# ACTIVE SOLAR PHOTO-VOLTAIC SYSTEM (ASPS) TRUCKED POWERBANK

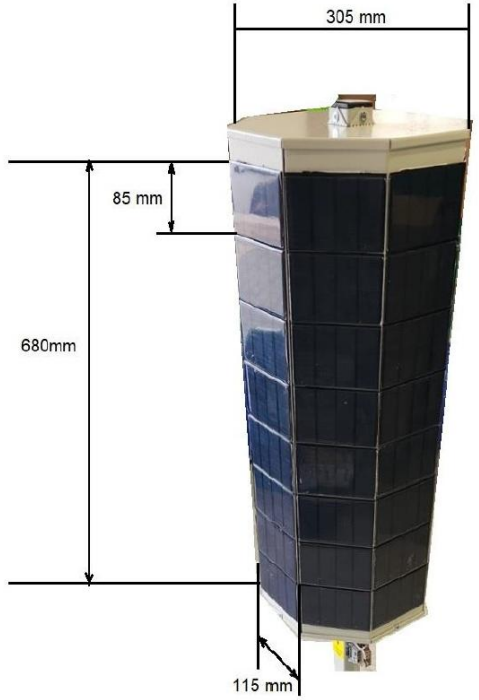
SolarAce transportaton  project.

# 1.Hanover "solar" truck

- "Hannover "solar" truck"- test performed from April to May 2021 in Hannover( Germany).
- PV system power ( manufacturer data)- 2.18 kW
- PV system power ( tested data)- 0.413 kW
- Average TESTED daily energy output- 1.65 kWh (4h)
- Energy loss level of the auxiliary equipment
- ( MPPT, DC-DC, LV, converter etc.)- is around 44%
- Amount of energy accepted on HV battery ( 5.5 kWh) during the driving part of test can't promise any profit.

https://onlinelibrary.wiley.com/doi/full/10.1002/pip.3897

# 2.ENERGencY generator and the Solar Active Photovoltaic system (ASPS) concept



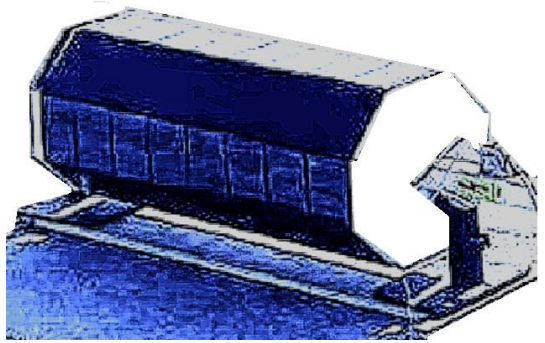

ENERGencY PV generator is basing on the ASPS solution that allows to maximize the power output. ASPS concept consist of two ideas:

A. PV cell/panel and electric circuit create the separate PV channel.

B. PV cells/panels/channels are multi-oriented but connected into the same circuit.

Thus, we have ability to increase the energy output per ground area (footprint) in comparison to the traditional PV systems of the same footprint.

# 3. ASPS vs traditional PV technologies comparison with some assumptions.

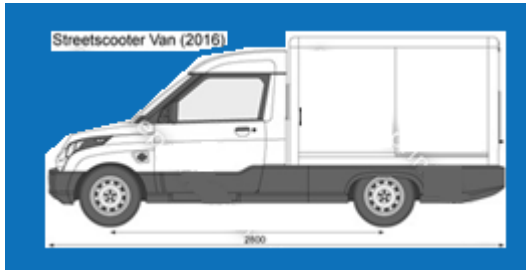


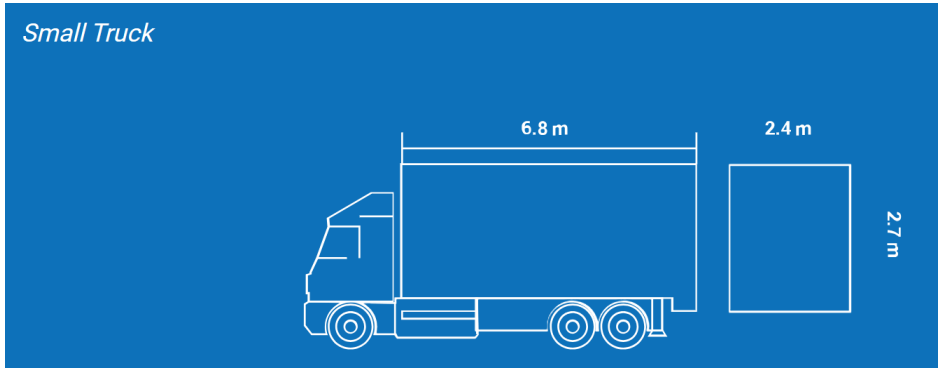
| | ASPS/ENERGencY Generator | 'HANOVER TRUCK' (vertical elements" |
|---|---|---|
| MOUNTED PV PANELS POWER | 64-80 W | 2177 W |
| MEASURED PV PANELS POWER | 11.8 W | 141 W |
| TOTAL PV AREA | 0.64 SQ. M | 11.56 SQ.M |
| MEASURED OUTPUT ENERGY/ PEAK HOURS | 57.5 Wh/5 h | 69.1 kWh/488.9 h |
| ASSUMED ENERGY DAILY OUTPUT FOR 15 SQ.M | 2.2 kWh/ day | 0.366 kWh/ day |

