Session 3A. Conducting Household Energy Consumption Survey (HECS)

THE PHILIPPINE EXPERIENCE

PRESENTATION OUTLINE

2023 HECS
Household Energy Consumption Survey

OVERVIEW OF THE 2023 HECS

- Definition
- Objective of the Survey
- Scope and Coverage
- Major Data Items Collected

METHODOLOGY

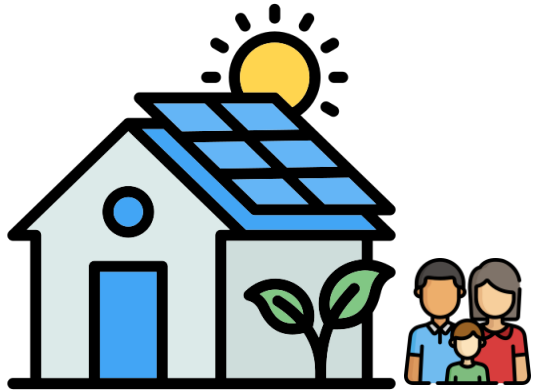
- Sampling Design
- Survey Field Organization
- Questionnaire Design
- Survey Implementation

RESULTS

- Household Energy Sources
- Household Energy Utilization
- Household Energy Consumption

COMPREHENSIVE REGIONAL ENERGY STUDY OF THE PHILIPPINES

The **Comprehensive Regional Energy Study of the Philippines (CRESP)** is a regional study which aim to assess the **end-use energy consumption patterns and various energy issues and concerns of Filipinos** for better energy planning and policy formulation covering both the **household and establishment sectors.**



Component 1
Household Energy Consumption Survey (HECS)

Component 2
Survey of Energy Consumption of Establishments (SECE)

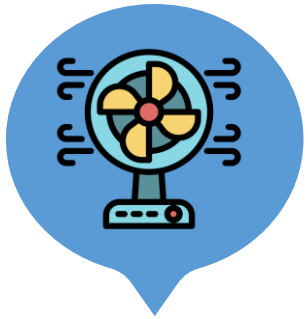
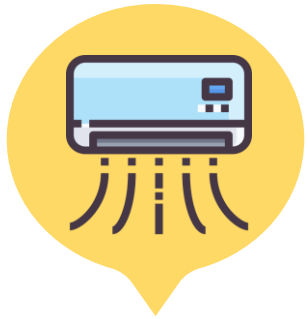
Component 3
Final reports and studies of CRESP with State Universities and Colleges (SUCs)

WHAT IS HOUSEHOLD ENERGY CONSUMPTION SURVEY (HECS)?

It is a special survey that gathers information on **households' utilization of fuels, supply systems and the pattern of energy use and other variables** that may be useful to assess the current energy profiles of different households and communities in the country.

The primary goal of the HECS is to generate **comprehensive and reliable data/information and analyze end-use energy consumption and preferences** in the residential sector.

SPECIFIC OBJECTIVES OF HECS


1989 1995 2004 2011 2023

The **2023 HECS has the following specific objectives:**

- ❑ Provide **detailed information on the sources of energy consumption and their details**.
- ❑ Gather information on the **fuel/energy mix of the household sector** based on its energy consumption.
- ❑ Determine the **most energy-consuming and energy-efficient** appliances and equipment used
- ❑ Obtain information on **cooking fuel switching**.
- ❑ Collect information on the current **energy efficiency and conservation techniques**.
- ❑ Determine awareness and altitude on major **energy issues and programs** in the energy sector.
- ❑ Collect information on the **energy use of vehicle for transportation**.

ACTIVITIES ON THE CONDUCT OF HECS

2023 → **2024** → **2025**

is intended to provide **updated** information on the country's energy utilization patterns of industries at its sub-sectors and national levels to generate data required to measure the demand of energy.

It is a nationwide survey that will cover about **12,000** samples to produce reliable estimates at national level which will highlight energy-intensive users and energy-producers.

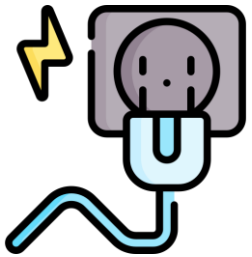
- Transfer of Funds
- Admin Meetings
- Survey Formulation
- Survey Finalization
- Workshops / Trainings
- Data Collection
- Data Processing

- Survey Results
- Policy Studies / Research
- Outlook / Projections

Institutionalize the regular conduct of energy consumption surveys (i.e., HECS and SECE)

SCOPE AND COVERAGE OF THE SURVEY

Energy consumption in the residential sector



Attitudes and practices on energy-related issues

Detailed listings of **household appliances and equipment**

*The national sample in the 2023 HECS is **approximately 45,000 households/housing units (HUs)** at the national and regional levels.*

MAJOR DATA ITEMS COLLECTED

- Household Energy Sources
- Household Energy Utilization
- Household Energy Consumption
- Appliances, Equipment, and Vehicles Used
- Problems Encountered in Using Energy Sources
- Household Energy Conservation Practices
- Coping Strategies During Supply Shortages or Power Interruptions
- Awareness of Energy Issues, Campaigns, and Technologies

SAMPLING DESIGN

1 SAMPLING DESIGN – SAMPLING DOMAIN

- Two-stage cluster sampling design with **barangays or enumeration areas** (EAs) or groups of nearby barangays or EAs as the **primary sampling unit** (PSU), and **HUs** serving as the **secondary sampling unit** (SSU) within the PSUs.

