



CONFERENCE PROGRAM

May 20-23 | Washington, D.C.
ases.org/conference

Net-Zero Annual National Solar Conference Carbon Footprint & Reduction Strategy (2024)

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Introduction

The American Solar Engineer Society (ASES) is taking the steps to make their SOLAR 2024 conference as sustainable as possible by hosting a Net-Zero emissions event! Being Net-Zero entails balancing emissions of carbon dioxide by eliminating emissions from society or by removing carbon dioxide from the atmosphere. This can be achieved in many ways such as resource and energy conservation practices, using electricity produced by renewable energy, and preserving ecosystems that are natural carbon sinks. ASES is taking all reasonable steps to minimize the amount of greenhouse gases (GHGs) released from producing electricity, space heating, food, travel, and other resources used during the 2024 event. Neither ASES nor George Washington University (GWU) have the infrastructure and capacity to completely offset carbon emissions for this event on their own. Therefore, the organization must seek the utilization of carbon-neutral vendors and event practices; while offsetting the remaining GHGs emissions from the conference by purchasing RECs (Renewable Energy Credits) and carbon offsets, which in turn funds local mitigation projects. ASES went through the process of defining the operational boundaries of the event, then categorizing baseline emissions, and finally purchasing RECs and carbon offsets to achieve Net-Zero!

EPA Baseline Emissions Methodology

The Environmental Protection Agency's (EPA) Simplified Guide to Greenhouse Gas Management for Organizations¹ offers a basic GHG inventory tool compared to the formal EPA Greenhouse Gas Reporting Program. ² The method follows these steps:

- Define Operational Boundary Questions - Emissions Sources to Include
 - Energy consumption at the GWU Student Center
 - Emissions from attendee & ASES employee travel
 - Attendee hotel & lodging energy consumption
 - Emissions associated with catering services
- Simplified GHG Emissions Calculator³
 - Scope 1 –Emissions from sources that the organization owns or controls, like natural gas-fired furnaces or kitchen equipment. Scope 1 is defined as direct emissions.
 - Scope 2 – Emissions that are a consequence of the operations of the organization but occur at sources owned or controlled by another organization, most typically electricity, heat, or steam. The EPA methodology calls these indirect emissions.
 - Scope 3 –Indirect emissions that are not incorporated in scope 1 or 2, include business travel, employee commuting, and product transport.

¹ "Simplified Guide to Greenhouse Gas Management for Organizations," August 2022, 20, https://www.epa.gov/system/files/documents/2022-09/Simplified_Guide_GHG_Management_Organizations.pdf.

² OAR US EPA, "Greenhouse Gas Reporting Program (GHGRP)," Other Policies and Guidance, June 10, 2014, <https://www.epa.gov/ghgreporting>.

³ OAR US EPA, "Simplified GHG Emissions Calculator," Overviews and Factsheets, August 5, 2015, <https://www.epa.gov/climateleadership/simplified-ghg-emissions-calculator>.

Event Baseline Emission Calculations

Emissions produced at the conference are categorized into three scope categories and summarized in Table 1. Descriptions of ASES Solar 2024 activities for each scope 1, 2, and 3 emissions follow specific activities and are divided by the boundaries outlined in the EPA Baseline Emissions Methodology.

Scope 1: Direct Emissions

The GWU Student Center has direct natural gas combustion equipment located within the event facility such as furnaces and stoves.

Scope 2: Indirect Emissions

The Student Center facility typically uses electricity when supporting conferences during the month of May. The facility purchases electricity from offsite generators that are regulated by the regional transmission organization (RTO) PJM. Additionally, GWU generated nearly 75% of its electricity for the Student Center from an offsite solar PV farm for the month of May. Additional Heating Ventilation and Air Conditioning (HVAC) electricity consumption consists of fans, pumps, and packaged roof top units with other facility loads consisting of lighting, plugin loads (computers, monitors, audio, etc.). Overall, the GWU Student Center is estimated to consume 60 MWh of electricity during the event, with 15 MWh from non-renewable energy sources and 45 MWh from renewable energy sources.

