



Market Potential of Rooftop Solar PV in Surabaya

A Report



Imprint

MARKET POTENTIAL OF ROOFTOP SOLAR PV IN SURABAYA: A REPORT

Authors:

Marlistya Citraningrum

Fabby Tumiwa

Institute for Essential Services Reform (IESR)

Jalan Tebet Barat Dalam VIII No. 20B

Jakarta, Indonesia | www.iesr.or.id | iesr@iesr.or.id

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BACKGROUND



Indonesia

Indonesia has committed to Paris Agreement and has set the target for solar energy development of 6.5 GW by 2025.



IESR

IESR works to accelerate low-carbon energy transition and has been playing active role in One Million Rooftop Solar Initiative. IESR sees high potential for solar energy deployment through rooftop solar use.



2018 Survey

In 2018, IESR in collaboration with GIZ-INFIS conducted residential survey on rooftop solar in Greater Jakarta.

RESIDENTIAL SURVEY





STUDY INFORMATION



METHODOLOGY

- » Random and quantitative samplings
- » Pre-selected respondents: based on power capacity, house type, decision makers for energy-related issues
- » No gender preference



COVERAGE

- » Only covers residential area
- » Number of respondents in Surabaya: 400
- » Number of respondents in Greater Jakarta: 500



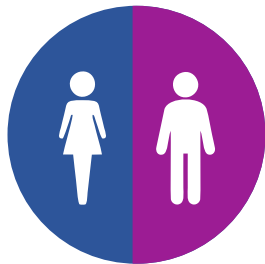
RESULT

- » Awareness and perception
- » Interest
- » Procurement preference
- » Financial scheme preference



RESPONDENTS DEMOGRAPHIC

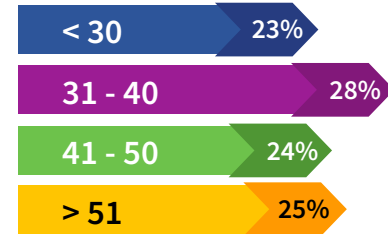
Gender



50% 50%

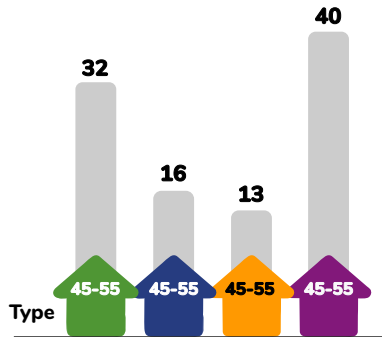


AGE



RESIDENTIAL CHARACTERISTICS

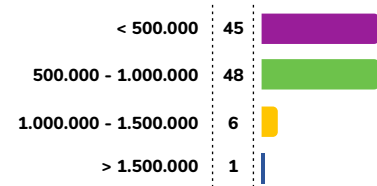
HOUSE TYPE



MONTHLY POWER BILL








Electricity Expenses (average in month)





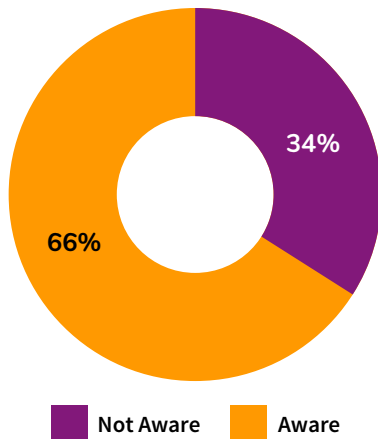
PEOPLE IN SURABAYA MOSTLY CONCERN ON **THE ELECTRICAL POWER** USAGE DUE TO COST SAVING MOTIVES.

HOW DO PEOPLE BEHAVE TOWARD THEIR ENVIRONMENT?

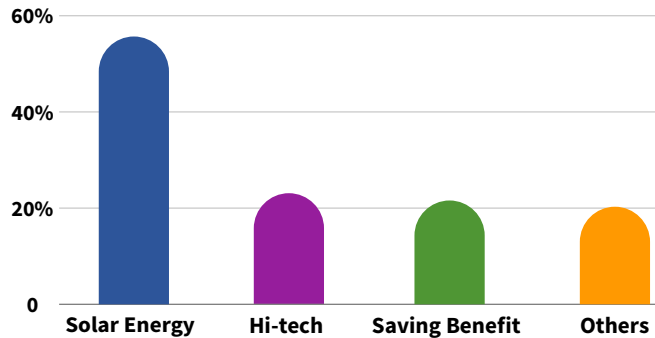
Turn off the light when not in use	92	
Always try to use natural light	76	
Buy energy-saving lights	73	
Using natural ventilation minimize the use of AC	73	
Unplug the power cord when not in use	68	