- The 2023 Master Sample consists of 118 sampling domains: 82 provinces; 33 highly urbanized cities (HUCs); and 3 other urban areas

- The sampling frame is based on the results of the **2020 Census of Population and Housing (CPH)**.

2 SAMPLING DESIGN – REPLICATES

- Six (6) PSUs form a replicate for most of the province domain;
- Eight (8) PSUs form a replicate for most of the HUCs;
- Three (3) PSUs form a replicate for small provinces.

SAMPLING DESIGN

3 SAMPLING DESIGN – SAMPLING ALLOCATION

- At least one (1) sample replicate per sampling domain is required to generate a reliable national-level estimate,
- Four (4) sample replicates to generate a reliable regional level estimate; and
- Sixteen (16) sample replicates to generate reliable province/HUC level estimate.

4 SAMPLING DESIGN – SAMPLE SELECTION

PSUs are **systematically selected** from the MS PSU frame of each sampling domain with equal probability. During the second stage of selection, HUs are drawn systematically for each sample PSU.

5 SAMPLING DESIGN – RESPONSE RATE

Response rate is computed by dividing the number of complete interviews to the total eligible sample households multiplied by 100.

SURVEY FIELD ORGANIZATION

DEPARTMENT OF ENERGY (DOE)

The **DOE** allocates and releases funds for the implementation of the 2023 HECS, and contributes technical inputs in drafting the survey questionnaire, concepts, and definitions.

PHILIPPINE STATISTICS AUTHORITY (PSA)

The **PSA** is primarily responsible for the implementation of the 2023 HECS. It provides overall direction on the conduct of the survey.

QUESTIONNAIRE DESIGN

CONTENTS OF QUESTIONNAIRE

Section I	I.A	Geographic Identification and Other Information
	I.B	Characteristics of the Household Head
	I.C	Total Number of Household Members
Section II	Checklist of Energy Sources	
Section III	III.A	Details of Energy Sources
	III.B	Petroleum Products
	III.C	Transport
	III.D	Renewable Energy Sources and Technologies
	III.E	Cooking Fuel Switching
	III.F	Household Practices
	III.G	Awareness of Energy Issues
Section IV	Family Income	
Section V	Housing Characteristics	

SURVEY IMPLEMENTATION

PRETESTS

6 Interviewing Teams

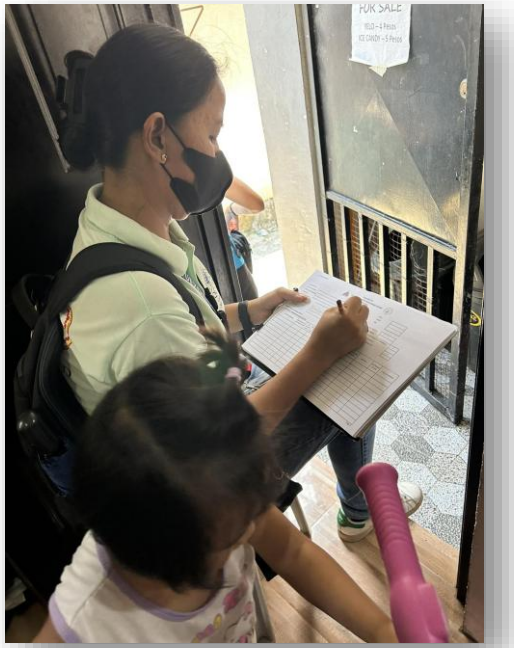
1 Team Supervisor

3 Field Interviewers

Pretest 1

Paper and Pencil Personal Interviewing (PAPI)

Objective: To test the appropriateness and effectiveness of the designed questionnaires



Pretest 2

Computer Assisted Personal Interviewing (CAPI)

Objective: To test the updated questionnaire through CAPI based

SURVEY IMPLEMENTATION

TRAININGS

Objective: To understand the objectives, concepts, and definitions in the survey; and to equip the personnel on the use of handheld computers tablets for the conduct of the survey.

