



# **SURVEY IMPLEMENTATION OF 2023 HOUSEHOLD ENERGY CONSUMPTION SURVEY (HECS)**

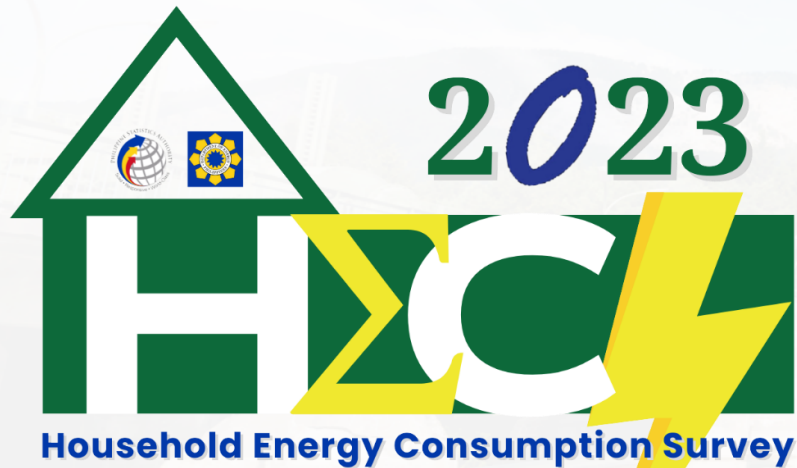
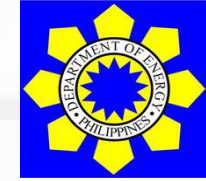
**IEA DEMAND SIDE DATA AND ENERGY EFFICIENCY INDICATORS WORKSHOP FOR  
SOUTHEAST ASIA**

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11 June 2025

# PRESENTATION OUTLINE



## OVERVIEW OF THE 2023 HECS

- Definition
- Objective of the Survey
- Scope and Coverage



## METHODOLOGY

- Survey Field Organization
- Content of the 2023 HECS
- Survey Design, Data Collection, & Supervision



## PRELIMINARY RESULTS

- Electricity
- Petroleum Products
- Renewable Energy

# 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)

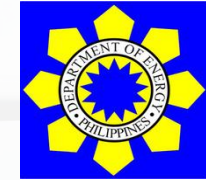
# WHAT IS HOUSEHOLD ENERGY CONSUMPTION SURVEY (HECS)?



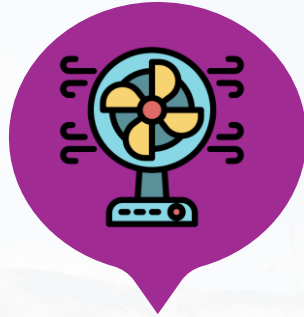
It is a special survey that gathers information on **households' utilization of fuels, supply systems and the pattern of energy use and other variables** that may be useful to assess the current energy profiles of different households and communities in the country.

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



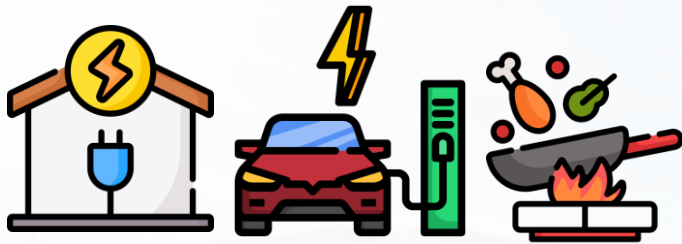
2023



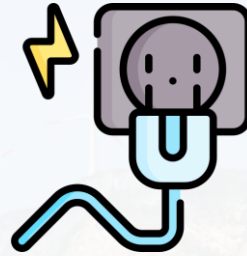
The **2023 HECS** has the following specific objectives:

- 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.**

# SCOPE AND COVERAGE OF THE SURVEY



**Energy Resources and Usage**  
*(Electricity, Petroleum, and RE and their technologies, household transportation, and fuel switching)*



**Practices and Attitudes**  
*on the use of energy by household activity*



**Awareness on Energy Issues**  
*(EE&C, Natural Gas, LPG, Nuclear, RE, and Energy Resiliency)*

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

# SCOPE AND COVERAGE OF THE SURVEY



## 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 household Units (**HUs**) serving as the **secondary sampling unit (SSU)** within the PSUs.
- The sampling frame used is the 2023 Geo Master Sample (GeoMS) with 118 sampling domains: 82 provinces; 33 highly urbanized cities (HUCs); and 3 other urban areas constructed 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.

