

>> PV Port + Store <<
***A potential solution to bolster
residential solar market***

*Rooftop Solar Project
Indo-German Energy Programme, GIZ*



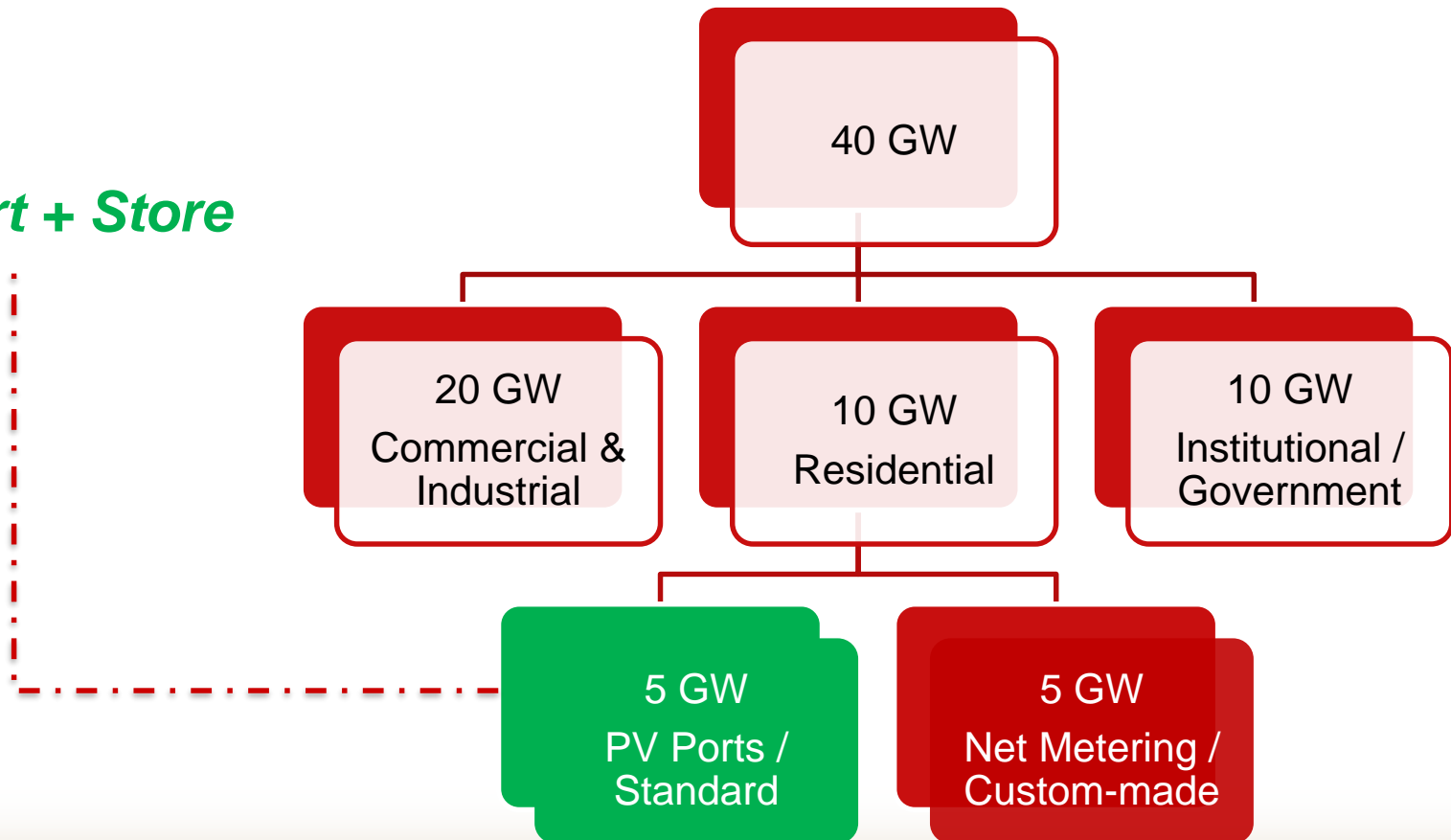
GIZ profile

- GIZ is a limited liability company, owned by the Federal German government
- Operations in Germany and in over 130 countries around the world
- GIZ works on behalf of the German government (BMZ, BMWi, AA, BMU etc.) as main client and also for international organisations (e.g. EU, UN), private clients & governments
- More than 18,000 employees across the world
- Operates in India since 60 years, currently about 250 staff members working in India
- Actively supporting solar rooftop sector since 2009



GIZ's intervention is focusing on promotion of rooftop PV in the residential sector!

