



Tigo[®]

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TAP & Mesh

7/16/2018



Introducing TAP



TAP – Tigo Access Point

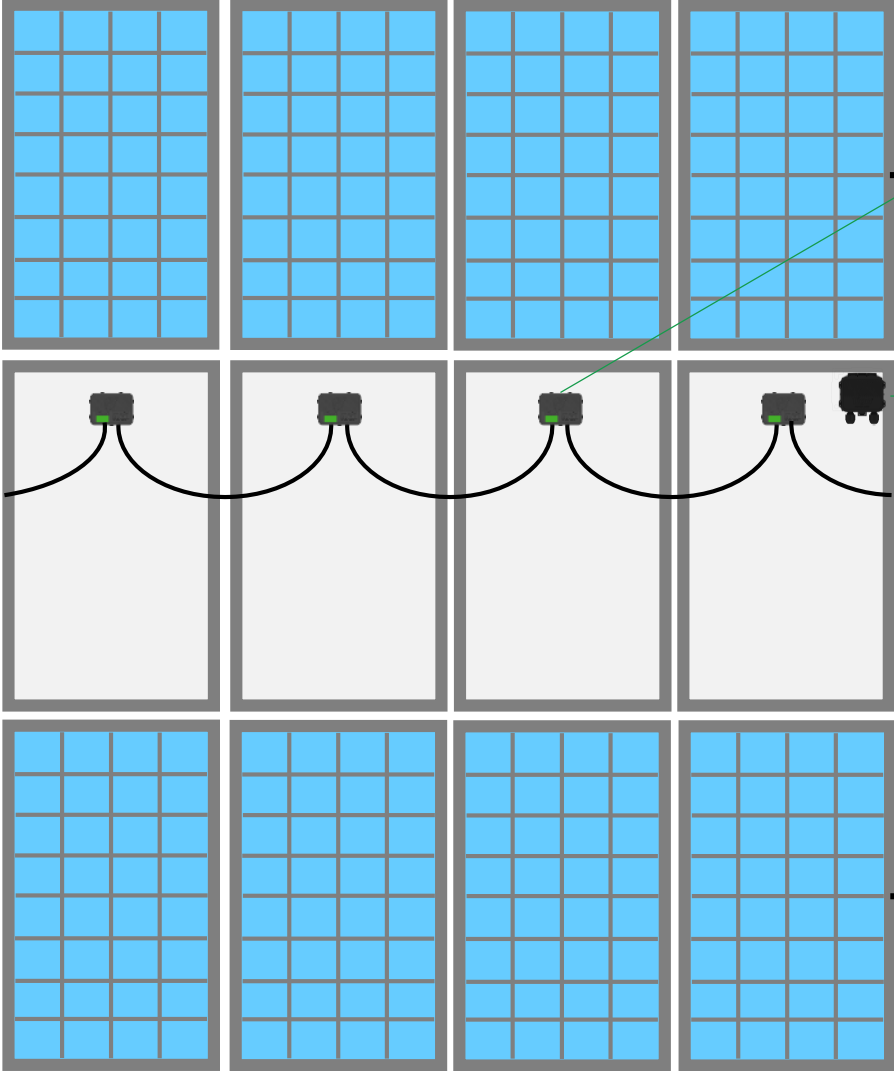
The TAP is Tigo's new Access Point that allows the Cloud Connect Advanced (CCA), Tigo's universal data logger, communicate wirelessly with any of the TS4 units. It communicates with any unit whether it is integrated (TS4-X) or retrofitted/add-on (TS4-R-X).

TAP replaces the legacy Gateway, it is smaller in size, packed with additional features, with a wider range and increased module capacity.



The TS4 Smart PV System

PV Array



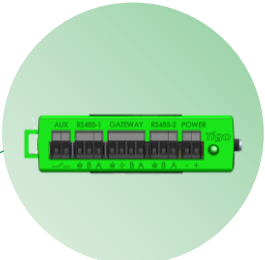
1 TS4: Smart Module Technology

Adds functionality to PV modules



2 TAP: Communication Device

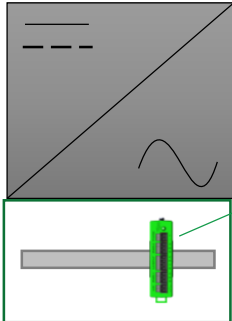
Tigo Access Point
Wirelessly communicates with array



3 Cloud Connect Advanced (CCA): Universal Data Logger

Sends system info to the cloud

Inverter



Highlights of TAP

- ❖ UL-Certified for Rapid Shutdown
- ❖ Outdoor rating of IP68
- ❖ Module-level deactivation
- ❖ High definition, sampling as low as every 2 seconds
- ❖ Scalable architecture
- ❖ Mounts easily on module frame without tools
- ❖ Simplified installation due to new & improved wiring compartment
- ❖ Available for new integrated & retrofitted/add-on systems



