

EWB-USA Energy Standing Content Committee Resources

What does the ESCC do?

The ESCC exists to provide support and expertise to EWB-USA chapters with energy projects. We also strive to engage with the greater sustainable international development community.

The EWB-USA Energy Standing Content Committee can:

- Help chapters build high-quality projects through the ESCC coaching program
- Provide informal reviews or consultation
- Act as informal or traveling mentors
- Provide resources, such as the ESCC blog, whitepapers, webinars, and other documents

ESCC members have expertise in:

Photovoltaic systems • Wind systems • Microhydroelectric systems • Solar thermal systems • Solar water pumping • National Electrical Code • IEC codes & standards • Load analysis and system sizing • Community mobilization • Strategic planning • Alternatives analysis • And more!

How can I get in touch with the ESCC?

Email us at ewbenergy@gmail.com, or contact any ESCC member.

Where is the ESCC blog?

The ESCC blog is located at <http://ewbusaenergy.blogspot.com/>. We post both original content, as well as links to existing quality materials and interesting news.

What is the ESCC coaching process, and how can my chapter participate?

The ESCC coaching process provides coaching and technical advice for energy projects prior to implementation. For more information, please visit <https://docs.google.com/document/d/12W4EW5YJHy8btds60g5nx30QHdA6STE1Up-mv2ZXqjl/edit>. If your EWB-USA chapter would like to participate, email us at ewbenergy@gmail.com, with "ESCC Coaching Request" in the subject line.

What are some of the documents that the ESCC has created?

[Recommendations for Solar PV Projects](http://www.ewb-usa.org/files/2014-ESCC-Recommendations-for-Solar-PV-Projects.pdf)

(<http://www.ewb-usa.org/files/2014-ESCC-Recommendations-for-Solar-PV-Projects.pdf>)

The primary purpose and use of this document is to provide a framework for solar photovoltaic (PV) documentation packages (such as the 525 Form) submitted to the EWB-USA Technical Advisory Committee (TAC). this document provides the guidance to achieve a successful review of solar PV electrical systems.

Design Checklist for Solar PV Projects

(<http://www.ewb-usa.org/files/Design-Checklist-for-Solar-PV-Projects-Final-Version.pdf>)

The checklist provides a list of information that must be incorporated into your team's 525 – Pre-Implementation Report for a Solar Photovoltaic (PV) project. Each item listed must be clearly documented in the 525 report. For a more complete description of each item, please refer to the Recommendations for Solar PV projects.

Community-driven Empowerment: An EWB-USA Approach to Solar PV in Developing Communities

(<http://www.sciencedirect.com/science/article/pii/S1877705814010534>)

In response to the emerging prevalence of rural electrification projects with solar photovoltaic technology, Engineers Without Borders-USA (EWB-USA) has taken an active role in establishing and promoting best practices in sustainable infrastructure development. This paper summarizes the collaboration of a committee of electrical engineering faculty and professionals to document a philosophy and methodology for assessment, design, implementation, and monitoring of solar photovoltaic energy systems for EWB-USA projects to achieve the level of quality that our partner communities have come to expect and deserve.

Hydropower Lessons Learned

(http://ewbusaenergy.blogspot.com/2015/03/hydropower-lessons-learned_14.html)

This article highlights mistakes that are often made in micro-hydro projects and provides suggested solutions to such mistakes.

Solar PV Array Maintenance Checklist

(<http://ewbusaenergy.blogspot.com/2014/12/solar-pv-array-maintenance-checklist.html>)

This article provides a checklist of steps to follow when considering maintenance of solar PV arrays, particularly in a developing world context. The second section provides additional details about each checklist item. EWB-USA chapters installing solar PV arrays are strongly encouraged to refer this document before they design and implement such systems.

An Introduction to the FMEA

(<http://ewbusaenergy.blogspot.com/2014/09/an-introduction-to-fmea.html>)

The Failure Modes and Effects Analysis (FMEA) can be described as a systemized group of activities intended to: 1) capture and evaluate the potential failure modes of a product or process and its effects, 2) identify recommended actions which could eliminate or reduce the chance of failure occurring, and 3) document the process and results. This article provides a primer on FMEA in the context of an EWB-USA solar electric system.

Battery Operation & Maintenance (O&M): Introduction

<http://ewbusaenergy.blogspot.com/2014/07/battery-operation-maintenance-o.html>

Why another battery tutorial? This tutorial began as a simple battery checklist, but as the subject evolved the authors believed that the widespread “black box” or “set it and forget it” mentality of batteries required a

more thorough engineering explanation of the suitability of various methods for operating and maintaining a solar PV system battery. Though this tutorial covers a lot of material, we do not cover battery replacement and recommissioning, though perhaps we should; nor do we cover esoteric topics such as risk assessment or predicative maintenance techniques. This tutorial was written, edited, reviewed and published by the EWB-USA Standing Energy Content Committee with principal contributors Larry Bentley, Frank Pratte, Ken Kubarych and Louis Woofenden.

Battery Maintenance Inspection Checklist

(<http://ewbusaenergy.blogspot.com/2014/04/battery-maintenance-inspection-checklist.html>)

This battery maintenance inspection checklist that will help maximize the life and performance of an existing battery bank system. This checklist will help users quickly identify typical battery related issues during a routine maintenance inspection and provide recommended actions to resolve technical issues on-site. Performing steps in the checklist below while also recording and dating the results could also serve as a maintenance record for the battery bank system.

LED vs Incandescent and CFL

(<http://ewbusaenergy.blogspot.com/2013/04/leds-solid-state-lighting.html>)

Below is a comparison between LED technology and incandescent and CFL technologies in several key areas: Efficiency, Cost, Life Cycle and Environmental Impact. Current challenges and predicted future metrics are also mentioned. Data was compiled using featured articles on LED lighting from Electrical Contractor Magazine (ECMag.com) and studies from the Department of Energy (DOE).

Electrical Safety in the Workplace (NFPA 70E)

(<http://ewbusaenergy.blogspot.com/2013/03/steps-to-electrical-safety-nfpa-70e.html>)

The purpose of the NFPA 70E code is to “provide a practical safe working area for employees relative to the hazards arising from the use of electricity”. It is highly recommended that personnel read and understand the contents and procedures defined in the NFPA 70E before working on a new or existing electrical installation. This article provides details on some of the fundamental requirements and links to other resources.