PEARL PV

Inventory of PV Performance Modeling Software

A subtask within EU COST Action PEARL-PV

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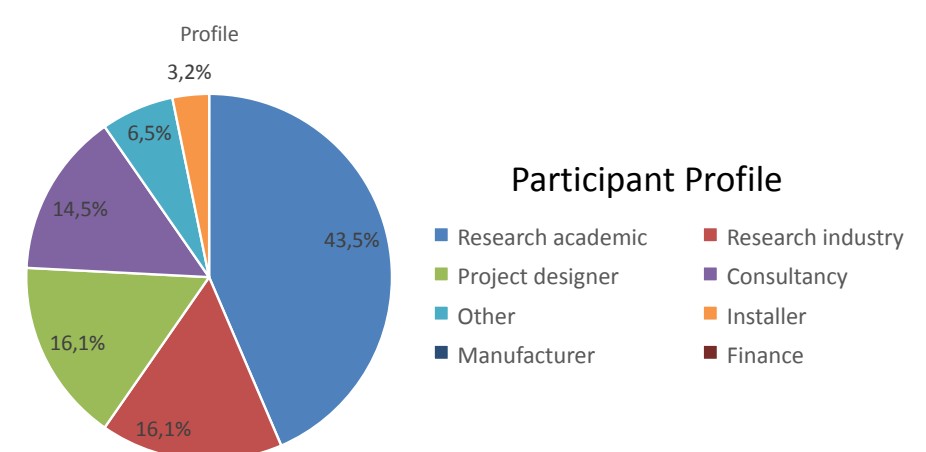
Introduction

The PEARL PV project aims to improve the energy performance and reliability of PV systems, leading to lower costs by a higher yield, a longer lifetime and a reduction of perceived risk. Within the project, Working Group 3 (WG3) focuses on modelling of PV performance. WG3 aims to identify and classify the various approaches to PV simulation, to compare the performance of the models and to provide information to the PV community.

WG3 is conducting a survey among PV industry and researchers to investigate the software currently used for modelling of PV cells, modules and systems. **The survey is on going**. We welcome your participation and want to hear about your experience with PV simulation!