PV Port + Store





GIZ's Proposal for the residential sector

PV Port + Store

Standardized Design



Plug and play mechanism



Low cost, reliable, good quality



Easy to purchase, promoted by Discoms



Works all times (Grid Interactive)



Collapsible / Easy to move

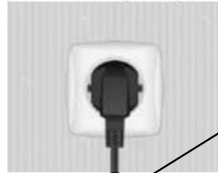


Comes with easy finance options





Solar plug

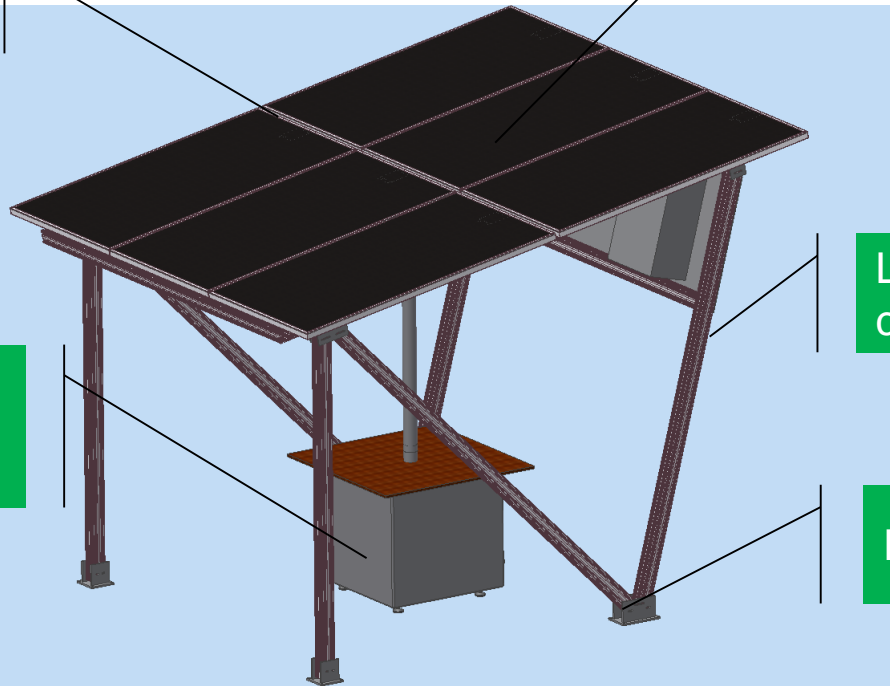


Plugs in regular
power socket



Sprinkler mechanism
for cleaning

Six glass-glass modules
(300-350 Wp)