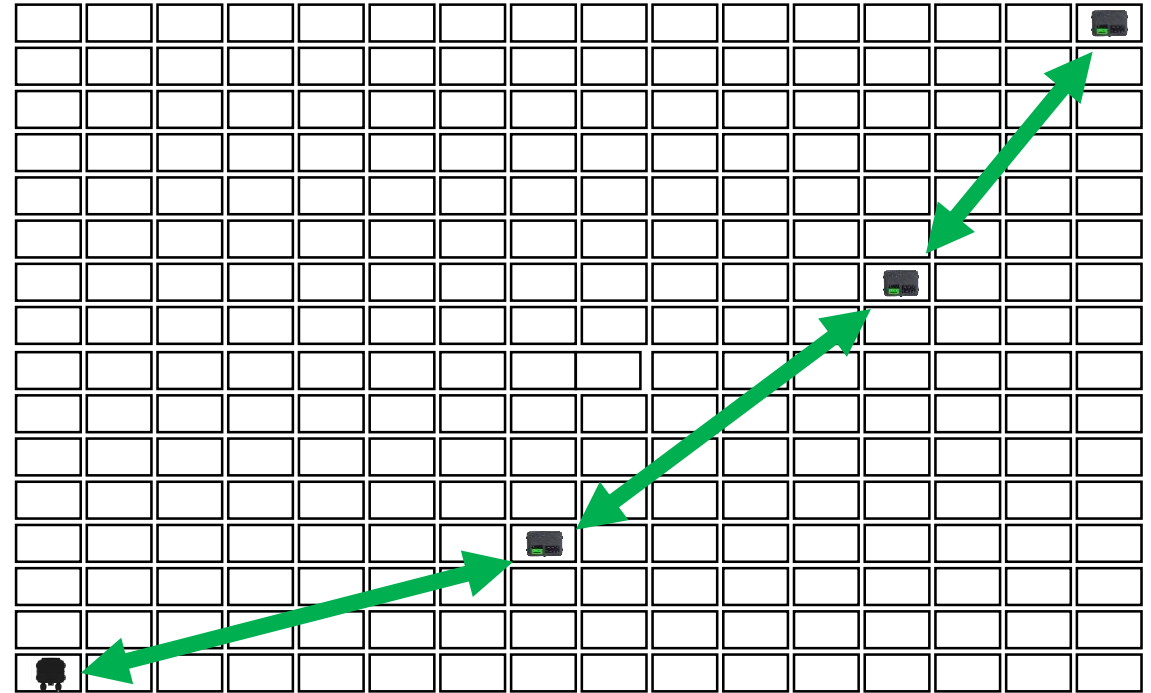
Introducing Mesh



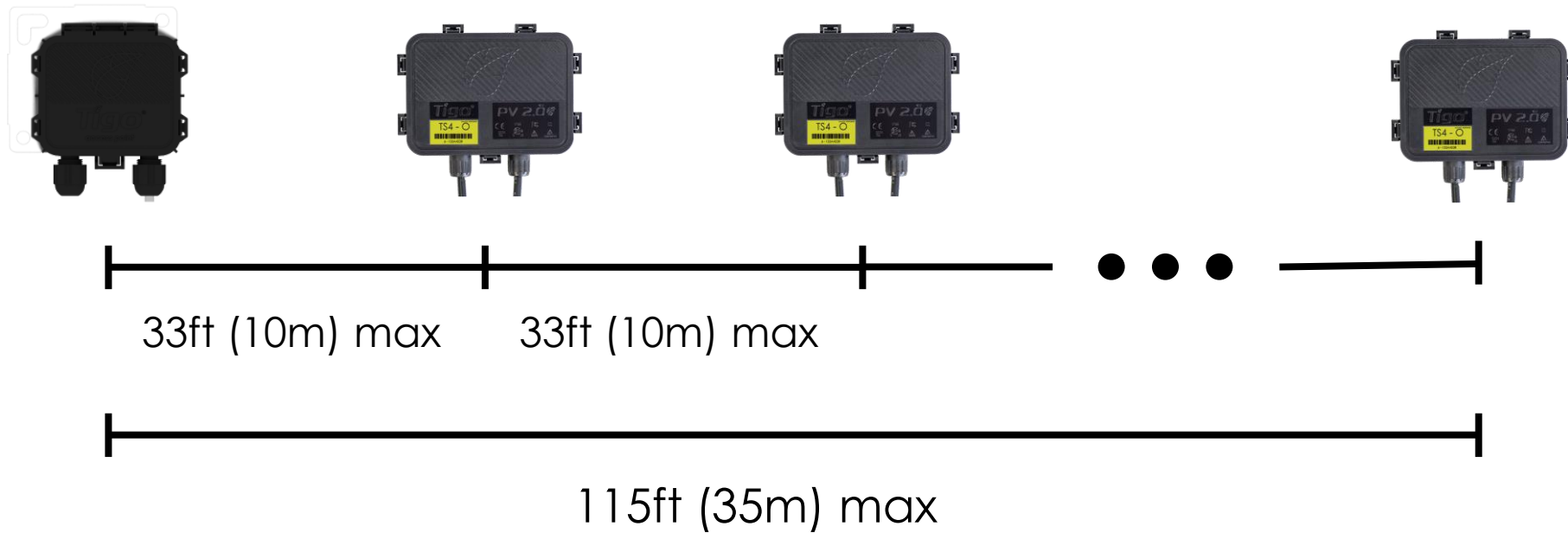
Mesh: State-of-the-art Wireless Technology

Mesh is a communication architecture that allows each TS4 unit to act as a relay station for signals, extending the wireless range of Tigo's communication up to 115ft (35m).

