

# INTENSIVE INTRODUCTION OF RESIDENTIAL PV SYSTEMS AND THEIR MONITORING BY CITIZEN-ORIENTED EFFORTS IN JAPAN

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## Background and Purpose

-REPP(Renewable Energy Promoting People's Forum) ,a Japanese NGO, has aimed to improve social conscious of ordinary people ,introducing PV systems into residence. However, since there is no monitoring instrument, it is difficult to evaluate residential PV systems. Therefore, it is necessary to establish the method of estimation for **irradiance and temperature of PV module** with AMeDAS data for evaluating this systems. PV systems was evaluated by Sophisticated Verification (SV) method substituting these data.

## PV system of Precise type and Simple type

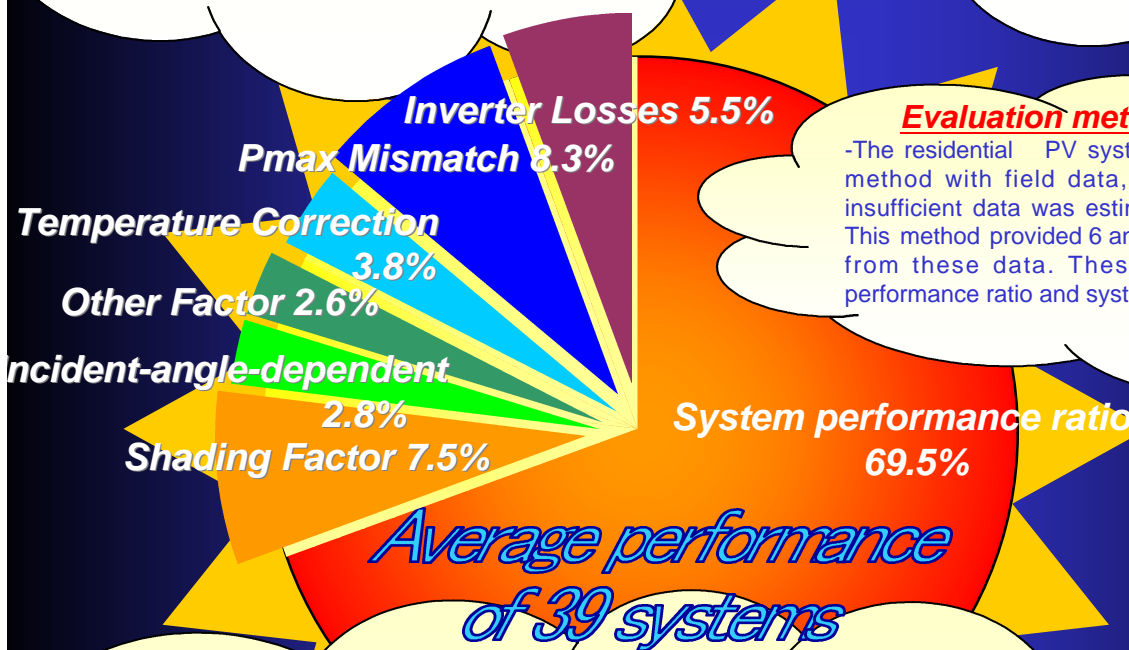
- There are two types that are Precise type and Simple type of PV systems in REPP Project. The former have been measured at four items, however the latter have only been done at PV system output.



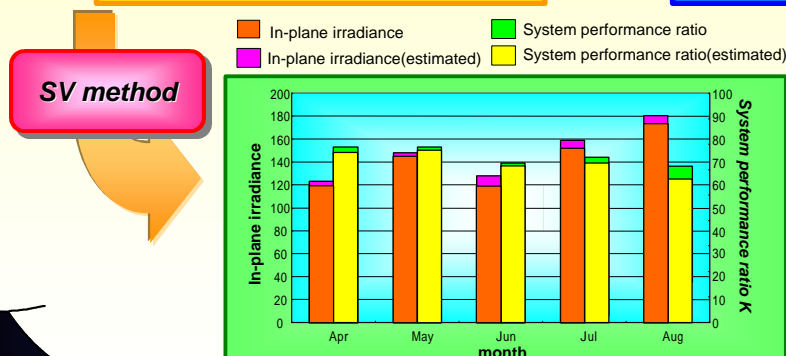
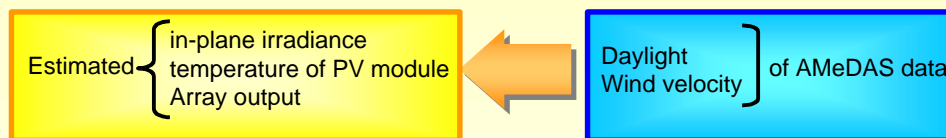
Fig.1 Application

## Evaluation method of PV systems

-The residential PV systems was evaluated by SV method with field data, however in Simple type insufficient data was estimated from AMeDAS data. This method provided 6 analytical performance factors from these data. These factors clarify system performance ratio and system losses.



## Evaluation result of PV systems in REPP Project



## Conclusions

-In order to evaluate ordinary residential PV systems, Simple type, the evaluate method of this systems was suggested .Estimated in-plane irradiation  $H_A$  is larger than monitored value by 4 to 8 [kWh/month] at the Precise-type systems. Therefore Simple-type's system performance ratio estimated is smaller about 2 ~ 4 [%]. Therefore the method suggested in this paper could be available, and appropriateness of this method is certified.