7 IN 10 PEOPLE ARE AWARE OF ROOFTOP SOLAR.
AROUND **1 IN 4** PEOPLE ARE AWARE OF
ITS TECHNOLOGY AND COST SAVING BENEFIT.

Awareness



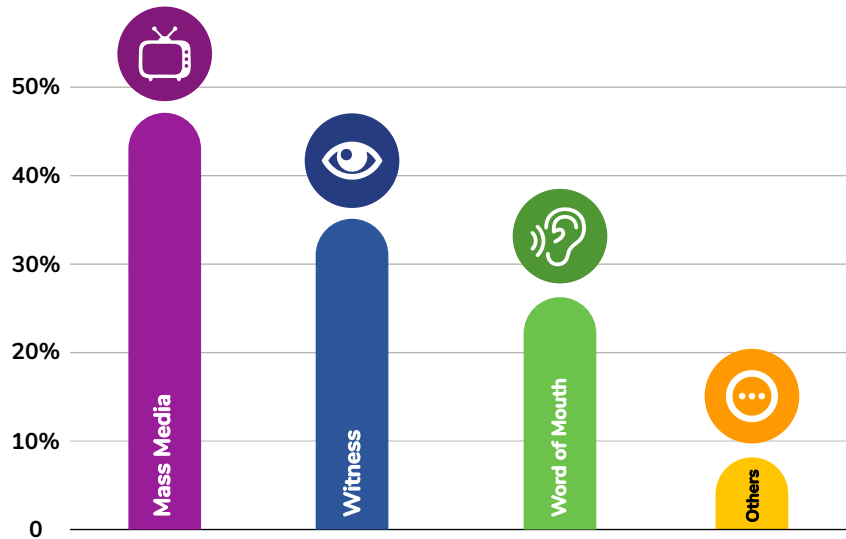
KNOWLEDGE



**People in Greater Jakarta consider cost saving benefit of rooftop solar more than its high technology.*



DOMINANT SOURCE OF INFORMATION IS **MASS MEDIA**



PEOPLE IN SURABAYA
FOUND ROOFTOP SOLAR
INTERESTING AND OF
HIGH TECHNOLOGY.



INTERESTING



Hi-Tech



PEOPLE IN SURABAYA ARE INTERESTED
IN **HIGH TECH**, **COOL**, AND **TRENDY THINGS**.



7 IN 10 PEOPLE
STATED THE PRODUCT IS ATTRACTIVE.



But only 18% perceived rooftop solar as relevant to their needs.



LACK OF PRODUCT KNOWLEDGE AND PERCEPTION OF EXPENSIVE PRODUCT ARE THE MAIN BARRIERS FOR CONSUMERS TO CONSIDER INSTALLING ROOFTOP SOLAR

REASONS OF NOT RELEVANT

PRODUCT KNOWLEDGE (28%)



- Have no idea about the product and how it works 18%

FINANCIAL MATTER (28%)



- The price is expensive 15%

REASONS OF RELEVANT BUT NOT NECESSARY

FINANCIAL MATTER 42%



- Economic factors/no budget 12%

PRODUCT KNOWLEDGE (18%)



- Have no idea about the product and how it works 11%

TOP 3 FACTORS CONSIDERED BY CONSUMERS TO INSTALL ROOFTOP SOLAR

ELECTRICAL BILL SAVING



7 IN 10

AFFORDABLE INSTALLATION COST



6 IN 10

SYSTEM WARRANTY



1 IN 2

*People in Greater Jakarta mentioned
affordable installation cost first

1 IN 3 PEOPLE INTENDS TO INSTALL ROOFTOP SOLAR



Installation cost affects their intention, however, explaining rooftop solar benefit can increase their willingness to install.



SAVING ON ELECTRICAL BILL IS THE MAIN FACTOR FOR CONSUMERS TO CONSIDER INSTALLING ROOFTOP SOLAR.



ELECTRICAL BILL SAVING



**CONTRIBUTE POSITIVELY
TO THE ENVIRONMENT**



**PEOPLE IN SURABAYA SHOW A TENDENCY TOWARDS
POSITIVE CONTRIBUTION FOR
BETTER ENVIRONMENT.**

HIGH COST AND LACK OF PRODUCT KNOWLEDGE ARE THE MAIN REASONS OF CONSUMERS NOT CONSIDERING TO INSTALL ROOFTOP SOLAR.