- **Training of Trainers**

  Attendees: PSA-Central Office (CO) and DOE

- **Task Force Training**

  Attendees: PSA-CO, DOE, and Regional Statistical Services Office

- **Second Level Training**

  Attendees: RSSO, team supervisors, and field enumerators

SURVEY IMPLEMENTATION

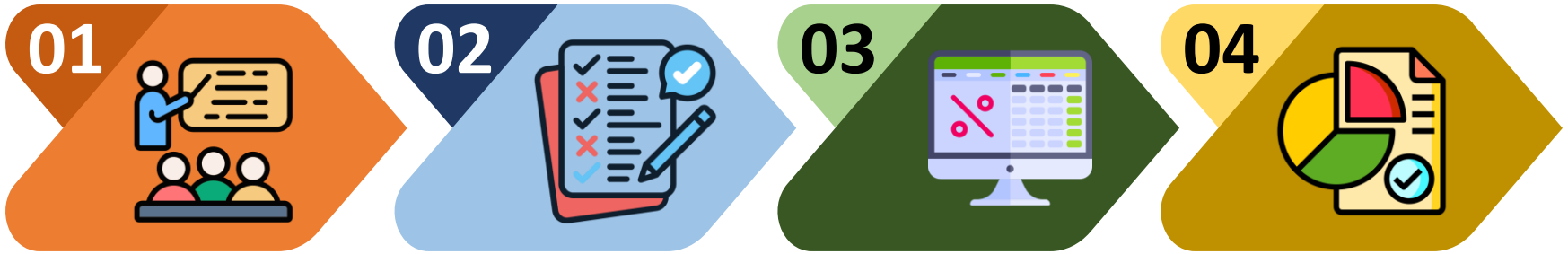
- **Enumeration:**

  28 days excluding Sundays

- **Field Supervision** is conducted to ensure that the prescribed procedures for fieldwork are properly implemented, and the performance of interviewers meets the standards.

SURVEY IMPLEMENTATION

Data Processing and Analysis



Training and Supervision of Data Processing

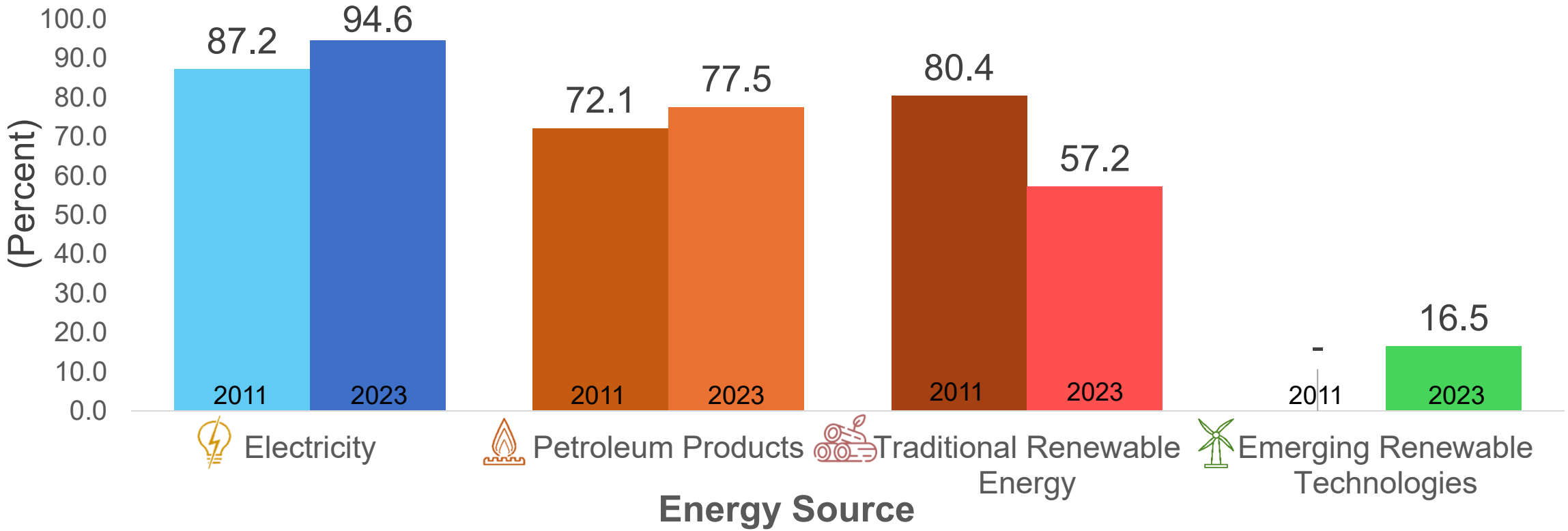
Validation Program and Completeness Checking