It supports multiple communication path between TS4 units, minimizing packet loss, improving data integrity and reliability at high speed.



Communication Range



Highlights of Mesh

- ❖ Fewer communication accessories needed
 - Mesh allows data collection from up to 300 TS4 units (~100kW systems) using a single TAP
 - Mesh allows data collection from up to 900 TS4 units (~300kW systems) using a single CCA
- ❖ Greater communication radius
 - Up to 115ft (35m) between TAP and furthest TS4
 - Easily bypasses obstructions
- ❖ See Mesh design guidelines in next slides

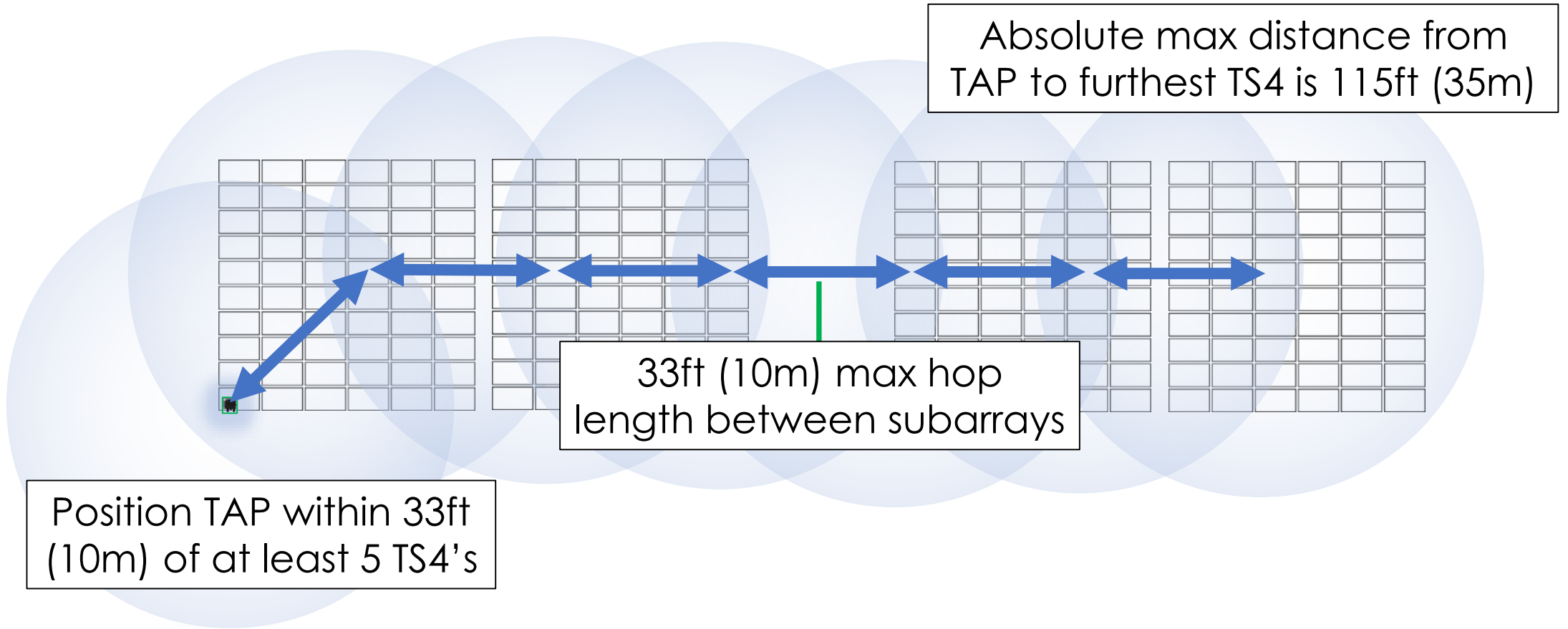


Requirements for Mesh

- ❖ Cloud Connect Advanced (CCA)
- ❖ TAP or Gateway
- ❖ TS4 UHD-Core



Placement Guidelines

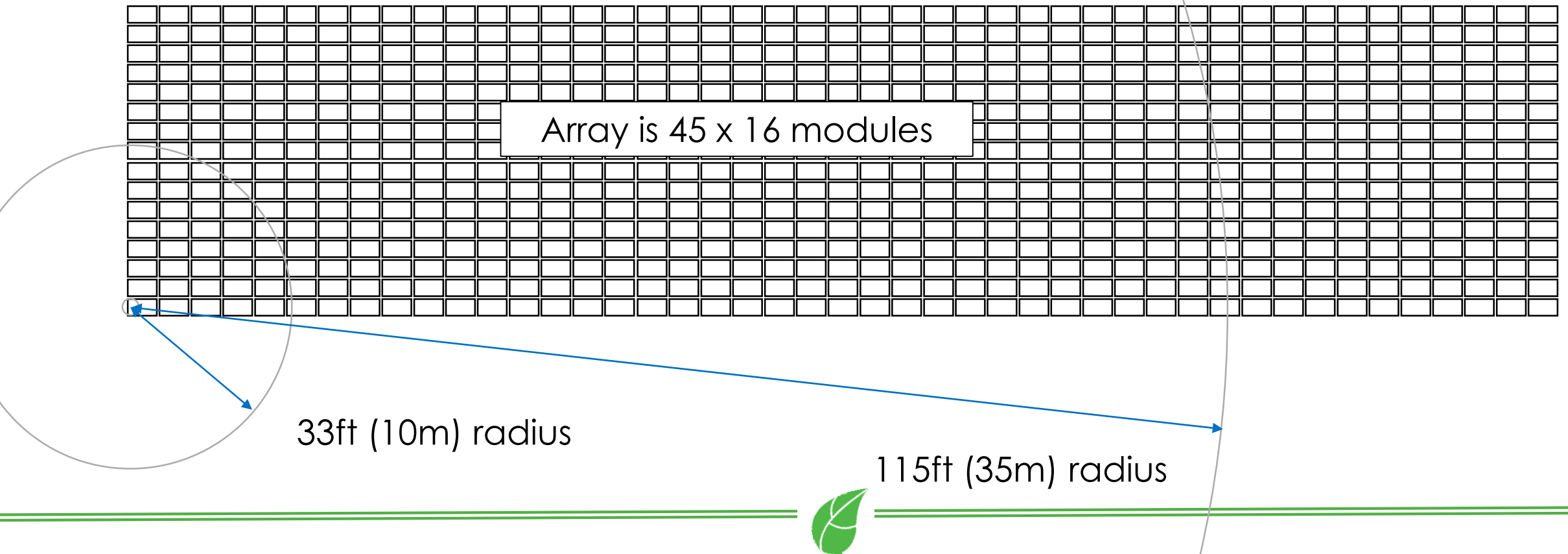


*In the drawing all modules are equipped with TS4 units

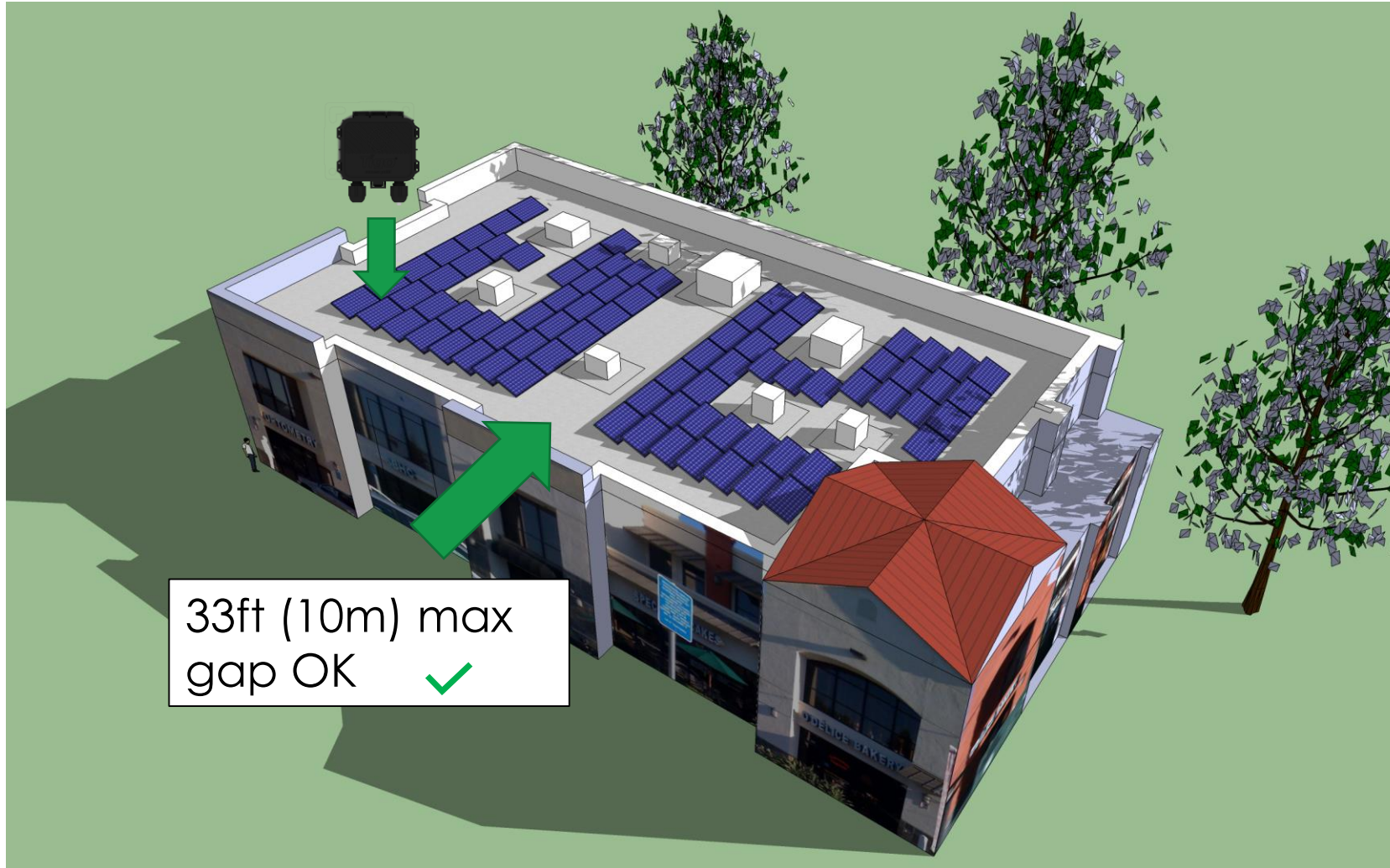


Range Example

Over 500 modules in range of a single TAP, even when placed in the corner (limit is 300 TS4's per TAP)