Central Cube housing
batteries / inverters /
control mechanism

Light weight
collapsible structure

Puncture less foundation

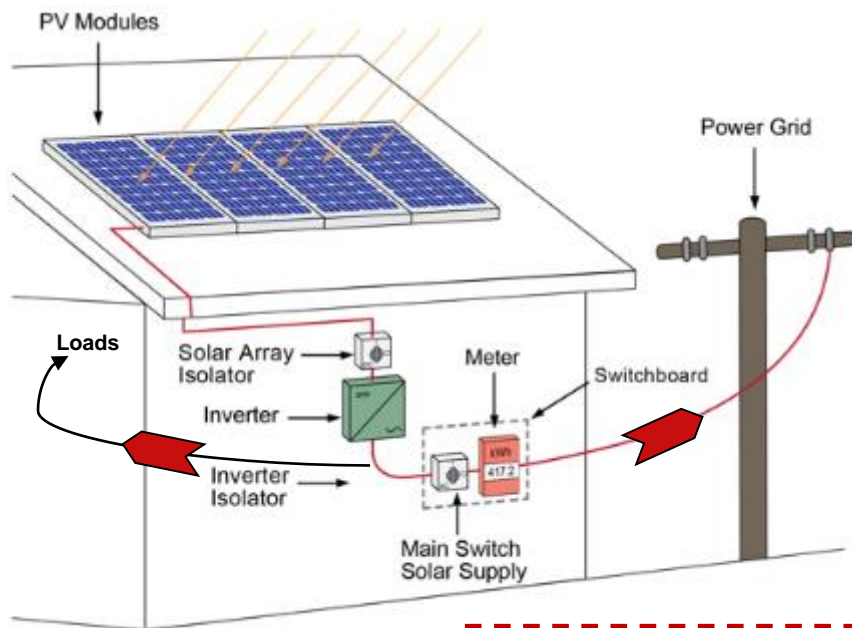
Acts as dead
weight



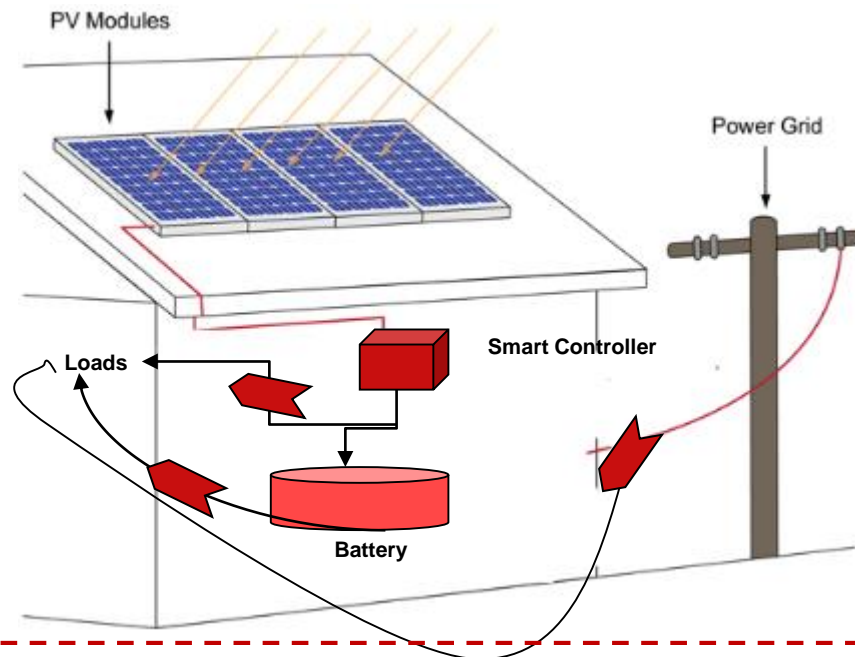


“PV Port +Store” vs custom systems

Net metering scheme



Direct Port PV scheme



Inverter is Grid synchronised but not feeding to the grid, battery getting charged by solar and utilised during peak hours