# SCOPE AND COVERAGE OF THE SURVEY



## 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**

## 4 SAMPLING DESIGN – SAMPLE SELECTION

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

# 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.

# CONTENT OF 2023 HECS QUESTIONNAIRE



## Section I

Geographic Identification and Other Information



## Section II

Household Membership, Household Head, and Respondent's Characteristics



## Section IV

IV.A

Electricity

IV.B

Petroleum Products

IV.C

Transport

IV.D

Renewable Energy Sources and Technologies

IV.E

Cooking Fuel Switching



## Section V

Household Practices and Attitudes towards Use of Energy Sources



## Section VI

Awareness on Energy Issues



## Section VII

Household Income and Housing Characteristics

# 2023 HECS SURVEY DESIGN



## Pretest 1 = 140 households Paper and Pencil Personal Interviewing (PAPI)

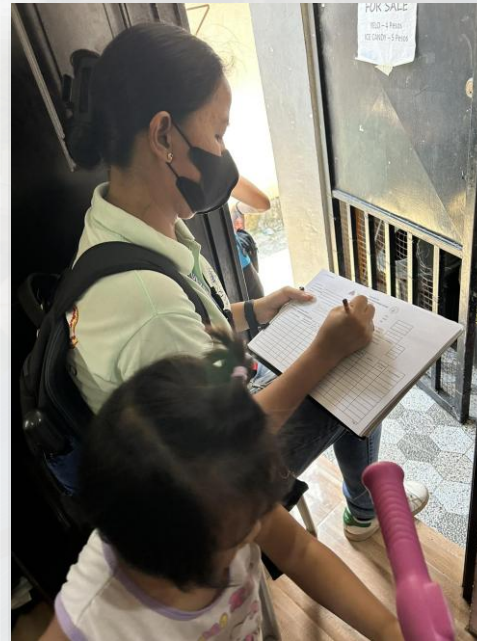
*Objective: To test the appropriateness and effectiveness of the designed questionnaires*

## Pretest 2 = 70 households Computer Assisted Personal Interviewing (CAPI)

*Objective: To test the updated questionnaire through CAPI based*

## PRETESTS

- 6** Interviewing Teams
- 1** Team Supervisor
- 3** Field Interviewers



# 2023 HECS SURVEY DESIGN



## 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*

# DATA COLLECTION AND SUPERVISION



- **Enumeration:**

28 calendar 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.

