



CAPTURING END-USE ENERGY CONSUMPTION IN INDONESIA



Pudji Ismartini

Acting Deputy Chief Statistician of Methodology and Information Statistics

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THE IMPORTANCE OF HOUSEHOLD ENERGY CONSUMPTION STATISTICS

INDICATOR MEASUREMENT APPROACH



BPS - STATISTICS INDONESIA

- ✓ Household energy consumption data collection are integrated into the **National Socioeconomic Survey (SUSENAS)**
- ✓ SUSENAS is mainly used to measure poverty



The Ministry of Energy and Mineral Resources

- ✓ **No direct data collection to each household**
- ✓ **Household energy consumption data are obtained from energy sales data by business entities** under the supervision of the Ministry of Energy and Mineral Resources (ESDM)
- ✓ It is assumed that all of the sales data is used for end users

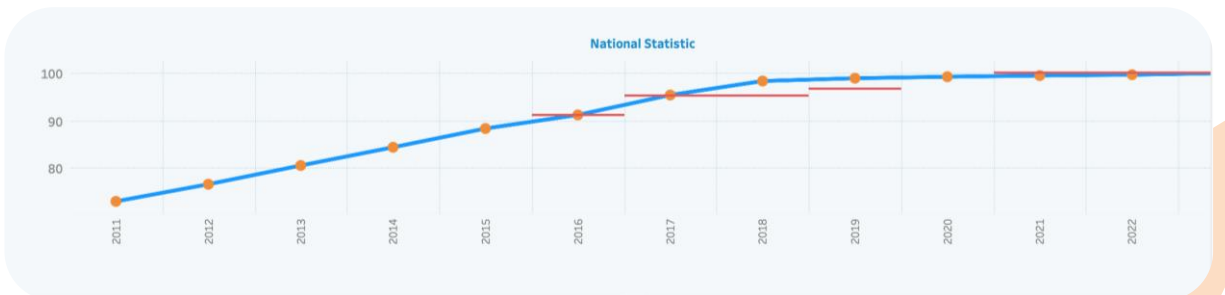
Household energy consumption data are essential for designing **evidence-based energy policies**



Goal 7: Affordable and Clean Energy

- 7.1.1. Proportion of population with access to electricity
- 7.1.2. Proportion of population with primary reliance on clean fuels and technology
- 7.3.1. Energy intensity

Proportion of Population with Access to Electricity (Electrification Ratio)



Electricity Consumption per Capita (Kilowatts-hour)



Source: <https://sdgs.bappenas.go.id>



National Socioeconomic Survey





Susenas as one of the socioeconomic data sources

- ✓ **Susenas is a key, ongoing survey** conducted by BPS-Statistics Indonesia.
- ✓ **Launched in 1963**, Susenas is designed to provide a comprehensive picture of Indonesia's socio-economic conditions.

The data collected through Susenas plays a vital role in:

- ✓ Shaping national policies
- ✓ Informing government programs
- ✓ Providing a critical foundation for research in various sectors

DATA THAT CAN BE PROVIDED

-  Poverty
-  Gini Ratio
-  Expected Years of Schooling (EYS)
-  Household Energy Consumption

And many more..

UTILIZATION OF SUSENAS DATA

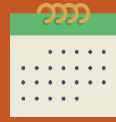
- ✓ Planning and evaluation of **national development programs**
- ✓ Planning and evaluation of **sectoral programs (ministries/agencies)**
- ✓ Providing indicators for **the Sustainable Development Goals (SDGs), the National Medium-Term Development Plan (RPJMN), and the Astacita programs**





INFORMATION COLLECTED

Susenas collects various information, such as education, health, housing, socio-cultural data, employment, access to food, household expenditure and consumption, etc.



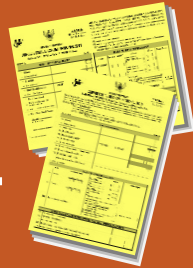
DATA COLLECTION PERIOD

The Susenas data collections are conducted twice a year, in March and September



QUESTIONNAIRE USED

- Questionnaires for the March Susenas:
 - the Susenas Core and
 - the Consumption and Expenditure (K/P) Susenas
- Questionnaires for the September Susenas:
 - the Susenas Module questionnaire, which rotates every 3 year:
 - Health and Housing Module
 - Social Resilience Module
 - Socio-Cultural and Education Module)
 - the Consumption and Expenditure (K/P) Susenas