Imperatives of PV Port + Storage

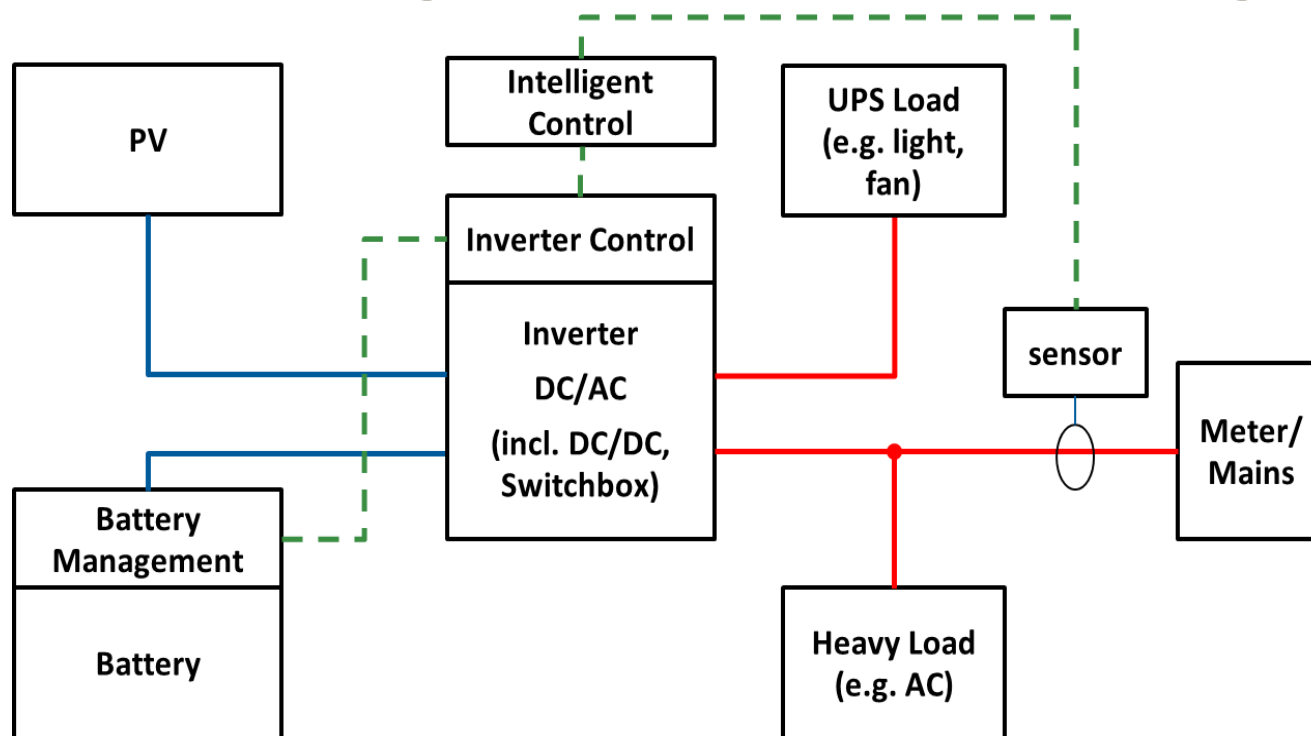
Parameter	PV Port + Storage	PV net-meter
<i>Price/Wp[^]</i>	₹₹₹	₹₹
<i>Avg. annual E. bill offset[#]</i>	25%	40%
<i>Quality assurance</i>	<input checked="" type="checkbox"/>	?
<i>Interconnection</i>	15 Amp Socket	Distribution network
<i>Installation time</i>	1 week	up to 1 year
<i>Smart meter</i>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<i>Installer selection</i>	Buy from DISCOM	Lack of trust

[^] Price would depend upon the battery sizing

[#] Calculation based on rooftop systems installed in Delhi BSES network. The offset is limited by system size in PV Port systems.



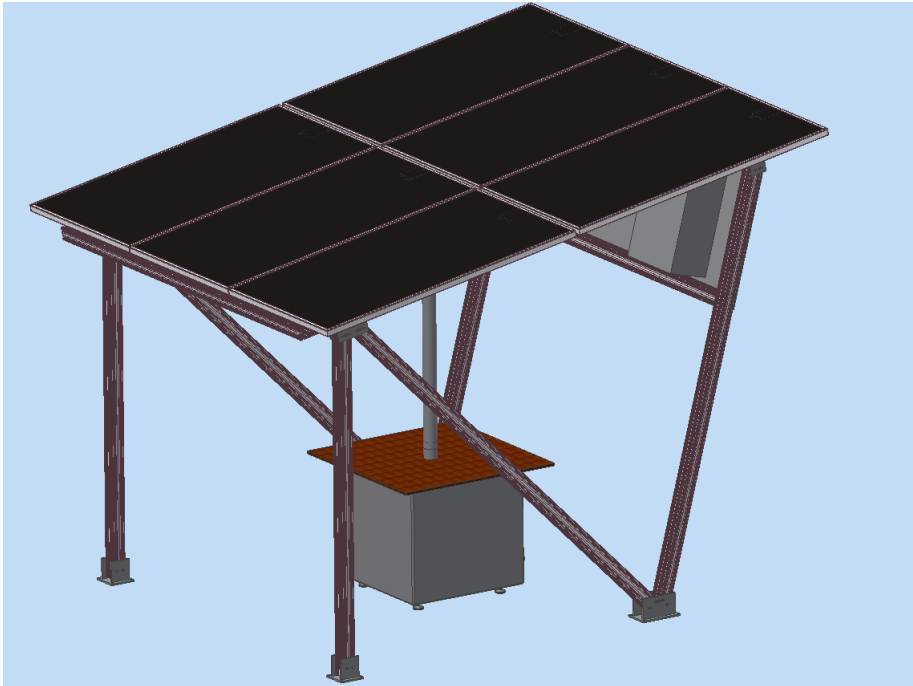
Electrical configuration of PV Port + Storage