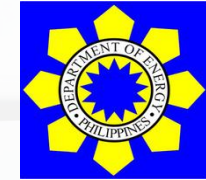


BAGONG PILIPINAS

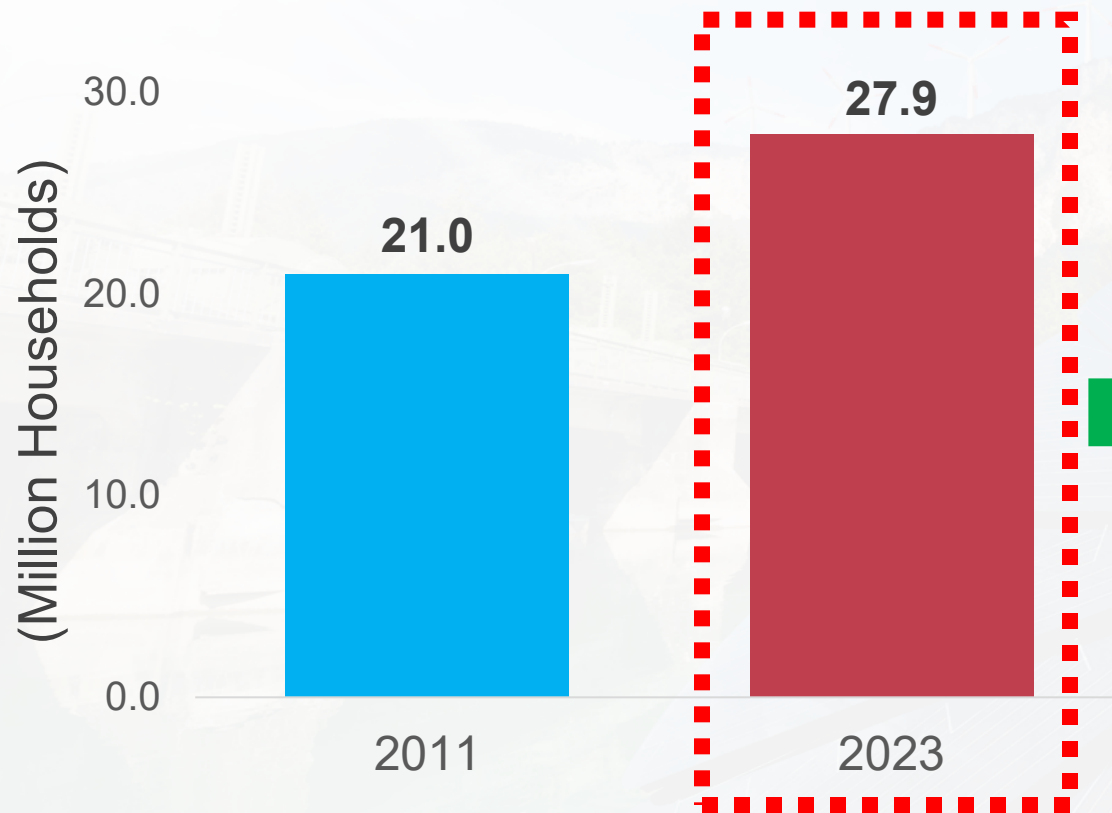
# PRELIMINARY RESULTS OF 2023 HECS



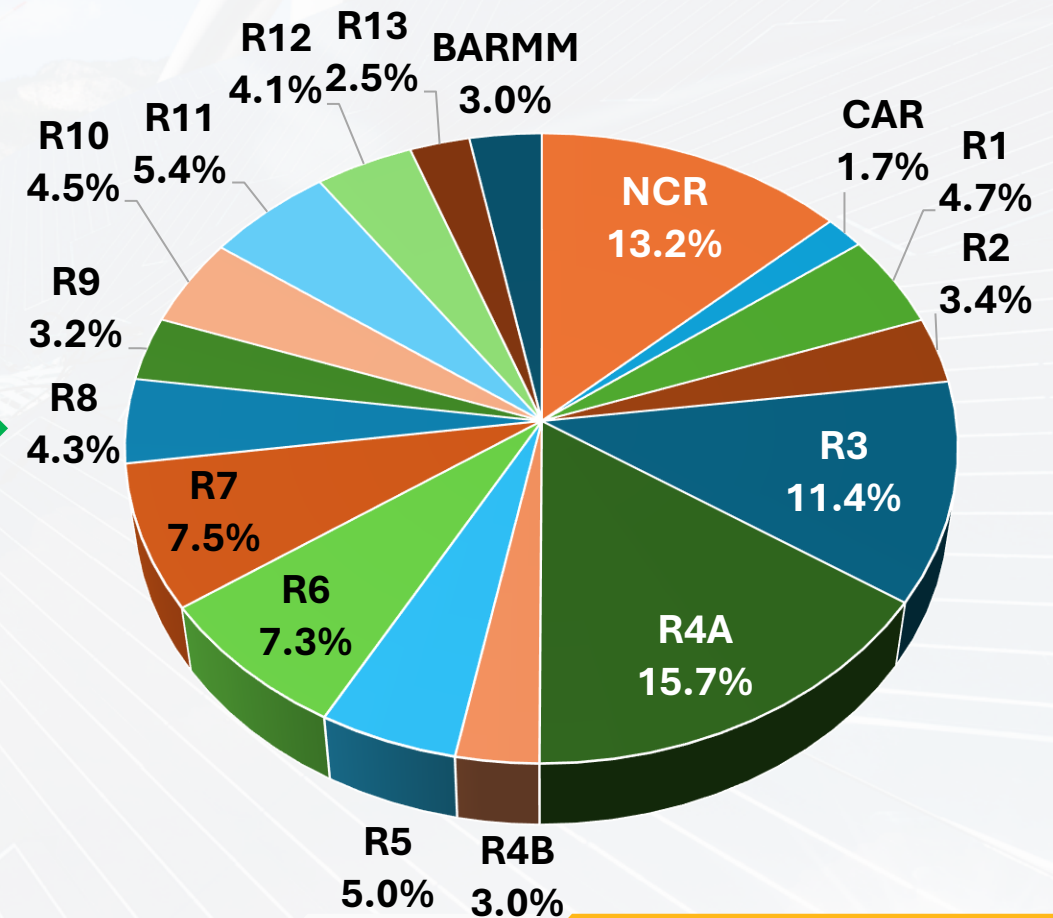
# HECS: Total Number of HHs



Total Number of Households: 2011 vs 2023 HECS



Total Number of Households, by Region: 2023 HECS