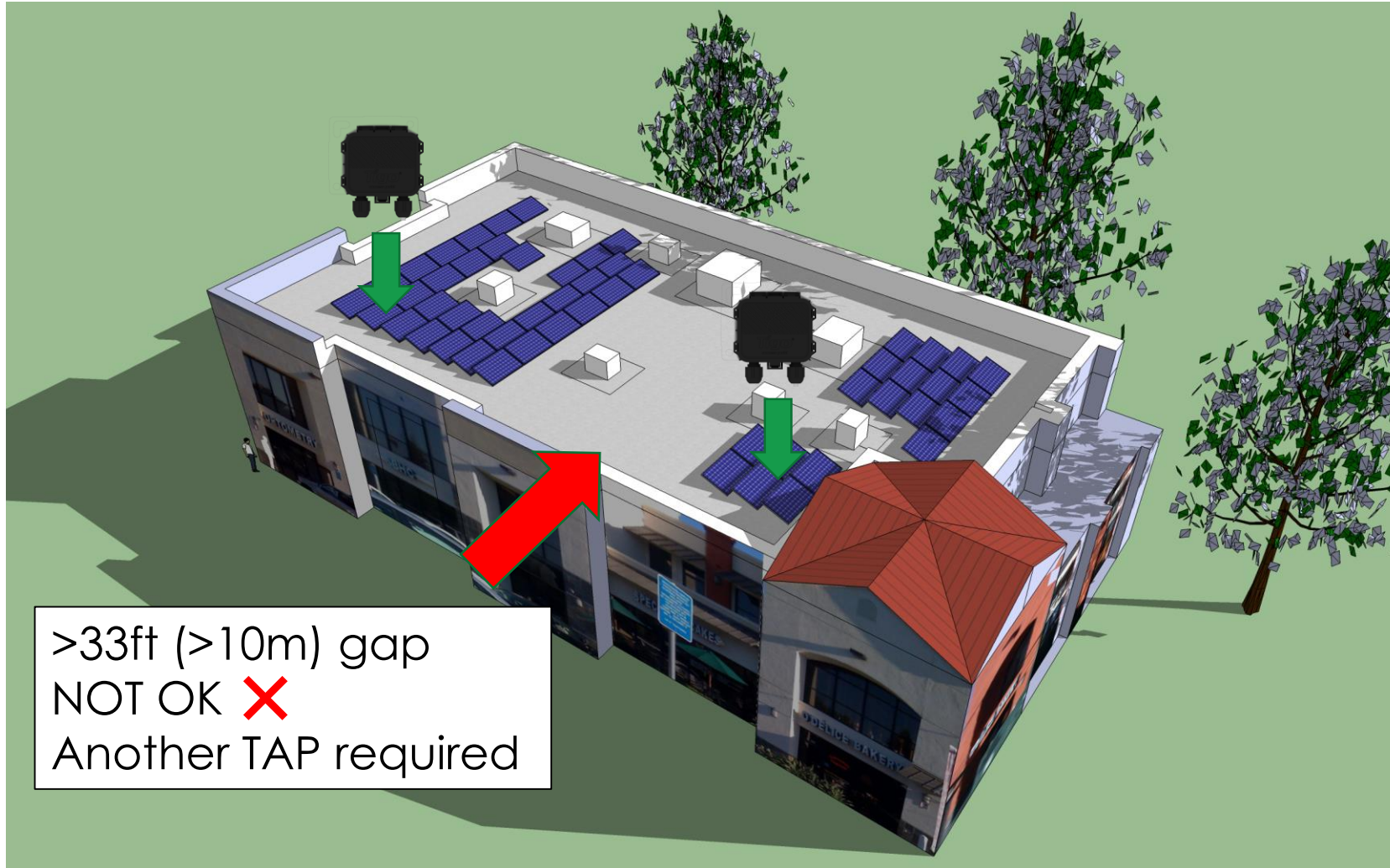
Gaps



*In the drawing all modules are equipped with TS4 units



Gaps

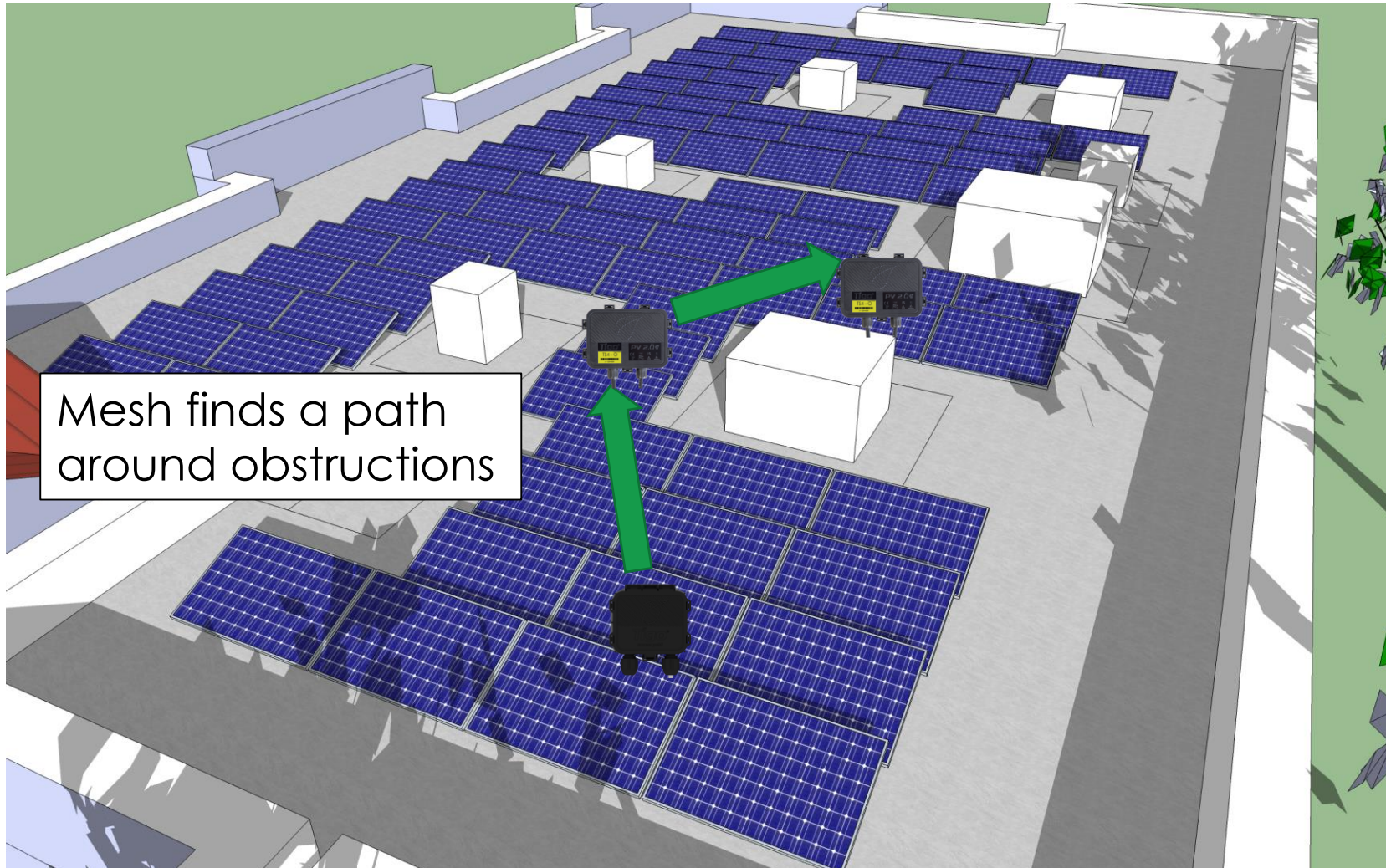


>33ft (>10m) gap