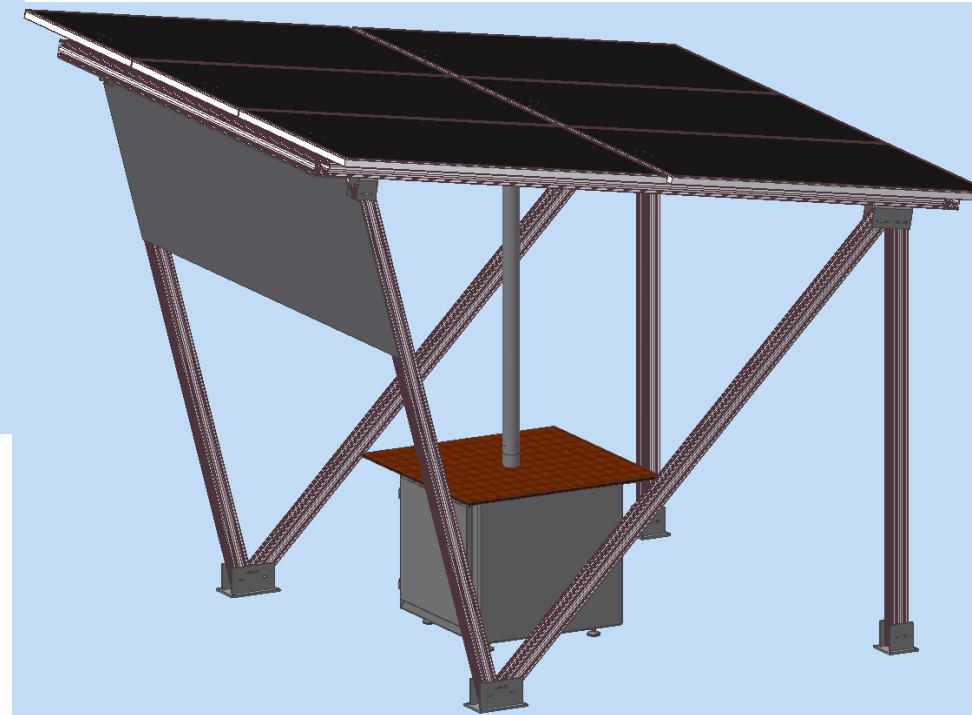
- DC (two conductors)
- AC (three conductors = phase, neutral, ground)
- - - Communication