# ENERGY SOURCES



## 01 | Electricity

- Electricity Distributors
- Generator Sets
- Storage Batteries



## 02 | Petroleum

- LPG
- Gasoline
- Diesel
- Kerosene



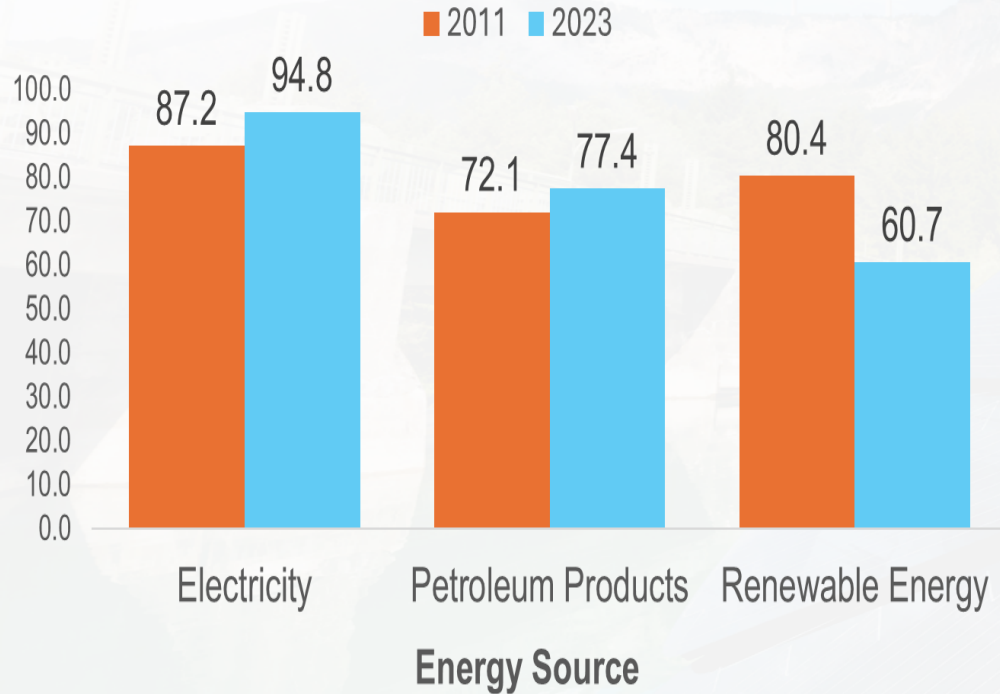
## 03 | Renewable

- Firewood
- Charcoal
- Biomass Residue
- Biogas