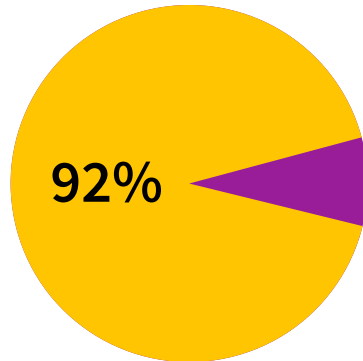
EXPENSIVE PRICE



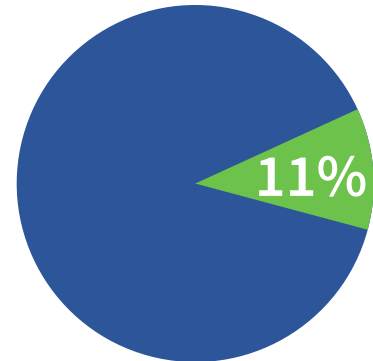
NOT SURE IF THERE
IS AFTER-SALES SERVICES



MOST CONSUMERS CHOOSE TO BUY ROOFTOP SOLAR FROM **EPCs/VENDORS**.



EPCs



Store

TOTAL PRICE AND AFTER SALES SERVICE ARE THE MAIN CONSIDERATION WHEN CHOOSING ROOFTOP SOLAR PROVIDER.

Total price
includes product
and services



5 OUT OF 10

After-sales services
are offered

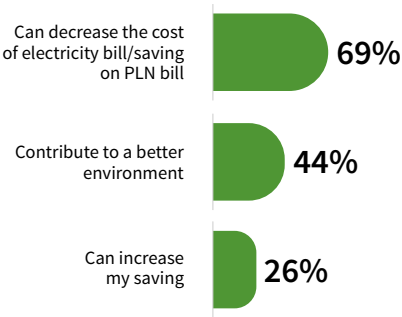


3 OUT OF 10

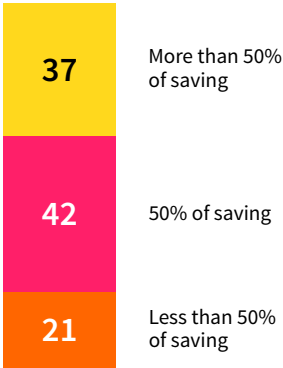


OTHER THAN **ELECTRICITY SAVING BENEFITS**,
PEOPLE IN SURABAYA ALSO EXPECT ROOFTOP SOLAR
USE CAN **CONTRIBUTE TO A BETTER ENVIRONMENT**.

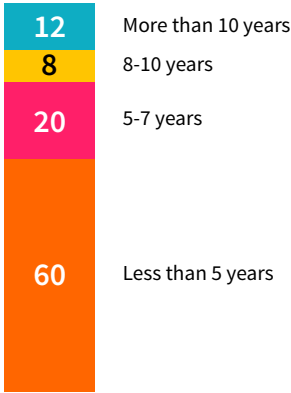
Expected Impact



Expected % of Saving in Electricity Purchases



Expected Minimum Investment Cost Return



THEIR PREFERRED PURCHASING SCHEME IS **INSTALMENT WITHIN 5 YEARS.**

MAIN CONSIDERATION ON CHOOSING ROOFTOP SOLAR PV PROVIDER

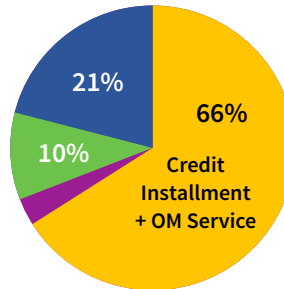
54%

Total price
(price of products and services offered)

33%

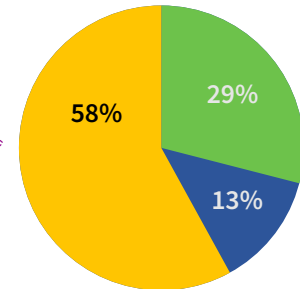
After-sales services offered
(services, guarantees, spareparts)

PURCHASE PREFERENCE



- Direct Purchase
- Direct Purchase + O&M service
- ✓ Credit Installment + O&M service
- Leasing + O&M service