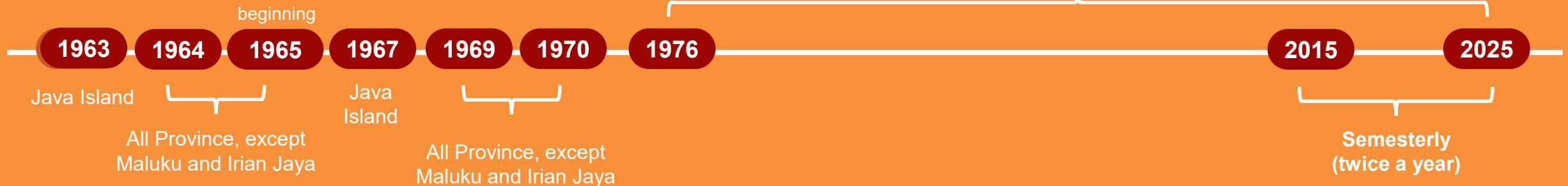


National Socioeconomic Survey (Susenas)

SUSENAS HISTORY



Susenas are conducted every year except in 1977, 1983, and 1988



METHODOLOGICAL FRAMEWORK FOR THE MARCH 2025 SUSENAS

Survey Coverage

- ✓ **Location**
All Regencies in Indonesia
- ✓ **Unit observation**
Households
- ✓ **Sample size**
345,000 households
- ✓ **Unit Analysis**
Households and individuals

Target of Sample
345.000 households
34.500 Census Blocks

514 Regencies & 38 Provinces
13.561 Enumerators and 10.726 Supervisors

Sampling Design: Stratified two-stage sampling

1st Stage : Census Blocks (CBs)

- ✓ **Build *Sampling Frame Master***
Selecting 40% of census blocks using systematic sampling with urban and rural strata (explicit) and welfare strata (implicit) in each regency
- ✓ **Selecting Sample of Census Blocks in Each Regency**
Selecting CBs in each regency using Probability Proportional to Size (PPS) sampling with an estimated population size of 7-23 years old. BS is selected using the Urban/Rural strata.

2nd Stage: Household

- ✓ **Selecting Households in Each Selected CBs**
Selecting 10 households from each census block in the March 2025 Susenas by applying systematic sampling that incorporates implicit strata based on the education level of each household's head



**Level of
Presentation at
Regency,
Provincial, and
National Level**



SUSENAS QUESTIONNAIRES

Core (Kor) Susenas Questionnaire

21 Question Blocks
26 Pages
About 190 Questions

Several Blocks of Questions

- ✓ Demographic Information
- ✓ Migration and Education Information
- ✓ Communication and Technology Information
- ✓ Health Complaints and Outpatient Information
- ✓ Housing Information
- ✓ Immunization, Breastfeeding, and Complementary Feeding
- ✓ Social Protection Information

Consumption and Expenditure (KP) Questionnaire

7 Question Blocks
44 Pages
About 488 Questions

Several Blocks of Questions

- ✓ Food Consumption And Expenditure
- ✓ Non-Food Consumption And Expenditure
- ✓ Income, Receipts, And Non-consumption Expenditures

Divided into 3 modules, each module is collected periodically every 3 years

Health and Housing Modules (MKP)

- ✓ The MKP Susenas questionnaire is to collect specific data related to **health, housing, and social protection** that cannot be accommodated through the March Susenas or other regular surveys
- ✓ The topics are included **home ownership, the condition and facilities of residential buildings, pollution potential, social protection**, etc.

Social Resilience Module (MH)

The main information collected through this module are as follows:

- ✓ Environment: housing, electricity, access to public transportation
- ✓ Security
- ✓ Social Community: childcare, social protection

** Last conducted in 2020, this module survey was not held in September 2023*

Socio-Cultural and Educational Module (MSBP)

The three main themes collected through the Susenas MSBP are as follows:

- ✓ Social Welfare: child neglect, government programs, and child rearing patterns and parental bonding.
- ✓ Culture: access to media, participation in sports activities, reading interest, actualization of Pancasila values, etc.
- ✓ Educational Support: educational facilities and infrastructure, as well as extracurricular activities



RECORDING OF HOUSEHOLD EXPENDITURE



Recording consumption and expenditure of **food ingredients, beverage ingredients, and cigarettes**, using the *Consumption Approach*, with reference to the last week.

