



Introducing the Global Solar Council

Solar technology innovation trends

Xavier Daval - CEO



 Thursday, 25. April 2019
 01:00 to 02:30 (PM - GMT/UTC)

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About KWS

France # 1

Solar Technical
Advisory



10+ GW

of global experience
on 5 continents



1,800

Yield Studies



Proprietary Platform



Climate & Irradiance

Yield Assessment

- Ante construction
- Post construction
- Advanced modelling of complex technologies

Technical Due Diligence

- Greenfield finance
- Brownfield finance
- BO - M&A transaction

Bankability Studies

Market Analysis

Strategy

Hallo !

Hello !

j Hola !

مرحبا !

Bonjour !

5 Nationalities

We work in 5 languages

12%

of revenues
invested in

R&D



Combined power of Engineering & IT



About Xavier Daval



Daval is Director of the Global Solar Council (GSC), an international organization founded in 2015 to coordinate the efforts of the world's solar energy associations from both established and emerging markets.



Daval is vice-president of SER the French Renewable Energies industry association (*Syndicat des Energies Renouvelables*) and Chair of SOLER its solar commission.



Xavier Daval is the founder and the CEO of kiloWattsol, France #1 solar Technical Advisory. Daval is an Electronic engineer and former Director EMEA of a world leading manufacturer of tools for the electronics industry. Fluent in English, French and German.

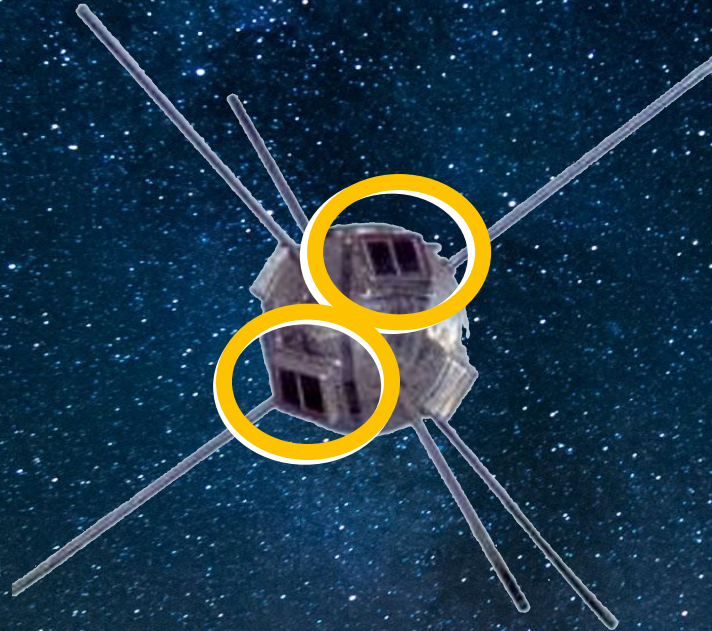


Besides, Daval is associated teacher with Lyon-I University and ENTPE Engineering school and guest lecturer for Entrepreneurship at EM-Lyon, one of Europe's top 10 business schools.

xdaval@kilowattsol.com

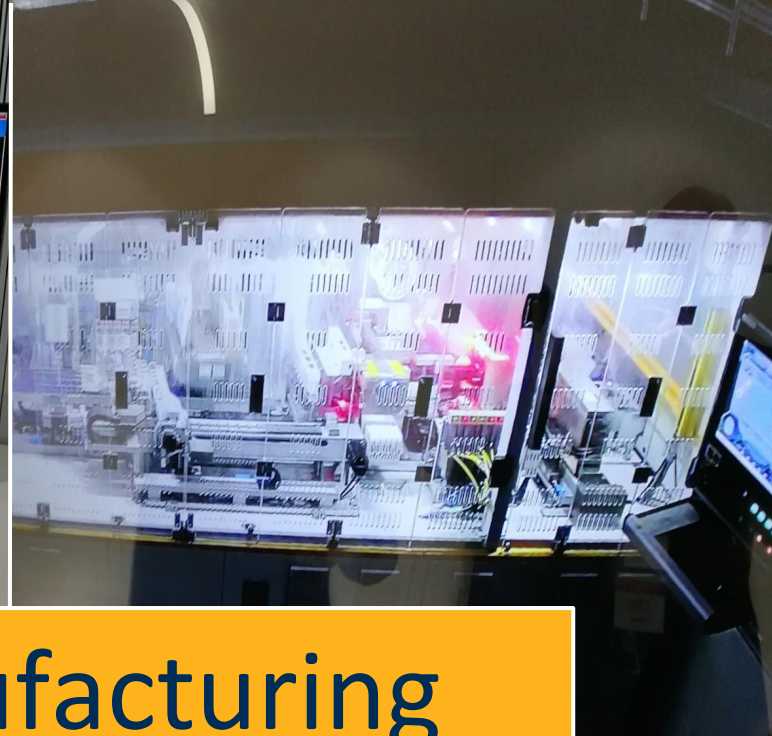
Once upon the time...