- Solar, Hydro, Wind

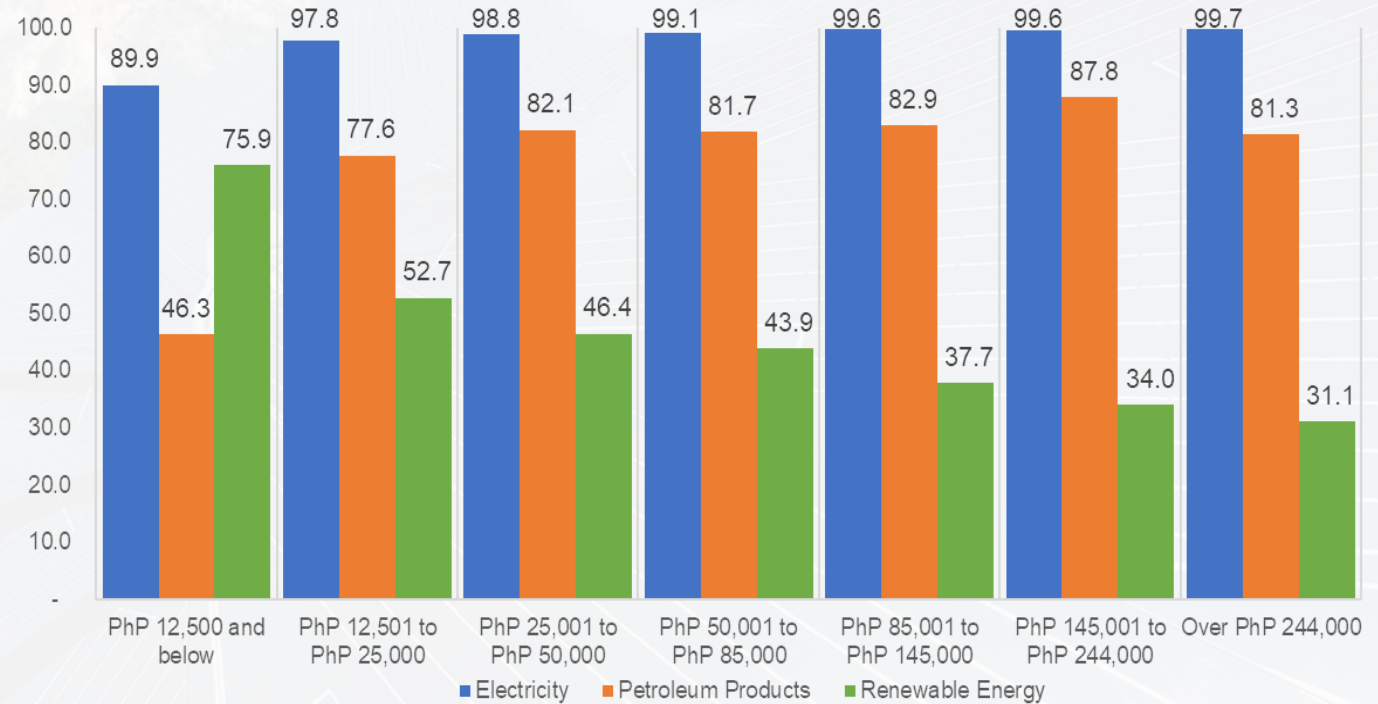
# ENERGY SOURCES



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

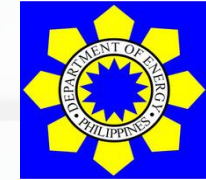


Percentage of Households by Type of Energy Source Used and by Monthly Income: Philippines, 2023 (in percent)