A. CEREALS

H. FRUITS

B. TUBERS

I. COCONUT AND OIL

C. FISH/SHRIMP/SQUID/SHELLFISH

J. BEVERAGE INGREDIENTS

D. MEAT

K. SPICES

E. EGG AND MILK

L. OTHER FOOD INGREDIENTS

F. VEGETABLES

M. OTHER FOOD AND BEVERAGES

G. NUTS

N. CIGARETTES AND TOBACCO



Recording expenditures for **non-food items**, using the **Delivery Approach**, with reference to the last month or the last year

A. HOUSING AND HOUSEHOLD FACILITIES



Subblock Question for Household Energy Consumption

B. VARIOUS GOODS AND SERVICES

C. CLOTHING, FOOTWEAR, AND HEADGEAR

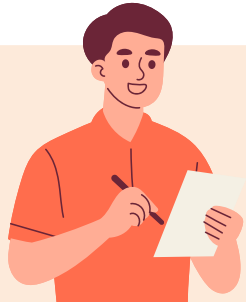
D. DURABLE GOODS

E. TAXES, LEVIES, INSURANCE

F. PARTY AND CEREMONY NEEDS

BLOK IV.3 SUMMARY

HOUSEHOLD ENERGY USE AND CONSUMPTION QUESTIONS IN SUSENAS



In the Susenas questionnaire, information related to **household energy use and consumption** can be obtained through the **KOR and KP questionnaires**

Core (Kor) Susenas Questionnaire

The KOR questionnaire covers aspects of energy use in households, including **the use of household lighting sources** and **the use of main fuel types for cooking**.

<i>di tempat mencuci tangan!</i>	Tidak tersedia sabun/detergen 5
1616. A. APAKAH SUMBER UTAMA PENERANGAN RUMAH TANGGA INI?	Listrik PLN dengan meteran 1 Listrik PLN tanpa meteran 2 Listrik non-PLN 3 Bukan listrik 4
B. BERAPA DAYA TERPASANG DI RUMAH INI?	Meteran 1 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
1. 450 Watt 2. 900 Watt 3. 1.300 Watt atau lebih	(Isikan daya untuk setiap meteran yang terpasang)
1617. APAKAH JENIS BAHAN BAKAR UTAMA YANG DIGUNAKAN UNTUK MEMASAK?	Listrik Elpiji 12 kg Elpiji 3 kg Gas kota Biogas 6 Minyak tanah 7 Briket 8 Arang 9 Kayu bakar 10 Lainnya 11 Tidak memasak di rumah 0

Question about the use of **household lighting sources**

Question about the use of **main fuel types for cooking**

Consumption and Expenditure (KP) Questionnaire

The KP questionnaire covers four aspects of energy consumption in households, including:

- Electricity consumption**
- Fuel consumption for generators**
 - Consumption of Gasoline/diesel/kerosene
 - Consumption of lubricant
- Fuel consumption for motor vehicles**
 - Consumption of Gasoline/diesel/kerosene
 - Consumption of lubricant
- Fuel consumption for cooking or other purposes**
 - Consumption of LPG
 - Consumption of Gas Network Connection to Household
 - Consumption of Kerosene
 - Consumption of charcoal/coal/briquettes
 - Consumption of Biogas
 - Consumption of Firewood and other fuels



HOUSEHOLD ENERGY USE AND CONSUMPTION QUESTIONS IN SUSENAS



The question about household energy consumption is located in the **consumption/expenditure (KP) questionnaire** in the non-food consumption section



		Generator (Rincian 237 s.d. Rincian 242)		
237	07220011-17/ 07220008/ 04530001*	i. Jenis dan jumlah pemakaian bahan bakar minyak (BBM): 1. Bensin (<i>pertalite, pertamax, shell, total, dsb.</i>) 2. Solar (termasuk <i>shell diesel, performance diesel, dsb.</i>) 3. Minyak tanah	<input type="checkbox"/>	
238	07220011-17/ 07220008/ 04530001*	Sebulan Terakhir: Liter	<input type="text"/>	
239	07220011-17/ 0722000/ 04530001*	Nilai:	<input type="text"/>	

Recording fuel consumption for generators

BLOK IV.2. PENGELUARAN UNTUK BARANG-BARANG BUKAN MAKANAN SELAMA SEBULAN DAN SETAHUN TERAKHIR (DALAM RUPIAH) (LANJUTAN)