Scope 3: Indirect Emissions

Attendee travel produces the vast majority of the event emissions. Air travel takes the lion's share of carbon emissions with regional passenger vehicle travel accounting for about half of the emissions of air travel. Catering and food services emissions were cut down 41% by using a zero-waste catering service and providing only vegetable-based meal options. Waste for this event was estimated using ASES Solar Conference 2023 data. This includes items that go directly to the landfill and recyclable products. ASES is aiming to reduce event waste further through methods such as minimizing paper use and asking attendees to utilize reusable beverage containers. Additionally, most attendees will be indirectly using electricity purchased from the grid while they stay in lodging, estimated at 50 MWh, when attending the conference.

Scope 1 Emissions <i>Natural Gas Combustion = 6.1</i> Scope 1 Total = 6.1	Scope 2 Emissions <i>Facility Electricity = 17.8</i> <i>Solar PV Reduction = -13.3</i> Scope 2 Total = 4.6	Scope 3 Emissions <i>Attendees Event Travel = 76.6</i> <i>Catering & Food Services = 3.9</i> <i>Lodging Consumed Electricity = 14.7</i> <i>Waste = 0.3</i> Scope 3 Total = 95.5
Total Event Baseline Emissions = 106.1 CO₂-e (metric tons)		

Table 1 – ASES Solar Conference 2024 Expected Emissions

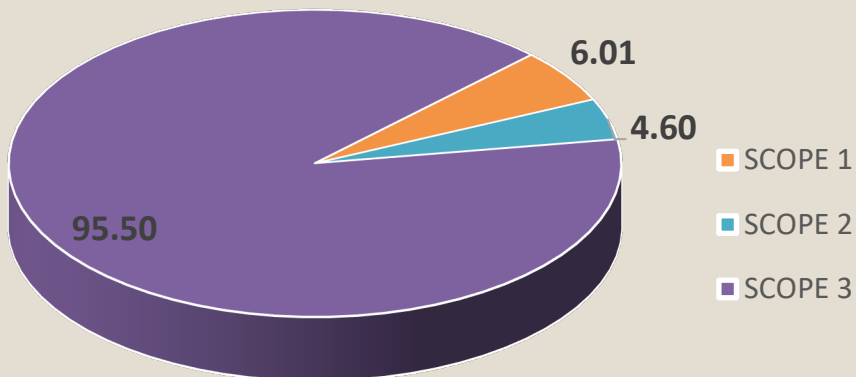
Carbon Offset & Renewable Energy Certificate

Carbon Offsets and Renewable Energy Certificates (REC’s) are valuable for supporting our society’s transition away from fossil fuel sources and supporting projects that reduce GHG emissions. Carbon offsets represent emissions reductions, provide support for emissions reduction activities, and may lower costs of GHG emission mitigation. RECs expand consumers’ electricity service choices, convey environmental attributes and renewable electricity use claims, and support renewable electricity development. While there is no single standard or market for Carbon Offsets or REC’s in the United States the following definitions are common to all standards:

- Carbon Offsets – A credit used to convey a net climate benefit from one entity to another. 1 carbon offset = 1 metric ton (1,000kg) CO₂-e.
- Carbon Offsets are inventoried by several independent standards.
- Renewable Energy Certificate (REC) – A REC lays claim to renewable energy sold, but not the power itself. REC’s are a tradable instrument that certifies 1 MWh of electricity.
- REC’s are tracked through compliance and voluntary markets.

ASES proceeded with purchasing Carbon Offsets and REC’s from TripZero to offset their scope 3 travel emissions as attendees registered for the event. Scope 1, scope 2, and the remaining scope 3 emissions are expected to be offset through the organization Terrapass or Sterling Planet.

ASES 2024 Emissions by Scope CO₂-e Metric Tons



ASES 2024 Emissions by Source CO₂-e Metric Tons