NOT OK X
Another TAP required

*In the drawing all modules are equipped with TS4 units



Obstructions

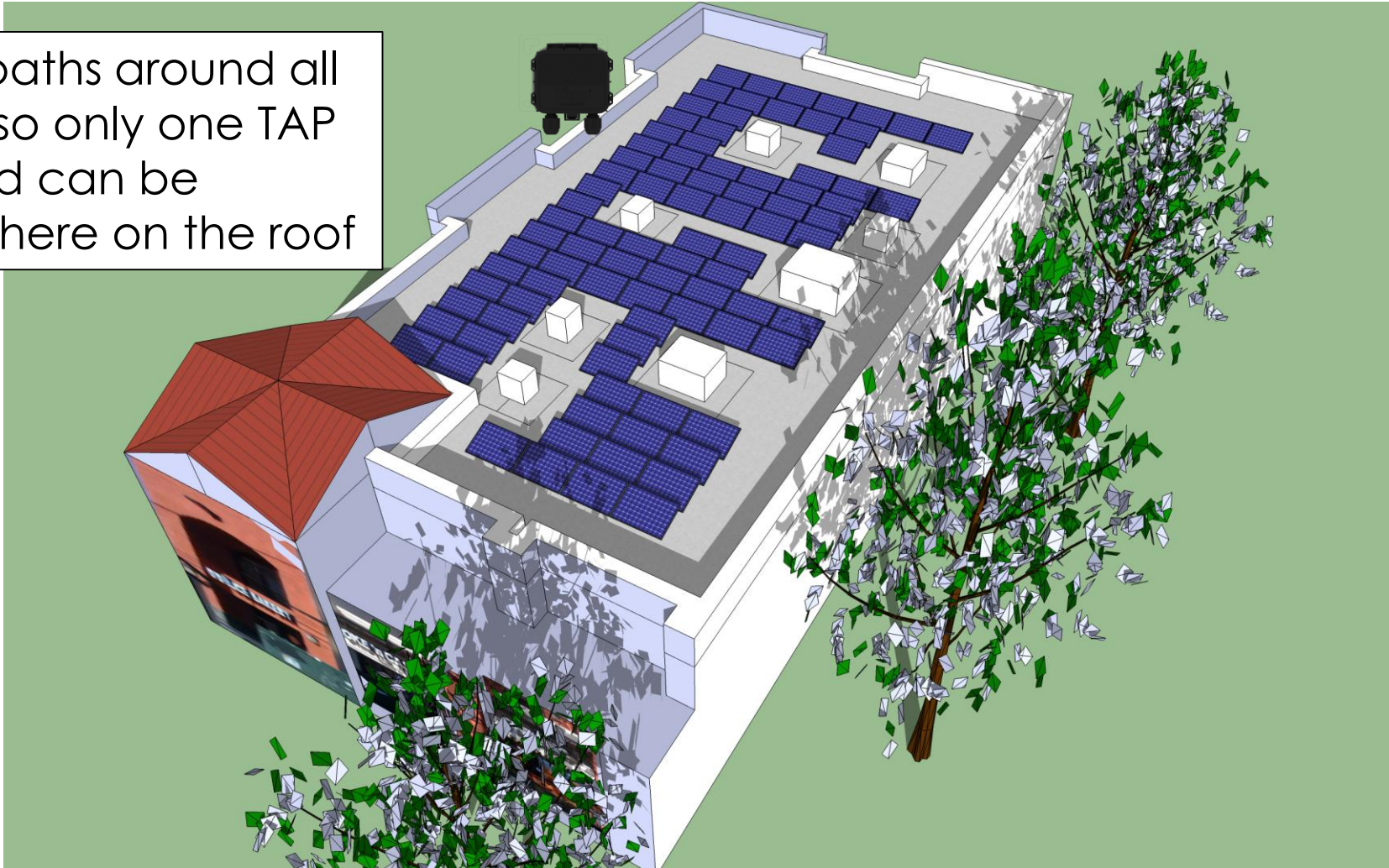


*In the drawing all modules are equipped with TS4 units



Obstructions

This roof has paths around all obstructions, so only one TAP is needed and can be placed anywhere on the roof