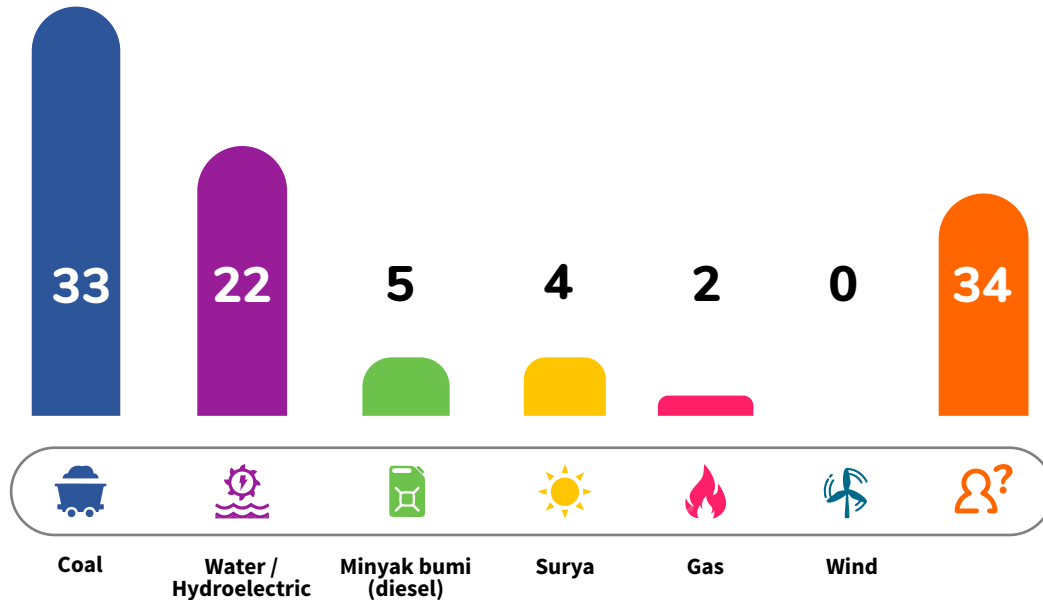
INSTALMENT SCHEME PREFERENCE



- Less than 1 year
- ✓ 1-3 year
- 3-5 year
- More than 5 year

KNOWLEDGE OF HOUSEHOLD ENERGY SOURCES

Coal and hydroelectric are the most known sources of energy for household electricity.

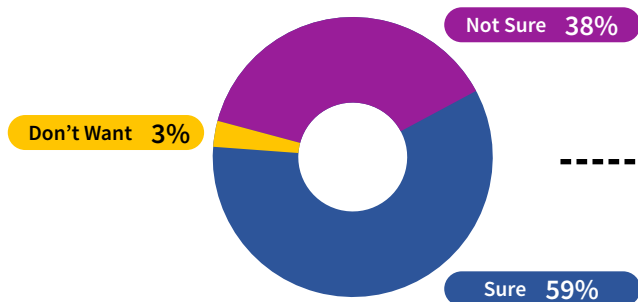




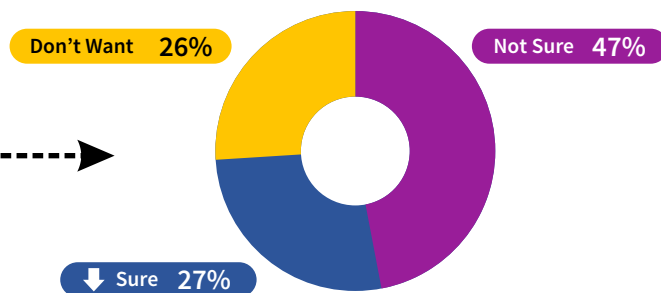
WILLINGNESS TO SHIFT TO RENEWABLE ENERGY

More than half people is actually willing to shift to renewable energy, however, if it takes higher cost, the willingness drops by half.

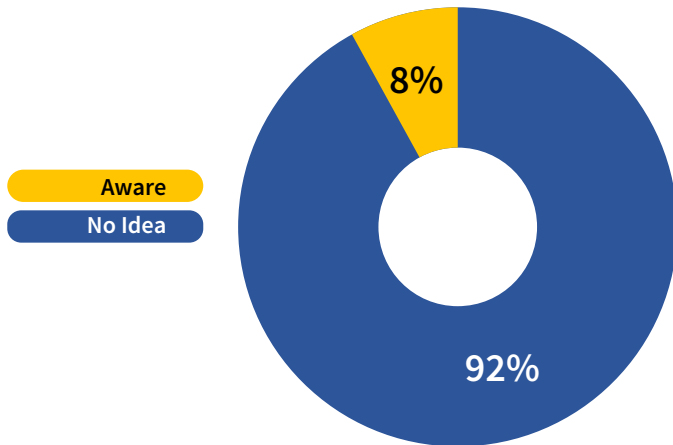
Are you willing to shift to clean renewable energy if it's available?