Evaluation of Preliminary Statistical Tables

Dissemination of Final Report

RESULTS: Household Energy Sources

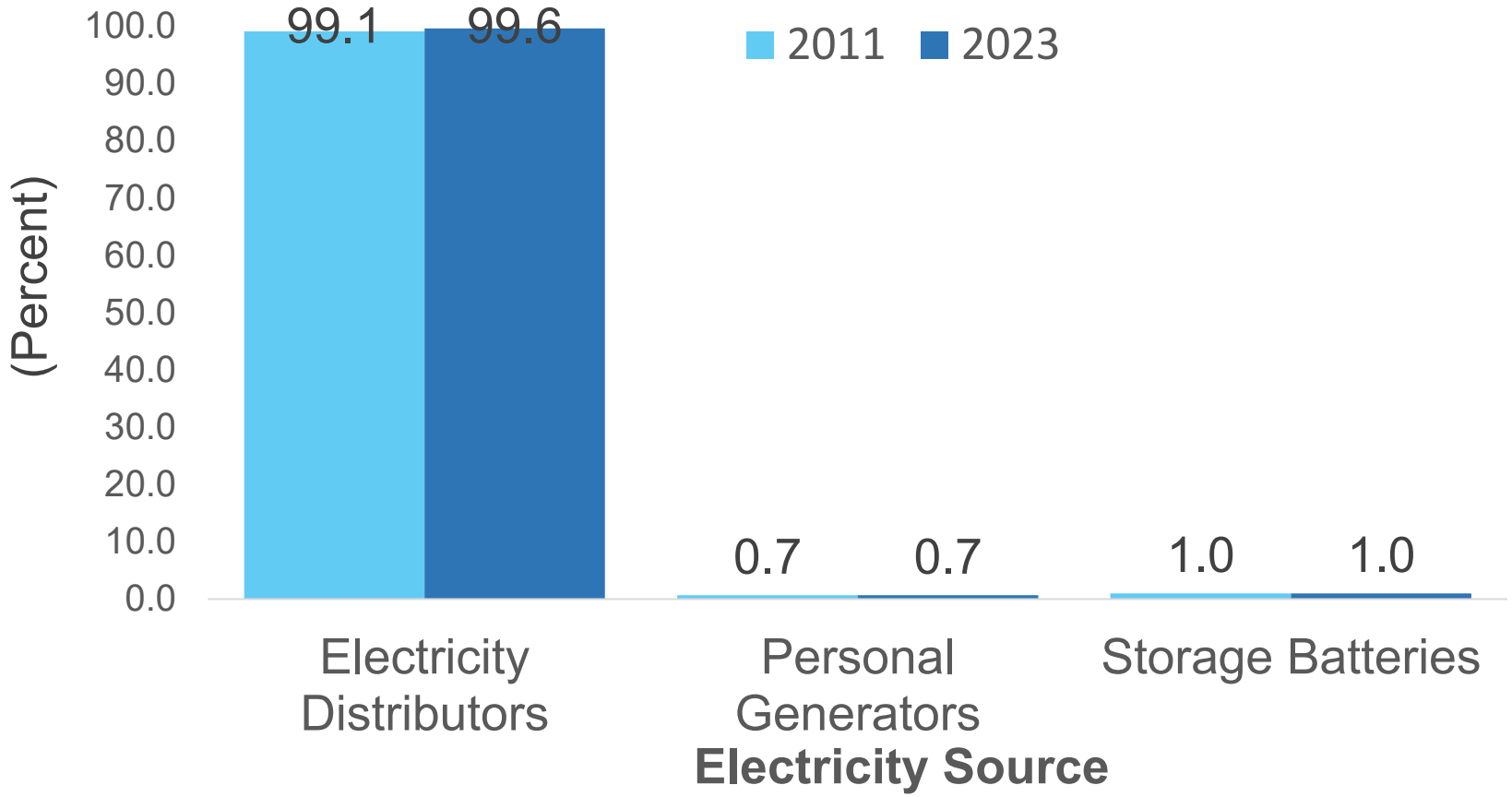
Percentage of Households by Type of Energy Source Used: Philippines, 2011 and 2023 (in percent)



Notes: 1. The sum of percentages by year may exceed 100% due to multiple response.
2. Excludes the use of household-operated business.
3. Emerging renewable technologies are not included in the scope of the 2011 HECS.

RESULTS: Household Energy Sources (Electricity)