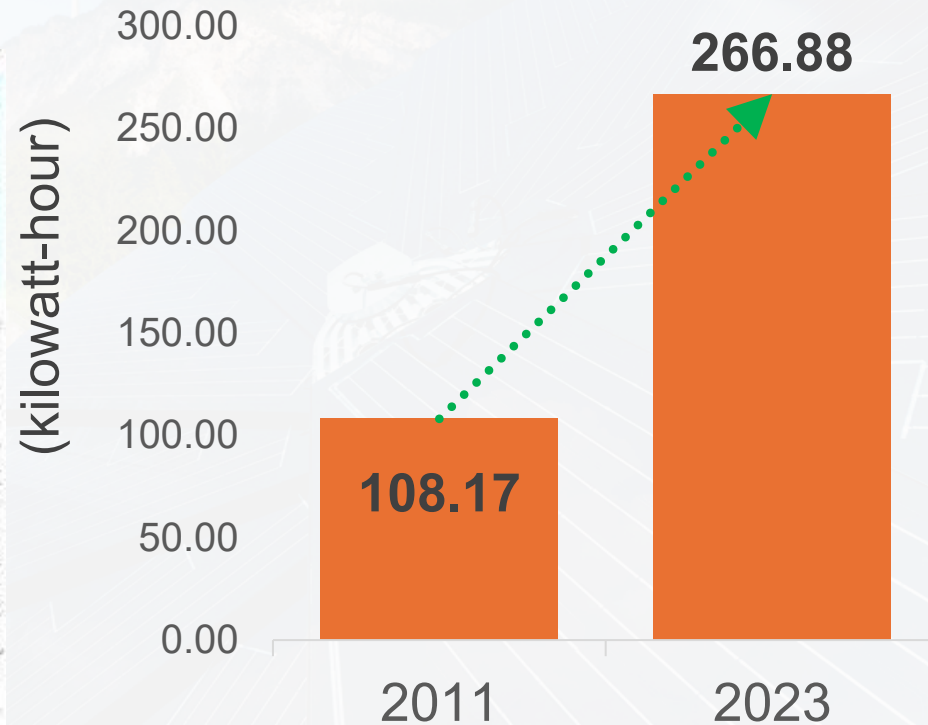


Notes: 1. The sum of percentages may exceed 100% due to multiple response.  
2. Excludes the use of household-operated business.