Physical sketch PV Port + Storage



**IKEA Principle – Self
Assembly (DIY)**





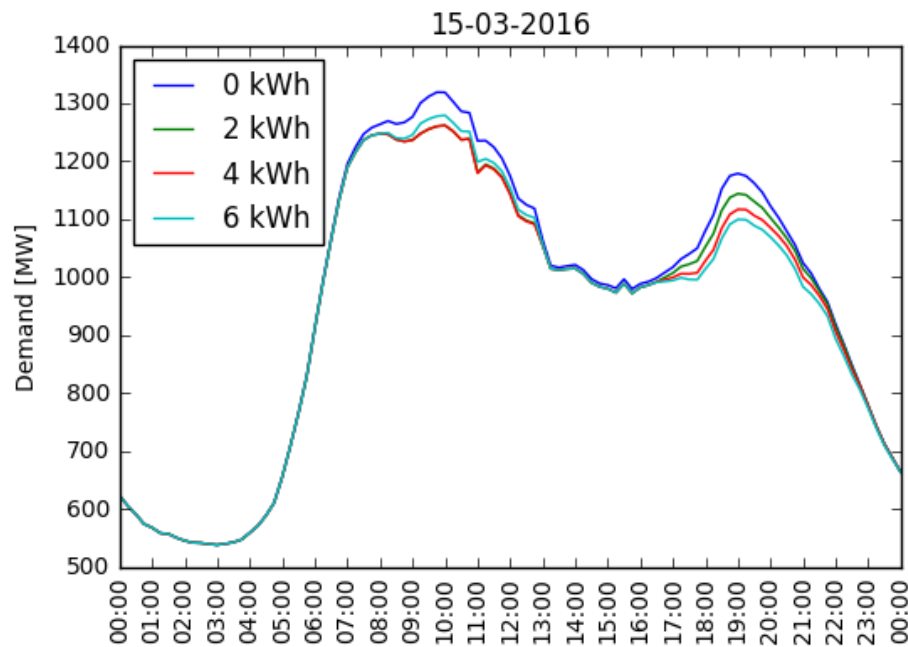
1st developed prototype sample in Delhi



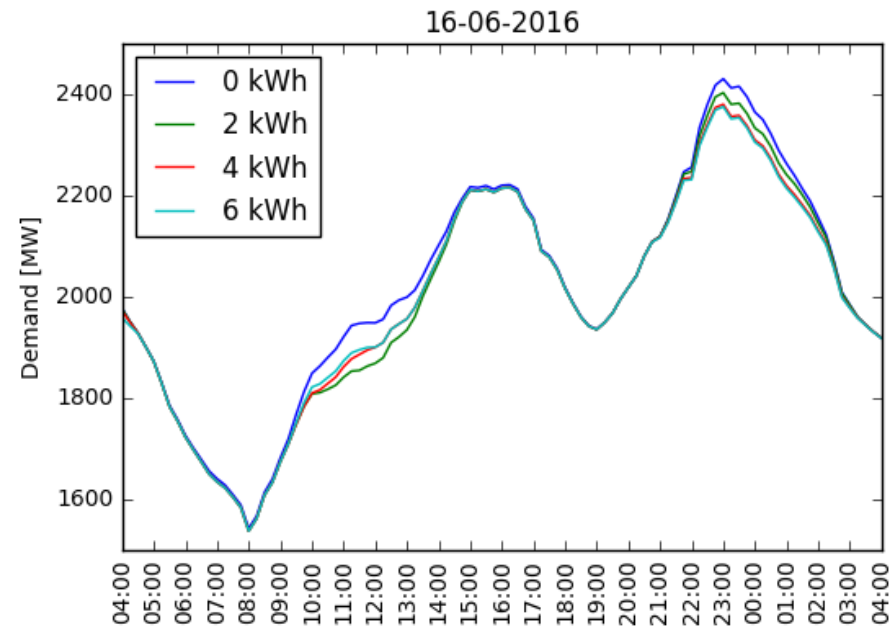


Why discoms will support?

Analysis of a discom's power demand with 50,000 PV Ports



0 kWh = no PV-Port



0 kWh = no PV-Port



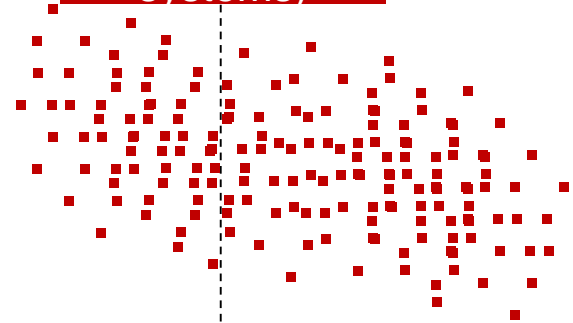
Designs and specifications

Design optimisation

Large tenders (thousands of systems)

Prototype development

Discoms / MNRE on board
Tender for pilot systems under process



06/17

12/18



Pilot phase

Onboarding of other stakeholders





GIZ is seeking private sector cooperation in developing and upscaling a new solution for the residential masses – “PV Port + Store”

For further queries, contact

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Rooftop Photovoltaic project under Indo German Energy Programme

As a federal enterprise, GIZ supports the German Government in achieving its objectives in the field of international cooperation for sustainable development.

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