Link to PV Software Survey: https://goo.gl/forms/V0qcBrWVMAIMoMEj1

Purpose of the Software Survey

I.   To develop an inventory of the performance modelling software used within the PV research community
II. To analyze the usage of that software from the different users
III. To provide recommendations about the software to use for a particular application for new users
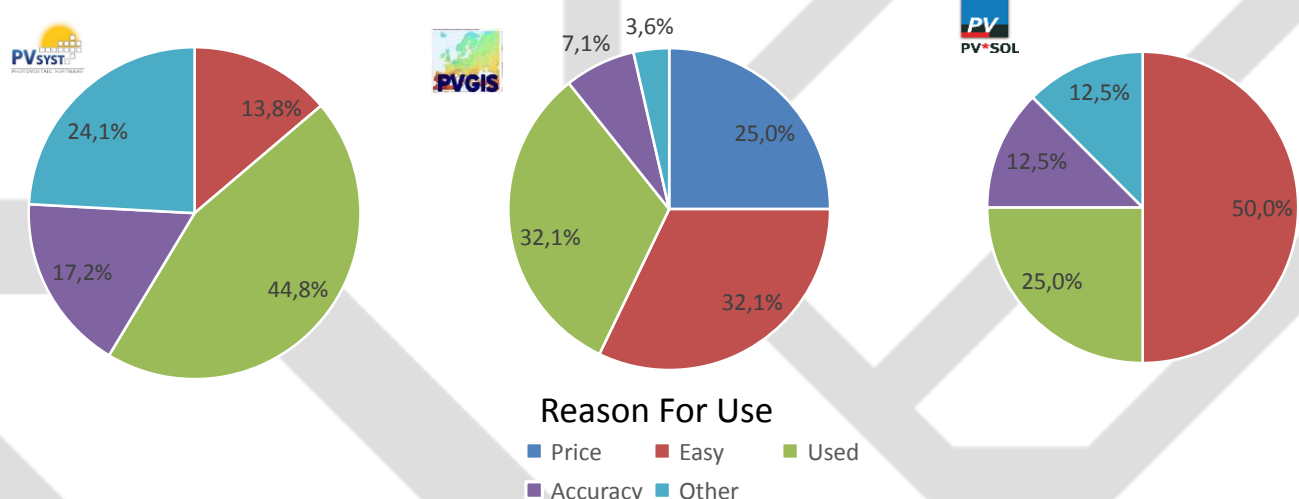IV. To recommend new software developments in the case shortcomings are identified.
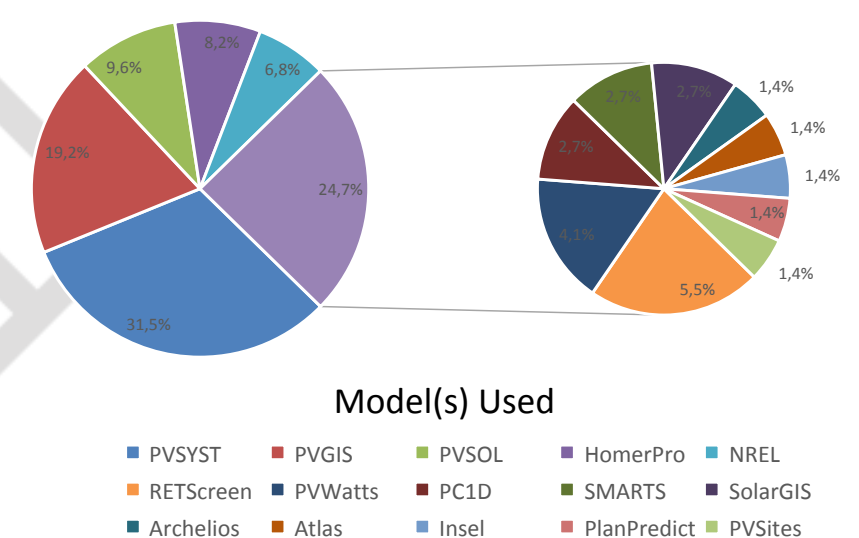
Results

- A total of 33 PV professionals have completed the survey (8 industry, 25 research) to date.
- The 5 most frequently used software reported are: 1) PVsyst, 2) PVGIS, 3) PVSOL, 4) Homer Pro and 5) NREL SAM.


Participant Profile

Profile of survey participants. Results show that mostly researchers responded.
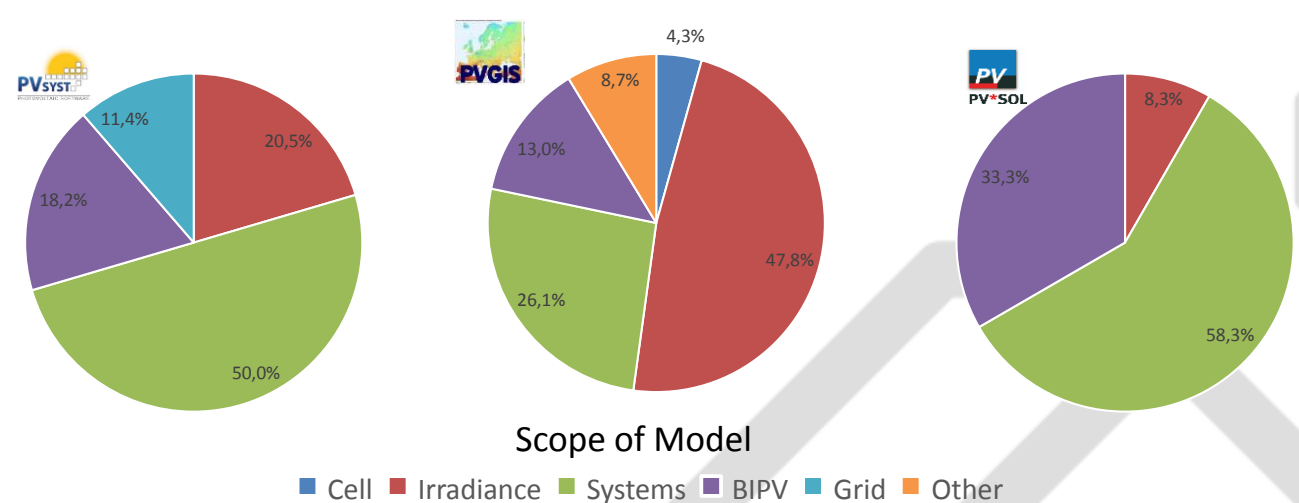
Scope of Model