# ELECTRICITY 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)



**7.8%**

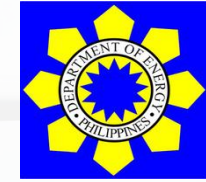
PER YEAR

Electric Consumption

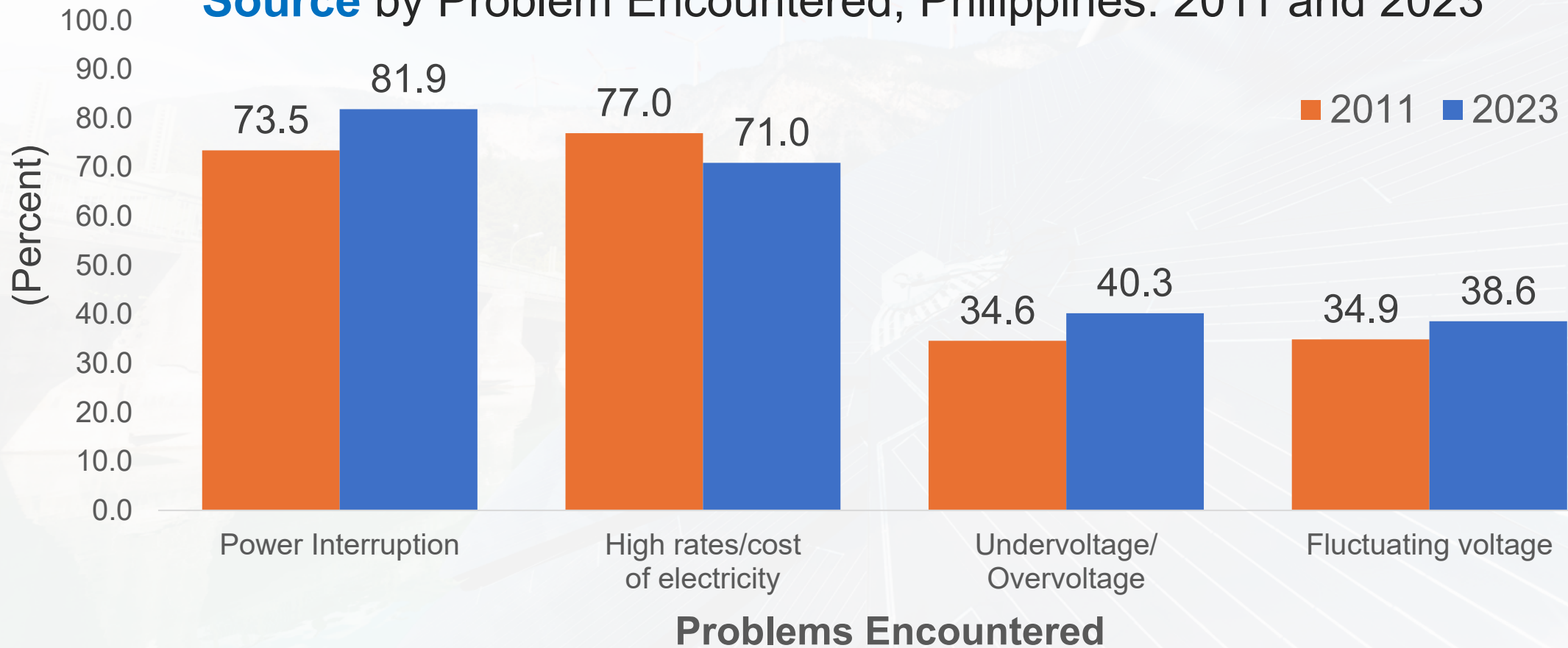


Note: Average electric consumption was derived from the reported electric bill.

# ELECTRICITY SUPPLY: Problems Encountered



Percentage of Households Using Electricity **with Electricity Distributor as Source** by Problem Encountered, Philippines: 2011 and 2023