No. Urut	Kode COICOP	Rincian	Sebulan Terakhir	Setahun Terakhir
(1)	(2)	(3)	(4)	(5)
		Kendaraan bermotor (Rincian 243 s.d. Rincian 251)		
243	07220011-17	a. Bensin (<i>pertalite, pertamax, shell, total, dsb.</i>) Sebulan Terakhir:..... Liter	<input type="text"/>	
244	07220011-17	Nilai:	<input type="text"/>	
245	07220008	b. Solar (termasuk <i>shell diesel, performance diesel, dsb.</i>) Sebulan Terakhir:..... Liter	<input type="text"/>	
246	07220008	Nilai:	<input type="text"/>	
		Bahan bakar untuk keperluan lainnya (Rincian 252 s.d. Rincian 262)		
252	04521001	L P G (gas tabung) Banyaknya: Sebulan Terakhir: Kg	<input type="text"/>	
253	04521001	Nilai:	<input type="text"/>	
254	04521002	Gas kota Banyaknya: Sebulan Terakhir:m ³	<input type="text"/>	
255	04521002	Nilai:	<input type="text"/>	
256	04530001	Minyak tanah Banyaknya: Sebulan Terakhir: Liter	<input type="text"/>	
257	04530001	Nilai:	<input type="text"/>	
258	04540002-4	Arang/batu bara/briket Banyaknya: Sebulan Terakhir: Kg	<input type="text"/>	
259	04540002-4	Nilai:	<input type="text"/>	
260	04521000	Biogas	<input type="text"/>	
261	04540001	Kayu bakar dan bahan bakar lainnya	<input type="text"/>	

Recording fuel consumption for motor vehicle

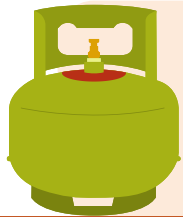
Recording fuel consumption for other household purposes, such as cooking, lighting, etc.

BLOK IV.2. PENGELUARAN UNTUK BARANG-BARANG BUKAN MAKANAN SELAMA SEBULAN DAN SETAHUN TERAKHIR (DALAM RUPIAH)				
No. urut	Kode COICOP	Rincian	Sebulan Terakhir	Setahun Terakhir
(1)	(2)	(3)	(4)	(5)
226		A. PERUMAHAN DAN FASILITAS RUMAH TANGGA	<input type="text"/>	<input type="text"/>
227		Status penguasaan bangunan tempat tinggal yang ditempati: 1. Milik sendiri 4. Bebas sewa 2. Kontrak 5. Dinas 3. Sewa 6. Lainnya	<input type="checkbox"/>	
228	04221000	Jika milik sendiri/bebas sewa , perkiraan sewa sebulan: Rp.....	<input type="text"/>	
232	04300000	Pemeliharaan rumah dan perbaikan ringan (cat kayu, kapur, cat tembok, genteng, kaca jendela, engsel, dsb.)	<input type="text"/>	
233	04510000	Listrik Banyaknya: Sebulan Terakhir: kWh Catatan: Bila ruta tidak mengetahui satuan kWh (misalnya memakai listrik non-PLN), cara perhitungan sbb: Jumlah watt yang digunakan dikalikan jumlah jam pemakaian sebulan dibagi 1000	<input type="text"/>	
234	04510000	Nilai:	<input type="text"/>	
235	04410000	Air (PAM/pikulan/beli) Banyaknya: Sebulan Terakhir: m ³	<input type="text"/>	
236	04410000	Nilai:	<input type="text"/>	

Recording electricity consumption

ENERGY CONSUMPTION IN INDONESIA

LPG AS THE MAIN SOURCE OF HOUSEHOLD FUEL

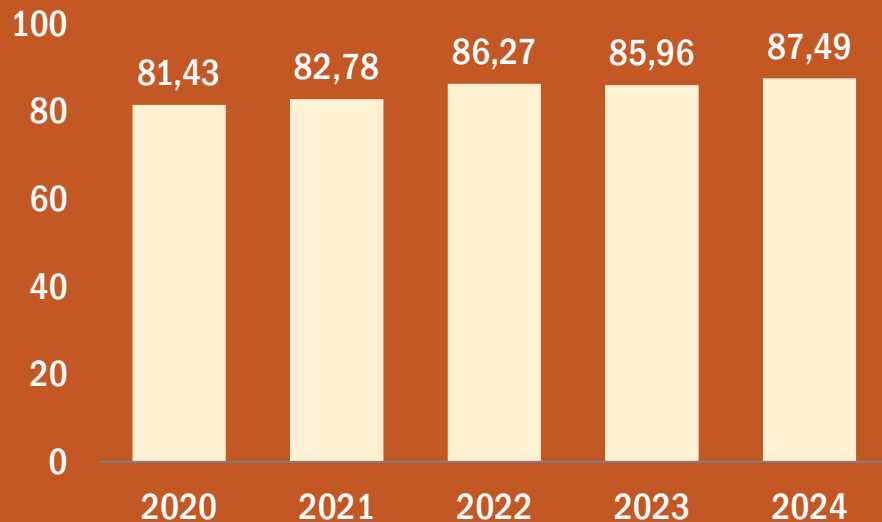


Liquefied Petroleum Gas (LPG) is the main source of energy for the majority households in Indonesia.