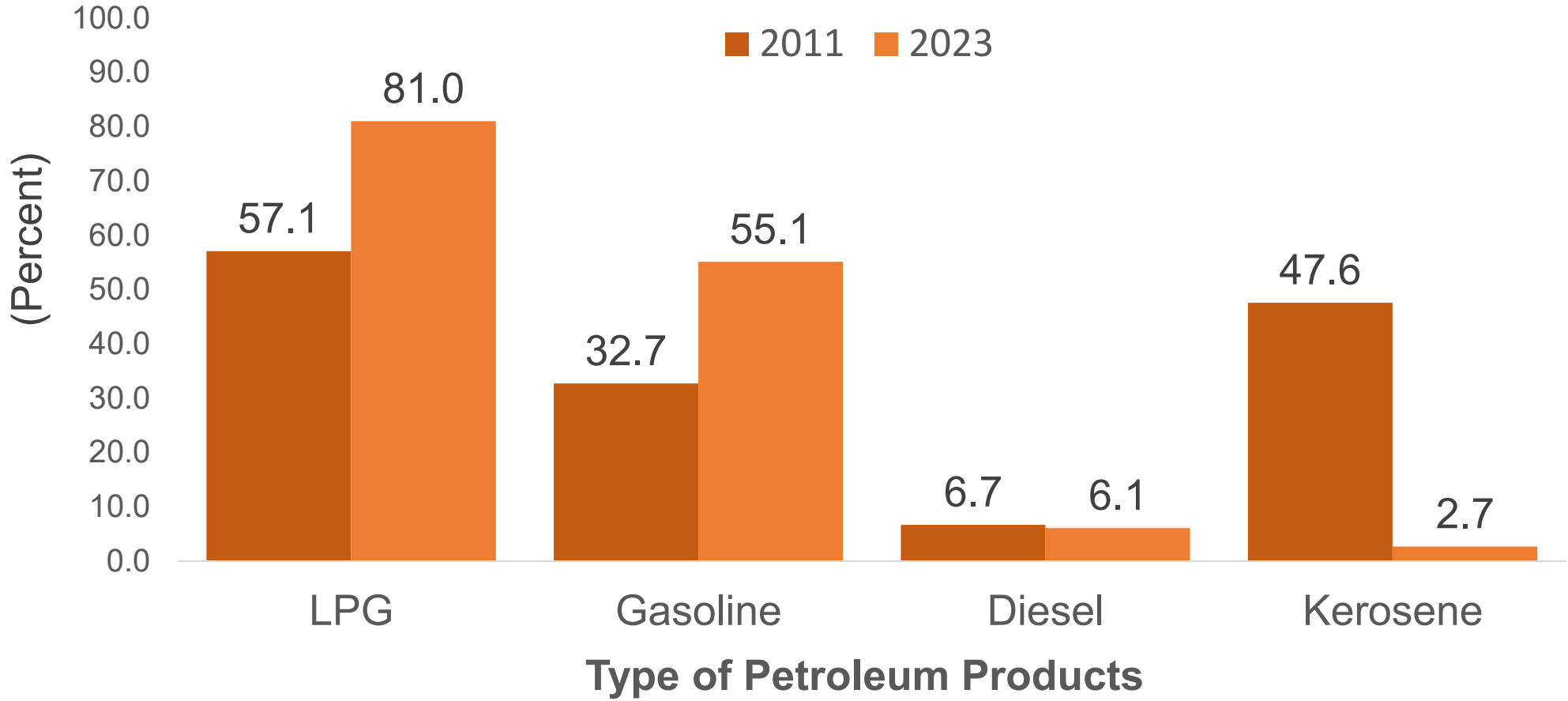
Percentage of Households by **Source of Electricity** Used: Philippines, 2011 and 2023 (in percent)



Note: 1. The sum of percentages may exceed 100% due to multiple response.

RESULTS: Household Energy Sources (Petroleum)

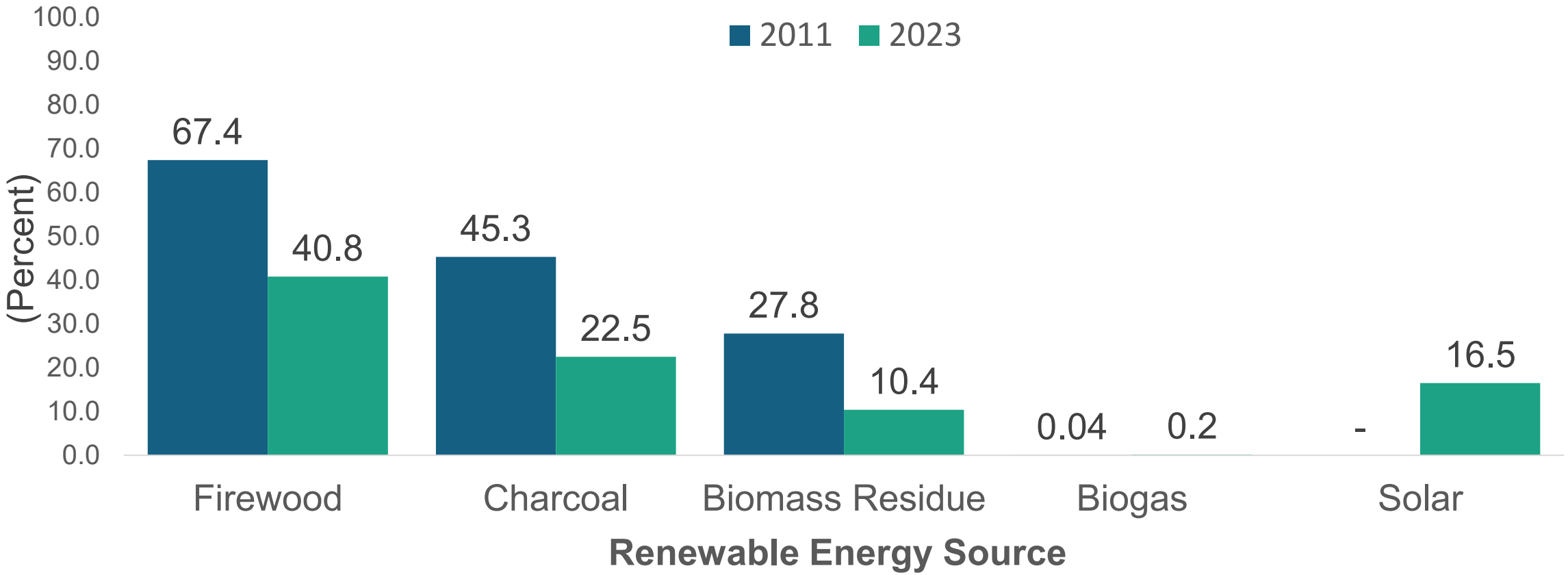
Percentage of Households by **Source of Petroleum Products** Used:
Philippines, 2011 and 2023 (in percent)



Note: 1. The sum of percentages may exceed 100% due to multiple response.