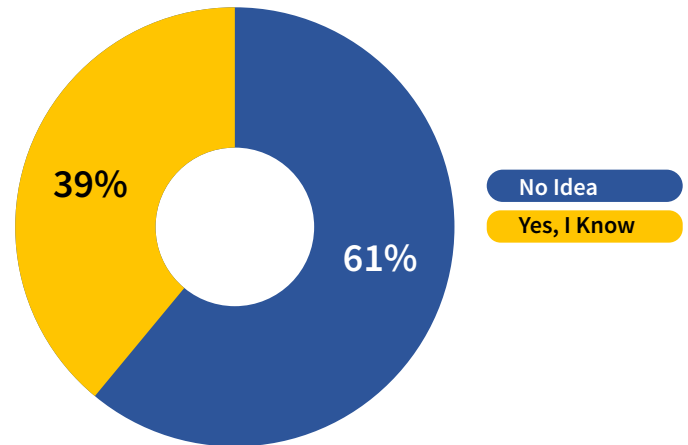
Are you still willing to shift to Renewable Energy if the cost is higher than the current cost?



AWARENESS ON MINISTERIAL REGULATION ON ROOFTOP SOLAR IS **LIMITED**.

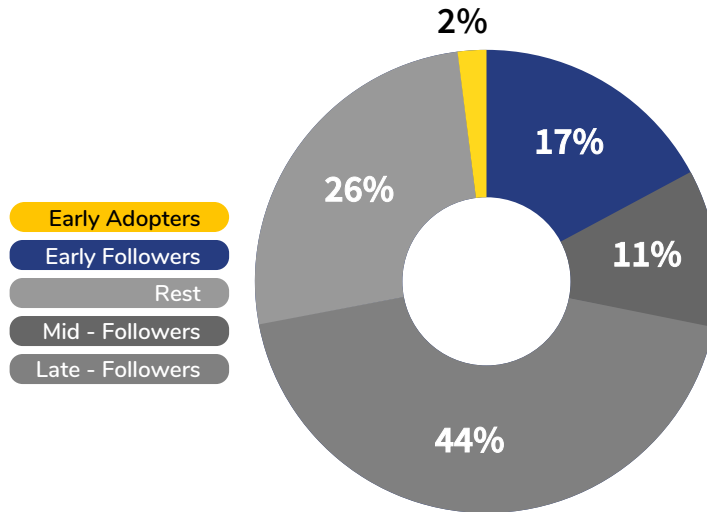


AWARENESS



CONTENT

MARKET POTENTIAL



The combination of early adopters and early followers amounts to **19%**, equals to

85,000 – 93,000 households.

*error margin 4.85%, number of households with minimum Type 45 is 60% from total population, number of total households is taken from East Java CBS for the year 2015



THIS NUMBER IS EQUIVALENT TO

170 – 186 MWP

CUMULATIVE CAPACITY OF ROOFTOP SOLAR,
ONLY FROM RESIDENTIAL SECTOR.

**assuming each household installs a minimum 2 kWp of rooftop solar*

WHAT'S MISSING?

Information

Lack of
comprehensive
information



Policies

Lack of
supportive policies
(national and
local levels),
covering but
not limited to ease
in installation,
legal aspects,
fair credit transaction,
and financing scheme



Incentives

No existing
incentives at all





RECOMMENDATION



**More information,
more channels**

More comprehensive, transparent, objective information are needed and they should be disseminated through more channels, including mass media.



**Tailored message is important
to encourage homeowners
to opt for solar energy**

People in Surabaya care for the environment and they like something cool and of high tech. This perception can be adopted to promote rooftop solar use.



**Provide supportive
policies & incentives**

Reassess current ministerial regulation, promote local government regulation, give incentives, such as tax exemptions for land value and property tax or installation cost subsidies.



**When incentives are
limited, work with financial
institutions and EPCs**

People are willing to buy on their own as long as there is instalment scheme to reduce high upfront payment and they need guaranteed O & M and performance of system.



OTHER PUBLICATIONS ON SOLAR ENERGY



**Rooftop Solar
Revolution**



**IESR Position Paper:
Accelerating Solar Deployment
in Indonesia**



**Market Study
of Rooftop Solar PV
in Greater Jakarta**



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