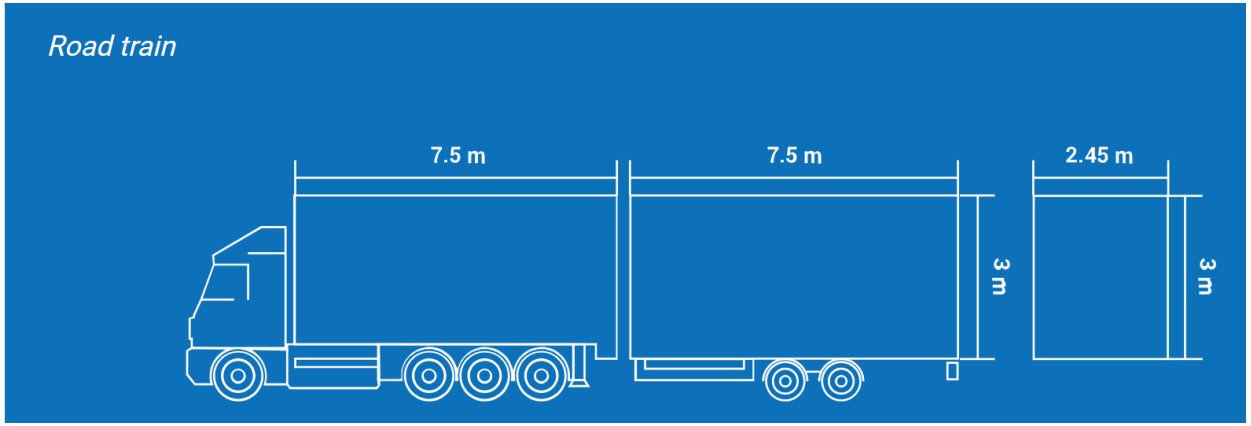
# .1 PRODUCTS

Trucked PV PowerBank

| Truck size | PV area | ASPS energy |
|---|---|---|
| LIGHT | 15 sq.m | 3 kWh/daily |
| MID | 60 sq.m | 12 kWh/daily |
| EXTRA | 136 sq m | 27 kWh/daily |



