructor training and resource requirements
4. Set an implementation timeline for your institution
5. Launch the SMM Curriculum and empower future clean energy professionals!