RESULTS: Household Energy Sources (Renewable Energy)

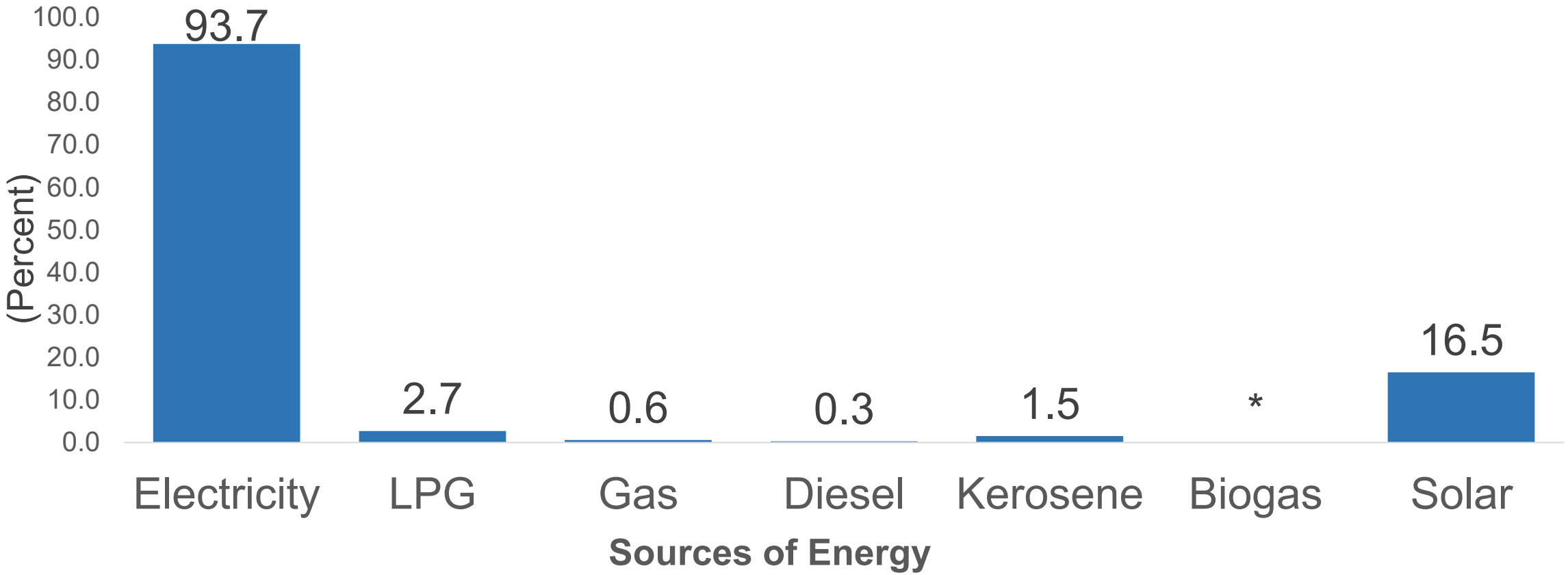
Percentage of Households by **Source of Renewable Energy** Used:
Philippines, 2011 and 2023 (in percent)



Note: 1. The sum of percentages may exceed 100% due to multiple response.
2. "" indicates a percentage less than 0.01.*

RESULTS: Household Energy Utilization

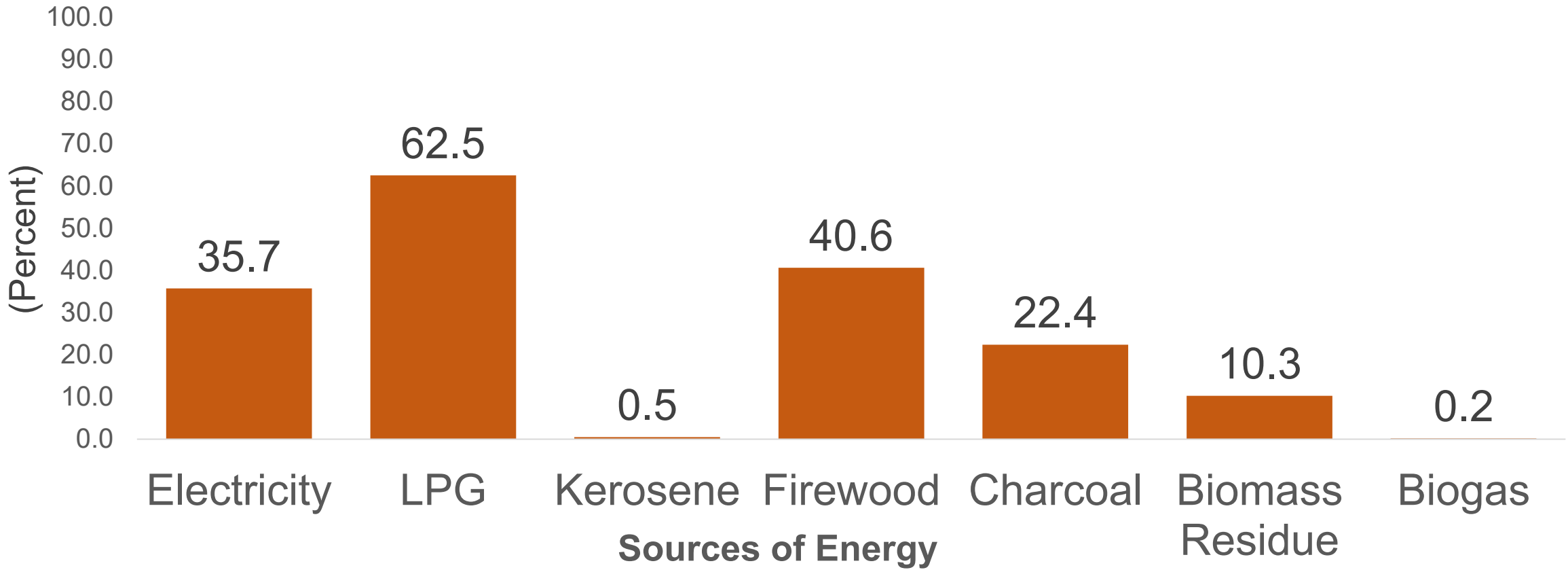
Percentage of Households by Source of Energy Used for **Lighting**: Philippines, December 2023 to May 2024 (in percent)