Responses to question "Scope of the model" for the 3 most frequently used software.

Model(s) Used

Responses showed use of 33 software (including in-house models). 5 software packages consisted of 75% of the responses.

Reason For Use

Responses to question "Reason for use" for the 3 most frequently used software.

Frequency of use per month
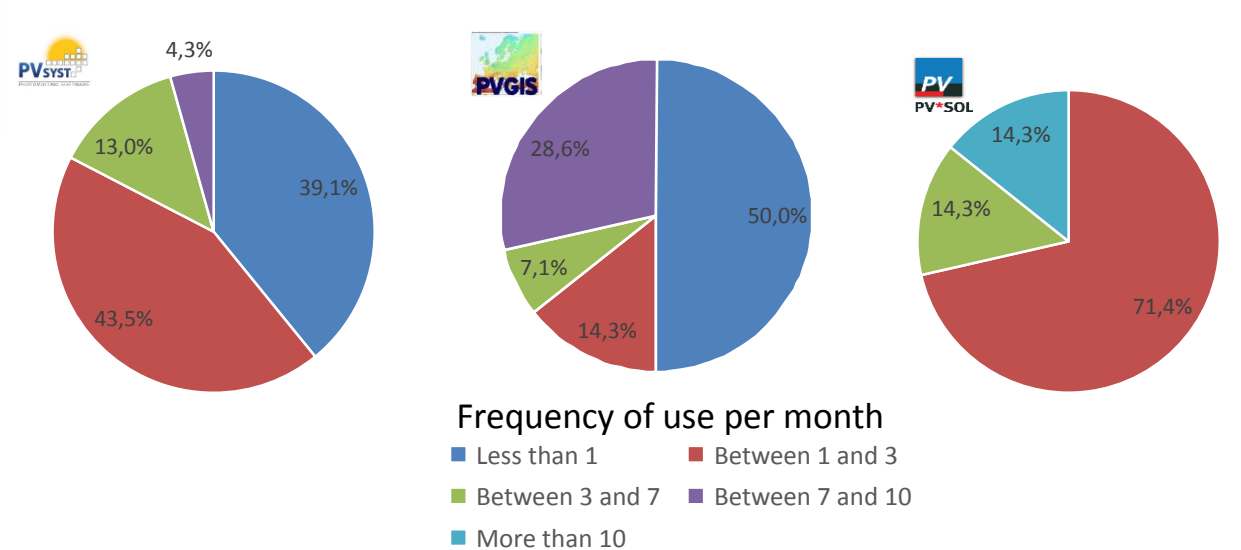
Responses to question "No. of times used/month" for the 3 most frequently used software.

Conclusions

- Survey results to date are heavily concentrated in the research community.
- Familiarity with a software is a frequent rationale for its use.
- The majority of participants perform PV simulations < 3 times per month.
- The majority of the participants are open to use another software.
- Several needs are not fully covered with the existing software, the top 5 are: 1) bifacial PV, 2) shade analysis, 3) resolution of default irradiance database, 4) user friendliness, and 5)lack of BIPV capability.

Acknowledgements

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www.pearlpv-cost.eu and www.cost.eu/COST_Actions/ca/CA16235