Overview

The World Bank – SBI Grid Connected Rooftop Photo Voltaic (GRPV) program aims to increase deployment of solar rooftop by financing projects targeting residential, commercial, industrial and institutional buildings (public and private) throughout India. The wide range of potential target stakeholders for solar rooftop necessitates a robust, nationwide communications and engagement effort to generate widespread uptake of the program.

To ascertain the specific needs and priority areas of various stakeholders and target audience for the program, a comprehensive research was carried out by the EY consortium among the following constituents:

- **Consumers**
  - Residential
  - Commercial and Industrial

- Developers and Installers
- Discoms
- Banks
- State Nodal Agencies
Key Findings

**Consumers**
- Demand more information on benefits
- Need easy finance availability and low interest rates
- Want easy installation and low maintenance

**Discoms**
- Policy issues; too many changes
- Senior management lacks strategic vision
- Low consumer awareness

**Developers and Installers**
- Multiple approval agencies & complex procedures
- Operational & interconnect issues with Discoms
- Shortage of skilled manpower

**Banks**
- Understanding of regulatory issues
- Project costing, risk assessment & contractual issues
- Low consumer awareness

Adoption Drivers and Barriers

**Drivers**
- Savings on Electricity bills
- Easy lending facilities
- Subsidies / Incentives
- Eco-friendliness
- Long term reliability of power source

**Barriers**
- High initial investment
- Lack of awareness on benefits
- Fewer subsidies
- Complicated installation process
- Regular maintenance

Respondents indicated they are aware of GRPV systems

Respondents prefer newspaper ads / articles for their information source

Consumers want to know more about benefits and subsidies related to GRPV installations

Consumers said high initial investment was a barrier to adoption of GRPV system

46% respondents indicated they are aware of GRPV systems

66% consumers want to know more about benefits and subsidies related to GRPV installations

53% respondents prefer newspaper ads / articles for their information source

64% consumers said high initial investment was a barrier to adoption of GRPV system

66% consumers want to know more about benefits and subsidies related to GRPV installations

53% respondents prefer newspaper ads / articles for their information source

64% consumers said high initial investment was a barrier to adoption of GRPV system
Consumer Awareness

- Respondents were given a brief introduction on grid connected solar rooftop systems

- Residential respondents are slightly more aware than Commercial and Industrial (C&I) about GRPV systems
- Madhya Pradesh and Tamil Nadu reported highest levels of awareness on GRPV
- Lowest awareness was reported from Shimla, with only 17% respondents showing awareness on GRPV
- In Residential segment, low rise homes exhibited higher GRPV awareness
- SME segment scored significantly higher than large scale industries
How aware are you of energy generation through Grid Connected Rooftop Solar (GRPV) setup?

Which of the following do you want to know more about GRPV?
Drivers and Barriers for Adoption

Drivers

▪ Saving on electricity bill is the key driver for installation
▪ In addition, easy finance, convenience of installation and maintenance are important motivators for the residential segment
▪ In the Industrial segment top drivers include savings on electricity bills, environmental concerns along with government subsidies / incentives
▪ More than 70% respondents across segments cite availability of easy finance and low interest rates as the key to adopt GRPV

Barriers

▪ High initial investment is the top barrier for adoption of GRPV among all respondents
▪ In both the segments, the top barriers include lack of sufficient information, high initial investment and complicated installation process
▪ In a highly urban setup like Chennai, shortage of rooftop area availability was cited as a key barrier
▪ In hilly and rainy areas like Himachal Pradesh and Assam, respondents feel that the supply will not be reliable specially during winters and rainy season
**Highest Motivating Factors for Adoption of GRPV**

- **Savings on electricity bills**: 54% Residential, 76% Commercial & Industrial
- **Environmental concerns**: 38% Residential, 56% Commercial & Industrial
- **Long term reliable power source**: 37% Residential, 47% Commercial & Industrial
- **Subsidies/Incentives**: 37% Residential, 47% Commercial & Industrial
- **Easy lending facility**: 29% Residential, 40% Commercial & Industrial