87.49% of households in Indonesia used LPG as their main fuel for cooking (Susenas 2024)



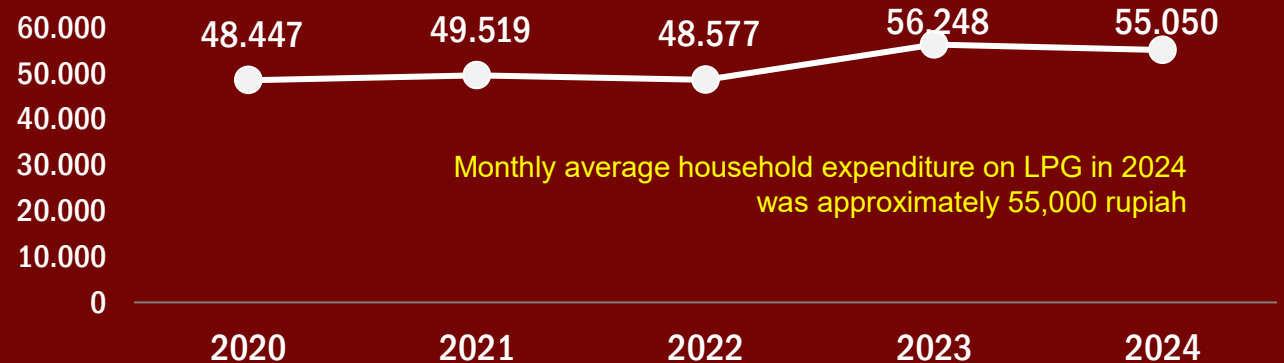
PERCENTAGE OF HOUSEHOLDS USING LPG AS THE PRIMARY FUEL FOR COOKING, 2020-2024



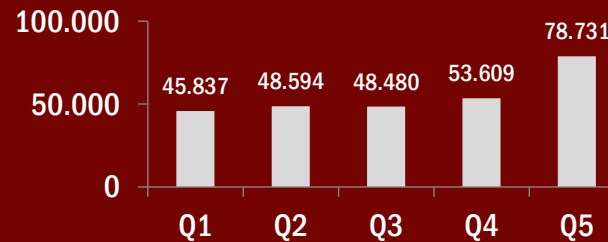
SOURCE: Statistics Indonesia, Susenas Kor 2020-2024

*) LPG includes 5.5 kg, 12 kg, and 3 kg LPG cylinders

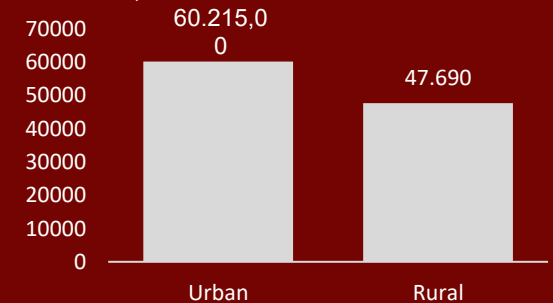
MONTHLY AVERAGE HOUSEHOLD EXPENDITURE FOR LPG (IN RUPIAH)



Monthly Average Household Expenditure for LPG by Expenditure Groups, 2024



Monthly Average Household Expenditure for LPG By Settlement Pattern, 2024



CHALLENGES IN HOUSEHOLD DATA COLLECTION

Selection of Implementation Time

- ✓ Religious or national holidays, such as Eid al-Fitr, Christmas, Chinese New Year, and Independence Day, greatly influence consumption patterns among households, there by disrupting estimates
- ✓ Implementation is not concurrent with other statistical activities



Implementation Preparation

- ✓ Many indicators are generated, so it is important to thoroughly prepare enumerators
- ✓ Adjustment of enumerator workload



Respondent Burden

- ✓ Consumption/expenditure data collection covers all household members, so the **information provider** greatly influences the validity of the answers
- ✓ The interviews take 3-4 hours, so enumerators need to determine the right strategy to ensure respondents provided accurate data



Quality Control

- ✓ Tiered monitoring and supervision



*"Improving energy data is **not just about precision**; it's about empowering smarter decisions that fuel a sustainable future and enhance the quality of life for all."*

Thank You!

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