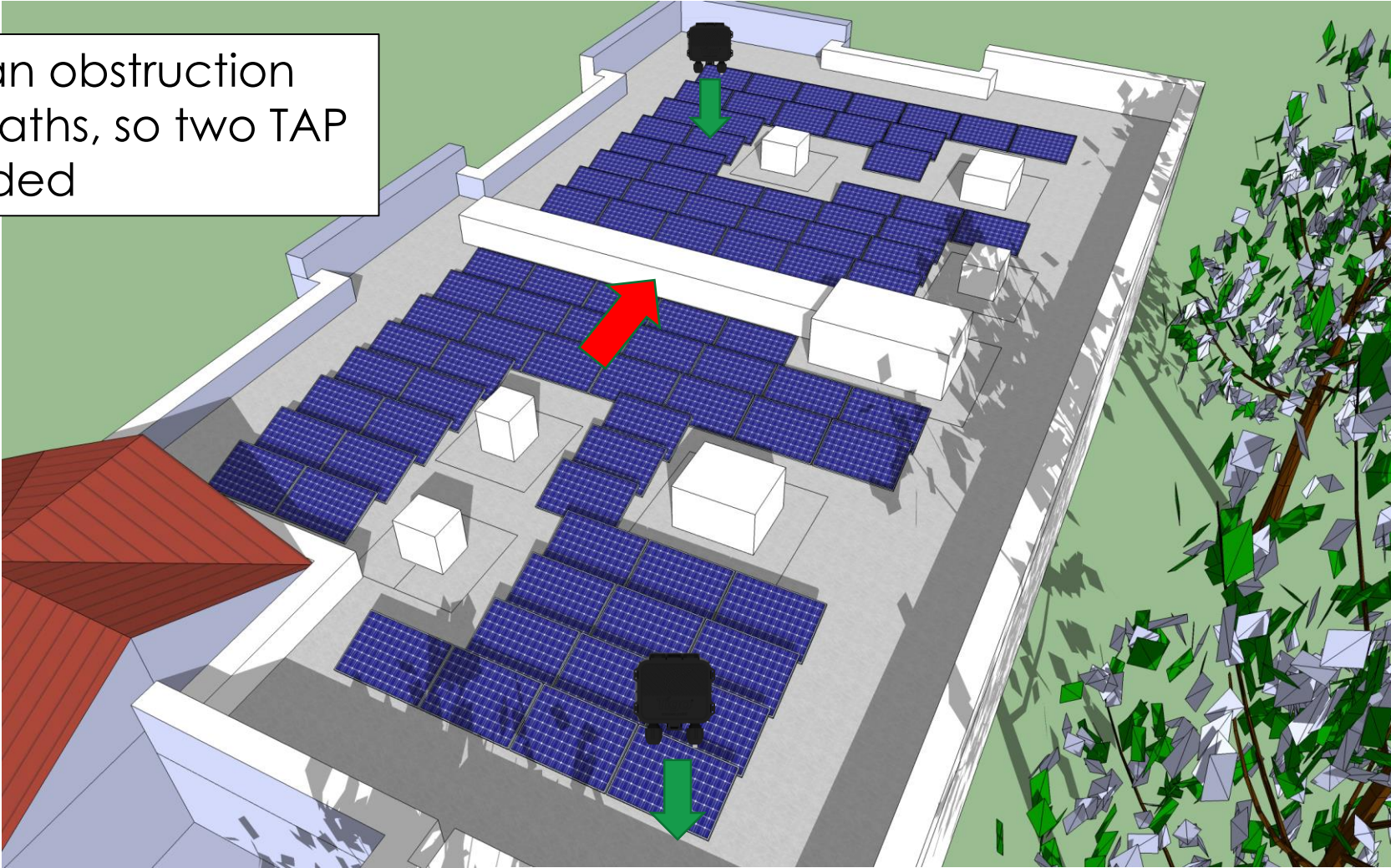


*In the drawing all modules are equipped with TS4 units



Obstructions

This roof has an obstruction blocking all paths, so two TAP units are needed



*In the drawing all modules are equipped with TS4 units



Benefits



TAP & Mesh Benefits

- ❖ Lower Cost, faster and easier installation
 - Higher capacity, longer range → Fewer units to install
 - Larger wiring compartment for easy access
 - Designated CAT 5/6 quick connectors for easy wiring
 - TAP cable glands are larger, allowing wider variety of communication cables

- ❖ Flexible communication
 - Location of TAP is flexible
 - Easy to design complicated rooftops
 - Mesh automatically finds the best path around obstructions



Summary

- ❖ TAP is Tigo's newest , Access Point
- ❖ Mesh is Tigo's new communications architecture

- ❖ TAP & Mesh together have many benefits
 - Increased range and capacity
 - Lower cost and faster installation

- ❖ Follow TAP & Mesh design guidelines for best results



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Thank you!

Questions? training@tigoenergy.com

More Info: support.tigoenergy.com



Resources

❖ Resource Center (technical information)

- <http://tigoenergy.com> ➡ Resources ➡ Resource Center
- Resource Center ➡ Design ➡ Communication
 - Articles: “TAP and Mesh”, “TAP Placement”, “TAP vs Gateway”

❖ Brochures and Spec Sheets

- <http://tigoenergy.com> ➡ Resources ➡ Downloads



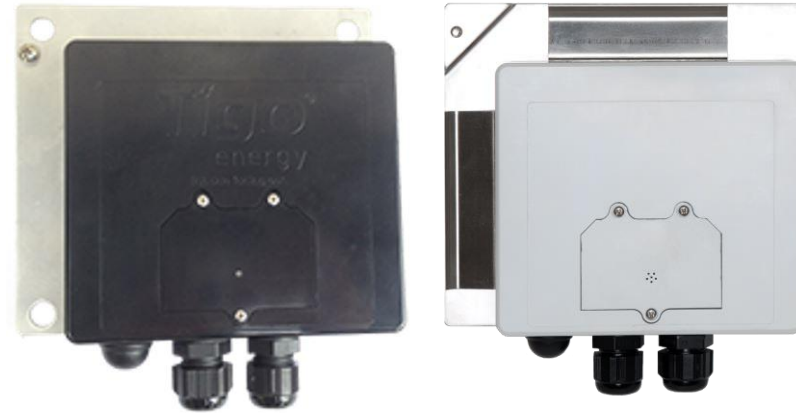
TAP vs. Gateway

TAP



- Latest wireless antenna
- 300 Smart Modules
- Max 7 TAP's per CCA
- Max 900 TS4's per CCA
- 115ft / 35m range

Old Gateway



- Legacy wireless antenna
- 120 Smart Modules
- Max 7 Gateways per CCA
- Max 360 TS4's per CCA
- 50ft / 15m range