in March 1958



Vanguard-1

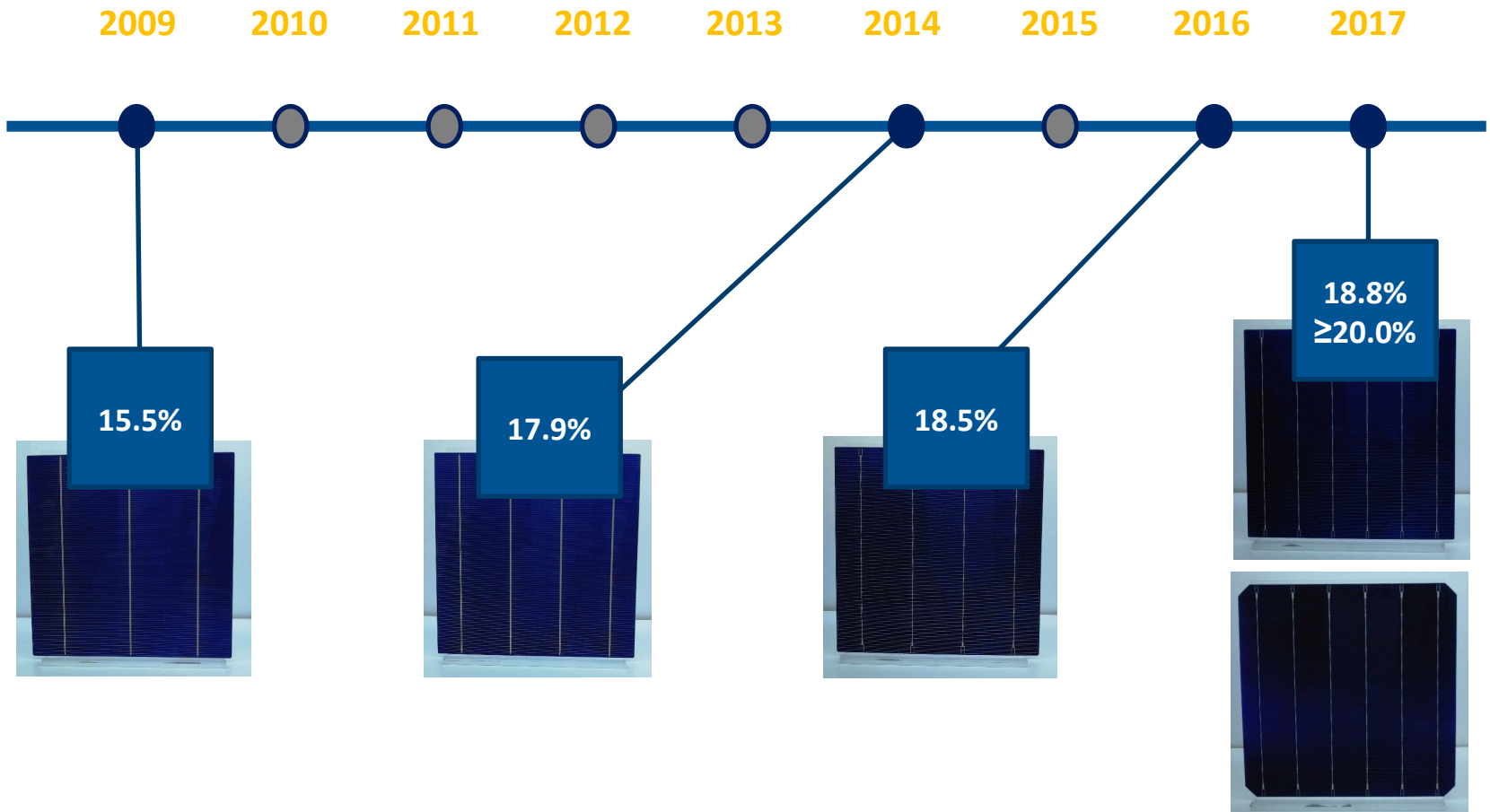
Innovation for Solar Module



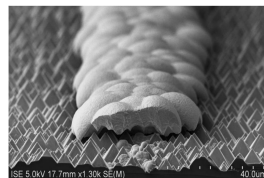
PV module manufacturing is fully automated