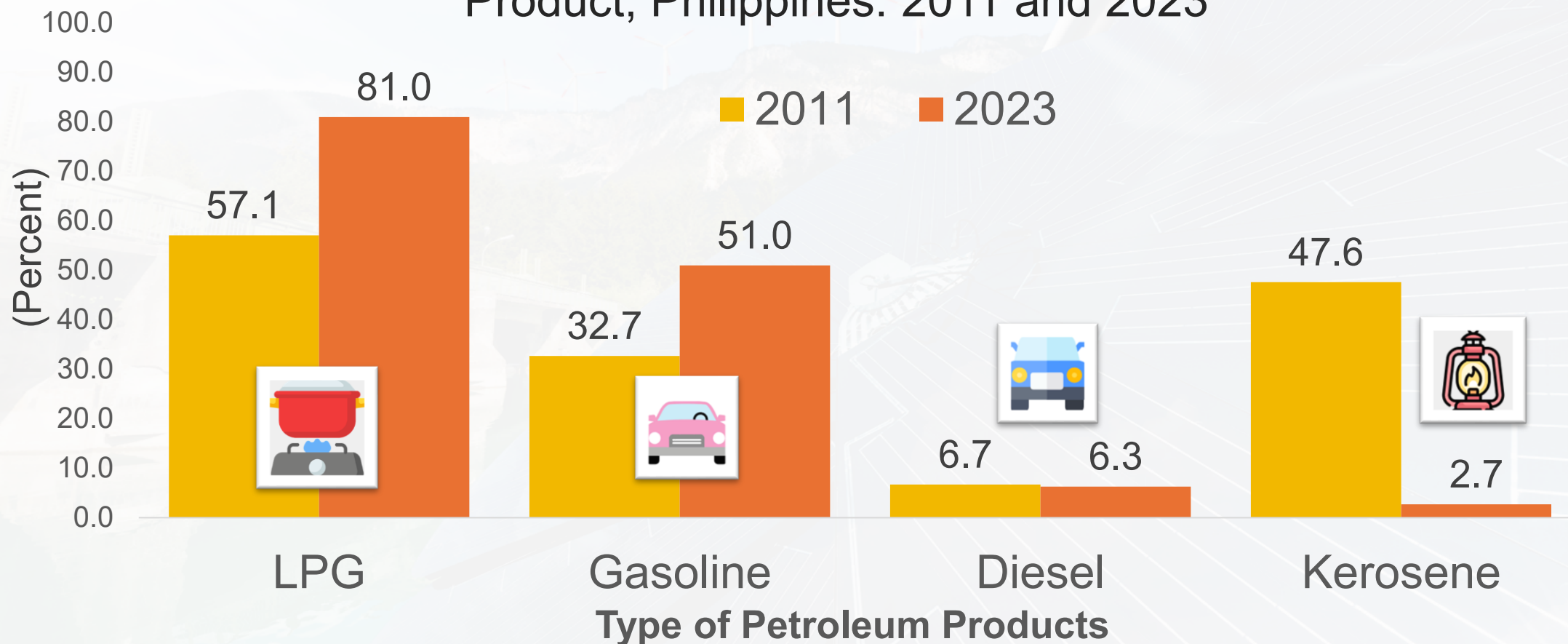


*Note: The sum of percentages by year may exceed 100% due to multiple response.*

# PETROLEUM PRODUCTS: Use

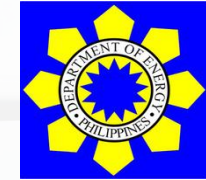


Percentage of Households **Using Petroleum Products** by Type of Petroleum Product, Philippines: 2011 and 2023

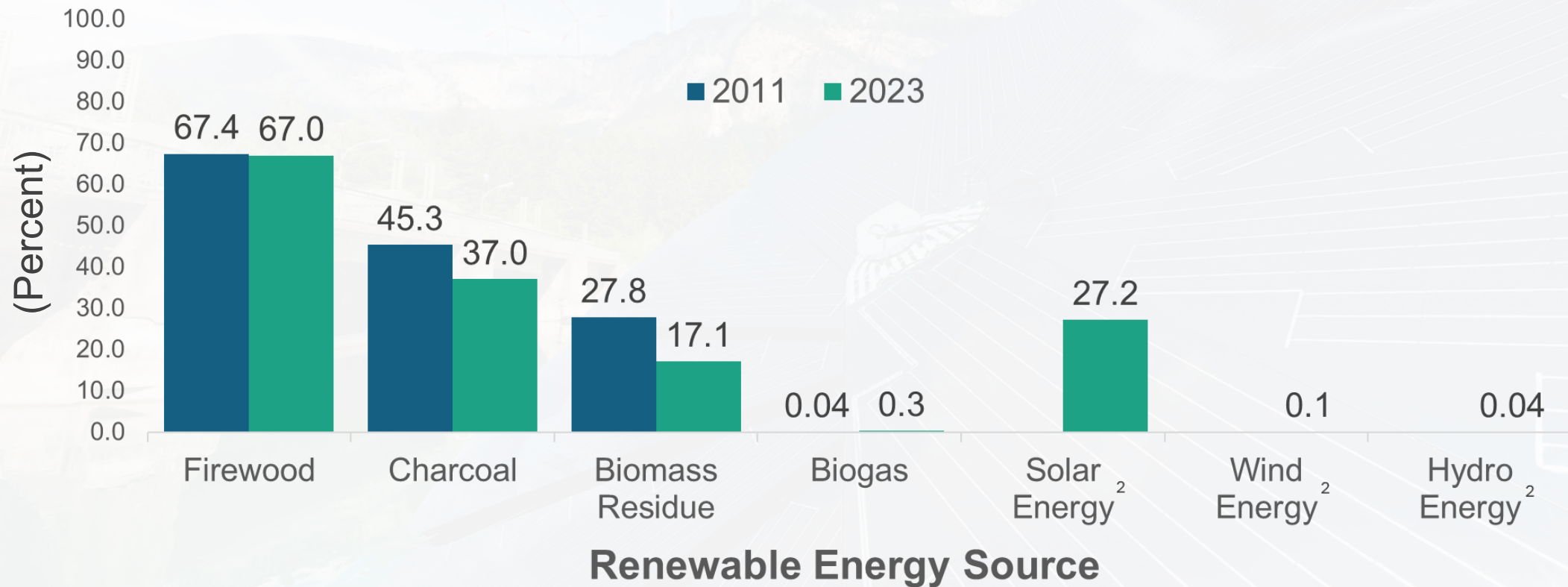


*Note: The sum of percentages by year may exceed 100% due to multiple response.*

# RENEWABLE ENERGY: Use



## Percentage of Households **Using Renewable Energy** by Source, Philippines: 2011 and 2023



Note: 1. The sum of percentages by year may exceed 100% due to multiple response.  
2. Solar, wind, and hydro energy are not included as categories in the 2011 HECS.



# Thank You!



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