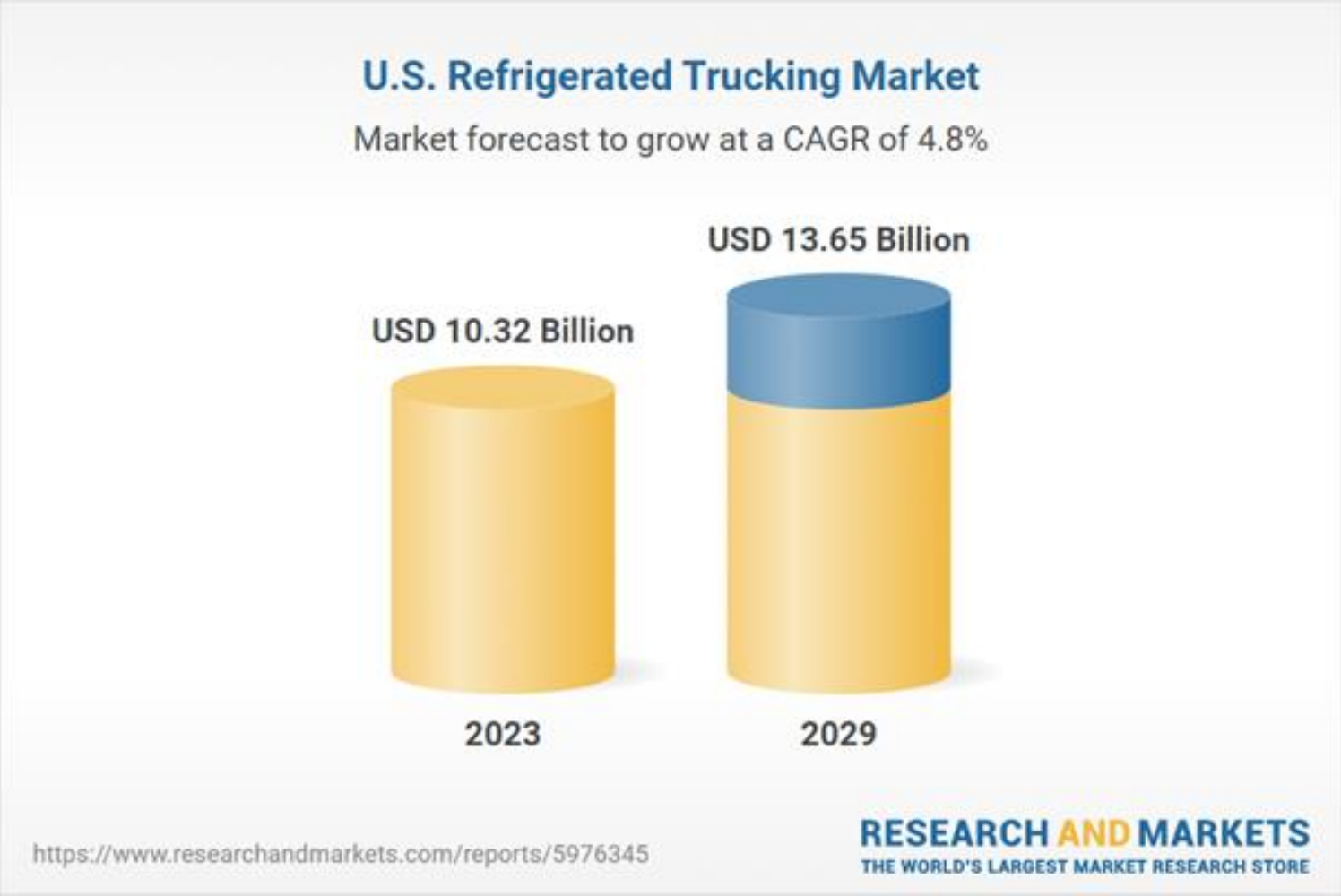



# 5. GO TO MARKET

- MICRO- AND MINI- EV CHARGING STATIONS
- SMALL BUSINESS OFF- GRID EMERGENCY POWER SOURCES
- REFRIGIRATORS TRUCKS FLEET
- ENTERTAINMENT AND FESTIVAL ORGANIZERS

# 6. MARKET SIZE



# 7.COMPETITORS

SOLBIAN

ESCALATE

HEUCH
COOLING SOLUTIONS

SOLAR KIOSK

# 8.ADVANTAGES

- MORE POWER IN REAL WEATHER CONDITIONS
- MORE PEAK HOURS PER DAY
- MPPT  COULD BE EXCLUDED
- INVERTER COULD BE EXCLUDED OR RESIZED TO A SMALLER SIZE
- HIGH ADDAPTIVITY AND VERSATILITYTO THE CLIENT REQUIREMENTS
- EMERGENCE ENRGY MARKET GAME CHANGER

# 9. REQUEST FOR THE PARTNERS…

Close tasks:

- To finish the test process
- To organise the fund rising
- To contacts with the clients
- To organise the generators manufacturing process
- To continue the development process

Are you ready?

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# 10. Attachments. POC. FIRST AND SECOND TESTS

Importantly, the spatial power density analysis highlighted a key advantage of the SAG system. With a tested output density of approximately 278 W/m²—and projected values of over 400 W/m² when extended vertically—the SAG significantly outperforms conventional flat panels (~200 W/m²) in footprint-limited scenarios. This metric underscores the generator's value in applications such as urban rooftops, compact installations, mobile platforms, and solar-integrated structures where horizontal space is restricted.

# 10.1 POC. THIRD TEST

Interesting features of the SOLAR PANEL 2

- The SOLAR PANEL 2 is significantly less affected by cloud cover and variations in radiation intensity compared to a standard panel. (SOLAR PANEL 1):

| | Maximum | Minimum | Range | Average | Median | Standard Deviation | Average of Absolute Deviation |
|---|---|---|---|---|---|---|---|
| P-REG (SOLAR PANEL 1) | 91.5124 | 0.42958 | 91.0828 | 36.3723 | 28.2768 | 24.435 | 22.2143 |
| P-SOL2GEN (SOLAR PANEL 2) | 20.3463 | 1.88804 | 18.4582 | 13.626 | 16.0877 | 4.83302 | 4.07675 |

- As a result, SOLAR PANEL 2's output remained much more stable throughout the test period, and the amount of energy the panel produced 56% more energy compared to the standard panel (SOLAR PANEL 1):

| | Power[W] | Energy[W*s] |
|---|---|---|
| P-REG (SOLAR PANEL 1) | P1=100 | E1=549138.11 |
| P-SOL2GEN (SOLAR PANEL 2) | P2=24 | E2=205720.53 |
| Ratio | Rp=(P2/P1)=0.24 | Re=E2/(E1*Rp)=1.56=156% |