Note: 1. The sum of percentages may exceed 100% due to multiple response.
2. "" indicates a percentage less than 0.01.*

RESULTS: Household Energy Utilization

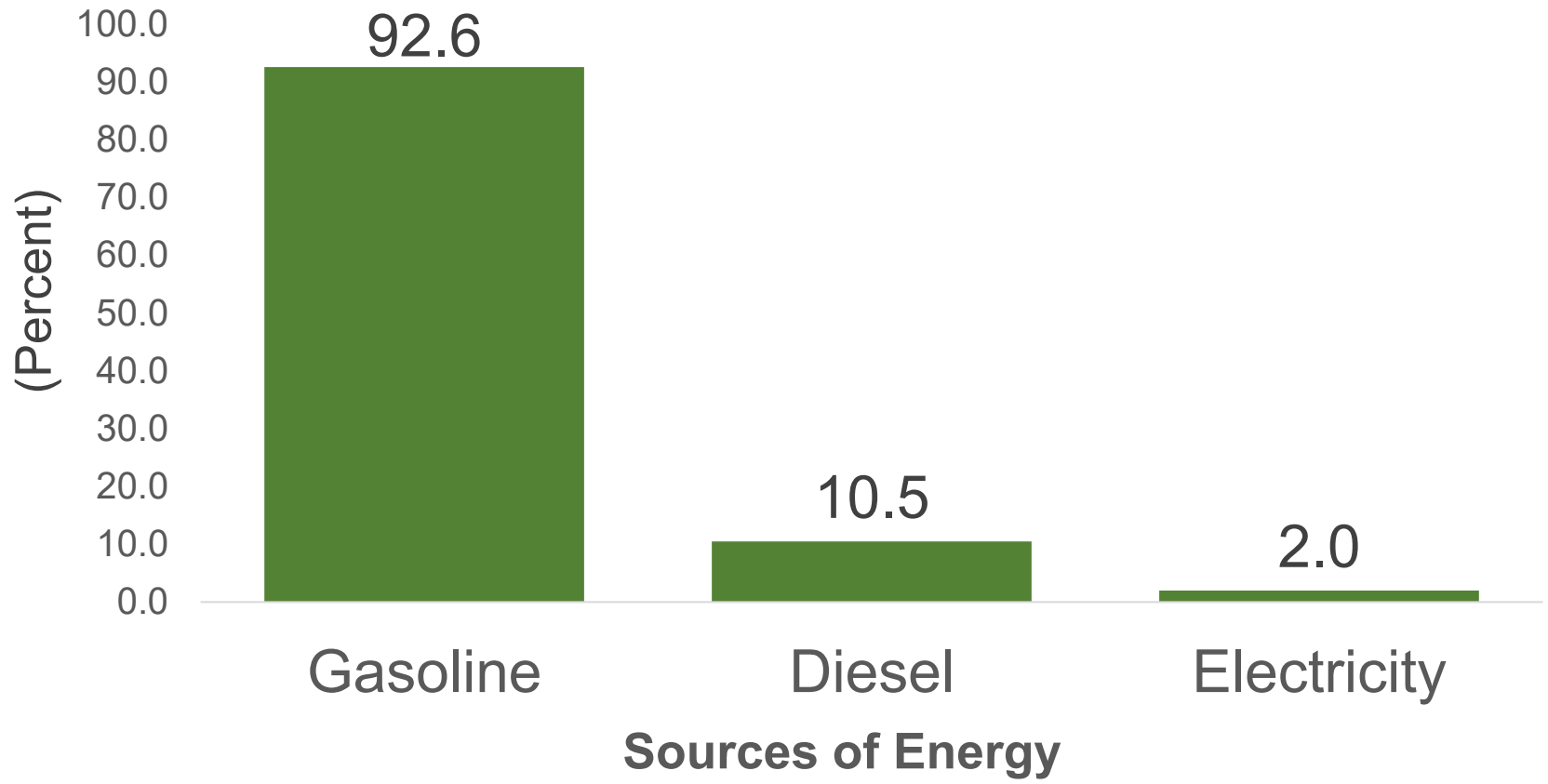
Percentage of Households by Source of Energy Used for **Cooking**: Philippines, December 2023 to May 2024 (in percent)



Note: The sum of percentages may exceed 100% due to multiple response.