**Highest Barriers for Adoption of GRPV**

- **High initial investment**: 50% Residential, 90% Commercial & Industrial
- **Lack of awareness**: 57% Residential, 57% Commercial & Industrial
- **Regular maintenance**: 38% Residential, 66% Commercial & Industrial
- **Inconvenience**: 41% Residential, 47% Commercial & Industrial
- **Lack of subsidies/incentives**: 38% Residential, 33% Commercial & Industrial
Likelihood to Adopt GRPV

- Amongst all polled centres, Shimla and Bhopal reported the highest likelihood of adoption
- Residential segment indicated higher likelihood of adoption compared to commercial and industrial segment
- Individual low-rise homes showed greater likelihood of adoption compared to multi-storey apartments
- In the C&I segment, large scale units are more likely to adopt compared to SMEs

Preferred Sources of Information on GRPV

- Social Media, Newspaper Articles, TV and Print Ads are the most preferred sources of information across segments
- Nearly 40% respondents indicated outdoor hoardings as a source of information
- Respondents have also rated advice from electrician and experience of family and friends as an important factor
Likelihood to Adopt GRPV

Residential

![Bar chart showing likelihood levels for GRPV adoption among Residential users.](chart1)

Commercial and Industrial

![Bar chart showing likelihood levels for GRPV adoption among Commercial and Industrial users.](chart2)

Preferred Sources for Information on GRPV

![Bar chart showing preferred information sources for GRPV.](chart3)
Priority Areas for Value Chain Stakeholders

Developers and Installers

Discoms

Bankers and Others
Developers and Installers

- Frequent policy changes and involvement of multiple approval agencies
- Discoms’ reluctance to operationalize GRPV – interconnectivity issues
- Lack of consumer awareness – Consumer not aware of schemes and subsidies, finance options etc.
- Skill and knowledge gap – Lack of trained manpower
Discoms

- Clarity on policy issues such as strategic visioning in top management
- Consumer Awareness – Lack of sufficient information on multiple aspects of GRPV
- Lack of skilled manpower – training and upskilling of developers and installer staff. Safety a major concern
- Commercial aspects, including billing and net metering are complex. Lack of availability of net metering units
Bankers and Others

- Understanding of policy and regulatory framework and business models
- Project costing, risk assessment, feasibility and contractual issues
- Project implementation framework & evaluation of techno-commercial aspects for reporting & loan sanctioning
- Awareness among consumers, developers and installers

![Pie chart showing distribution of topics: Regulatory and Policy Issues 27%, Technical Training 16%, Commercial Aspects 18%, Awareness 30%, Risk Assessment 9%]
Insights and Action Areas

Consumers

While awareness levels are fairly high among consumers, understanding of adoption benefits and availability of financial products to aid adoption are low.

Consumers prefer social media, advertising, newspapers articles and word of mouth as sources of information.

A communication outreach program that highlights adoption benefits, financial aid and other details should be rolled out nationwide, with state specific messages.

360° outreach across owned, earned and paid media channels.

Value Chain Stakeholders

Policy related issues along with complexity of procedures are being cited as a hindrance.

Awareness levels among internal stakeholders are also low.

Lack of skilled manpower is another area of concern.

Streamlining of policy at government level. Effective communication of policy reform downstream.

Stakeholder specific messaging and direct contact program such as workshops to raise awareness.

Strengthening of value chain through skill and knowledge development programs. Communication of rich employment prospects in the sector.
Respondent Profiles

Respondents – Residential (156)
- 86% SEC A
- 40 Avg Age
- 81% Male
- 84% Decision Makers
- 78% Independent Homes
- 53k Avg Monthly Home Income (INR)

Respondents – Commercial and Industrial (88)
- 70% SME
- 81% Manufacturing
- 87% 31-50 yrs age
- 61% Decision Makers
- 25% 300+ employees

Respondents – Value Chain
- 80 Developers and Installers
- 6 Discoms
- 5 Bankers
- 3 State Nodal Agencies