



\*\*\*\*\*  
**PROJECT PENCOAL SUNSTOVE: SOLAR-ELECTRIC MECHANISM  
FOR IGNITING GRAPHITE AND PRODUCING FIRE  
S.Y. 2024-2025**

**JINKY Q. BELLO**  
**MARK GIAN C. CABELLO**  
**KAYE ANN A. MAGBANUA**  
**DIANNE B. PEREZ**  
Tuy Senior High School

**ABSTRACT**

The Pencoal Sunstove project explores an innovative solar-electric mechanism designed to ignite graphite and produce fire. This research investigates the factors influencing the efficiency and feasibility of this system, emphasizing its potential benefits in terms of environmental sustainability and economic viability. While previous studies have demonstrated the advantages of solar-powered cooking, many rely on traditional photovoltaic methods with limitations in ignition efficiency. This study addresses these gaps by integrating solar-electric technology with graphite ignition to create a more sustainable fire production method. The research utilizes a quasi-experimental design, collecting data through surveys and empirical testing. The study assesses financial affordability, environmental impact, safety concerns, and potential challenges in implementing the Pencoal Sunstove. The findings indicate that this technology has strong potential to reduce reliance on conventional fuels, decrease carbon emissions, and provide a cost-effective alternative for off-grid communities. However, the results also highlight concerns related to smoke emissions and fire hazards, emphasizing the

\*\*\*\*\*

**Editorial Team**

**Editor-in-Chief:** Alvin B. Punongbayan

**Associate Editor:** Andro M. Bautista

**Managing Editor:** Raymart O. Basco

**Web Editor:** Nikko C. Panotes

**Manuscript Editors / Reviewers:**

Chin Wen Cong, Christopher DC. Francisco, Camille P. Alicaway, Pinky Jane A. Perez,  
Mary Jane B. Custodio, Irene H. Andino, Mark-Jhon R. Prestoza, Ma. Rhoda E. Panganiban, Rjay C. Calaguas,  
Mario A. Cudiamat, Jesson L. Hero, Albert Bulawat, Cris T. Zita, Allan M. Manaloto, Jerico N. Mendoza

\*\*\*\*\*

# INSTABRIGHT e-GAZETTE

ISSN: 2704-3010

Volume VI, Issue IV

March 2025

Available online at <https://www.instabrightgazette.com>



\*\*\*\*\*  
need for further refinement in design and safety measures. This study contributes to the development of sustainable energy solutions, advocating for broader adoption of solar-electric cooking technologies. The results underscore the importance of continued innovation in renewable energy applications, particularly in regions seeking alternatives to traditional fuel-based cooking methods.



\*\*\*\*\*

## **Editorial Team**

**Editor-in-Chief:** Alvin B. Punongbayan

**Associate Editor:** Andro M. Bautista

**Managing Editor:** Raymart O. Basco

**Web Editor:** Nikko C. Panotes

### **Manuscript Editors / Reviewers:**

Chin Wen Cong, Christopher DC. Francisco, Camille P. Alicaway, Pinky Jane A. Perez,  
Mary Jane B. Custodio, Irene H. Andino, Mark-Jhon R. Prestoza, Ma. Rhoda E. Panganiban, Rjay C. Calaguas,  
Mario A. Cudiamat, Jesson L. Hero, Albert Bulawat, Cris T. Zita, Allan M. Manaloto, Jerico N. Mendoza

\*\*\*\*\*