RESULTS: Household Energy Utilization

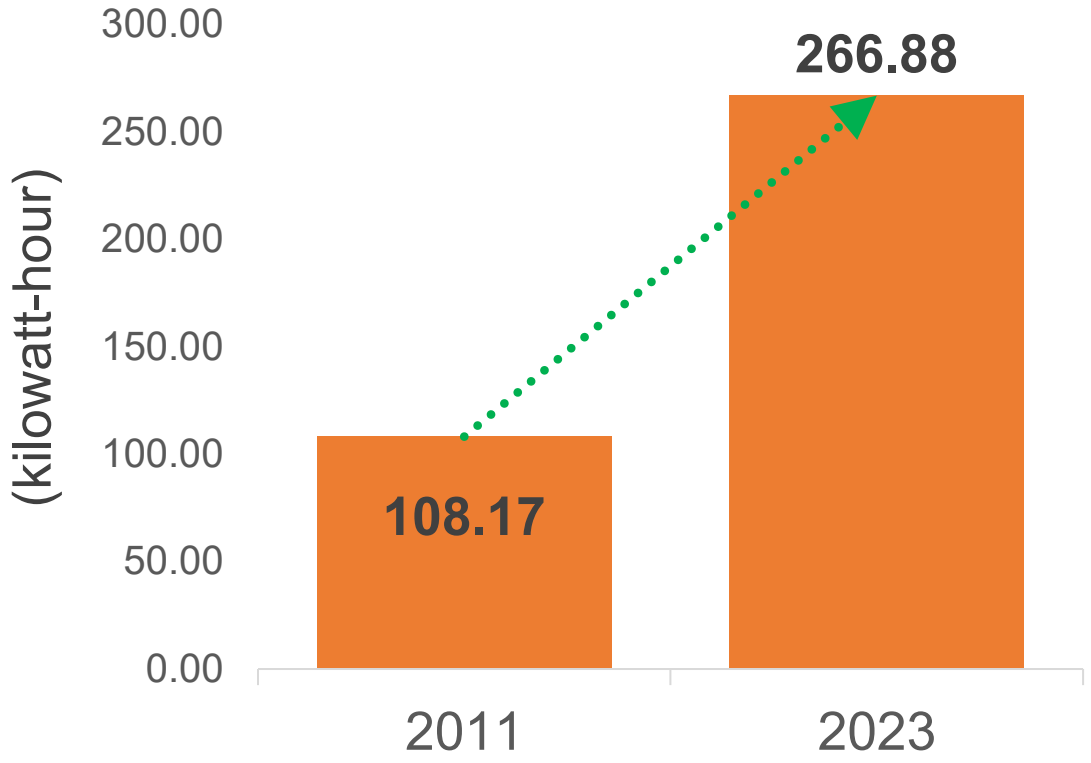
Percentage of Households by Source of Energy Used for **Transportation**: Philippines, December 2023 to May 2024 (in percent)

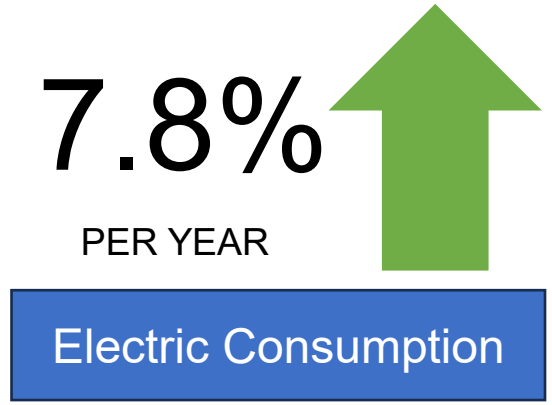


Note: The sum of percentages may exceed 100% due to multiple response.

RESULTS: Household Energy Consumption

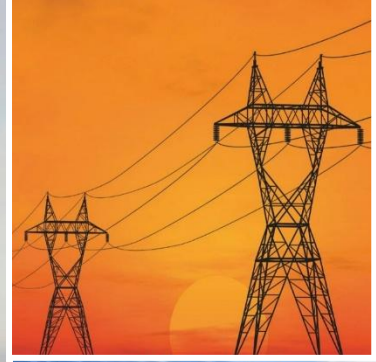
Average Monthly Electric Consumption based on the Reported Electric Bill of Households Using Electricity from Distribution Utilities, Philippines: 2011 and 2023 (in kilowatt-hour)





Note: Average electric consumption was derived from the reported electric bill.






Thank You!

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