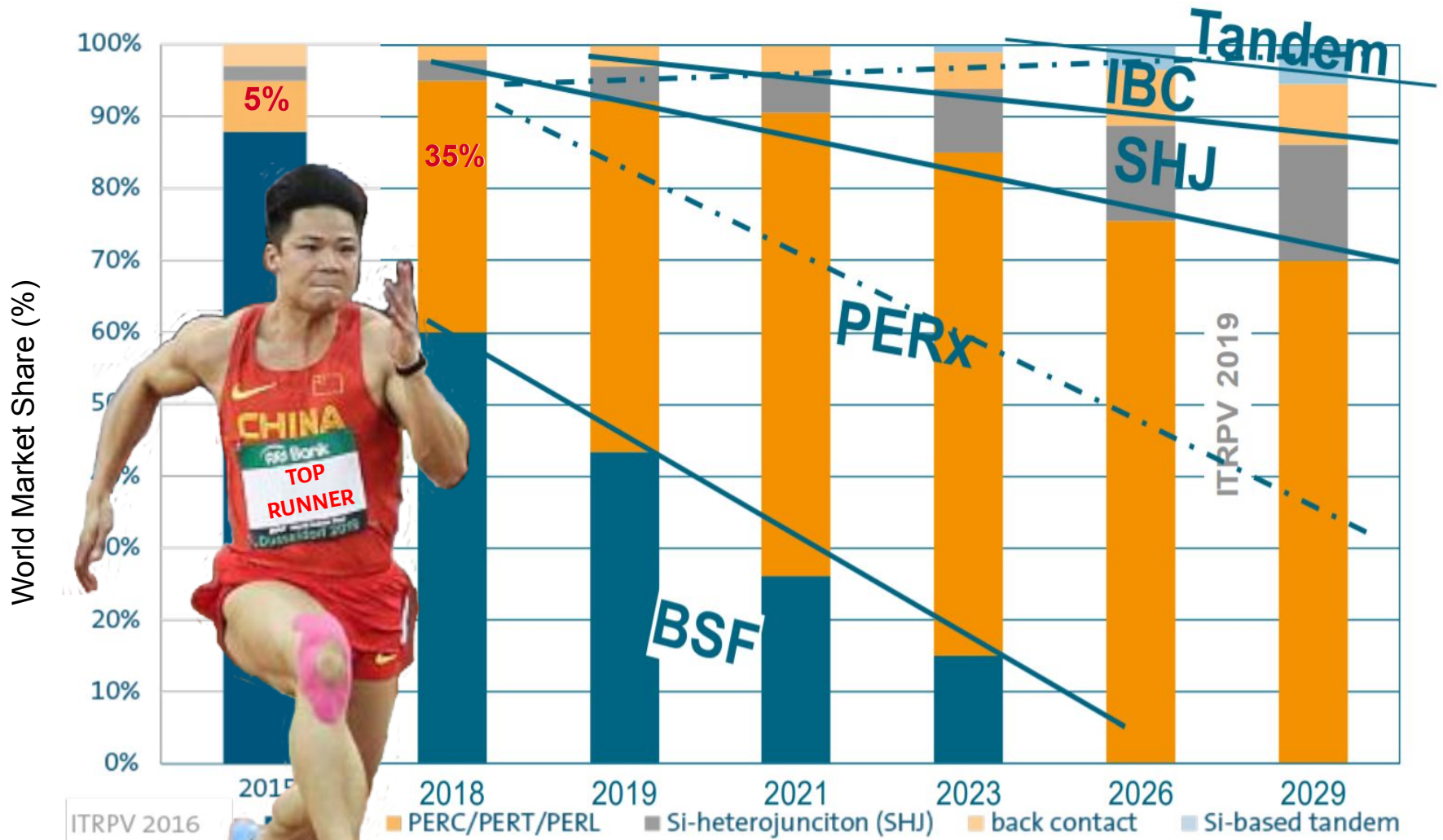
Speed at which innovation goes to market



Q CELLS



Speed at which innovation goes to market



PEERC

80'S





SMMA

system

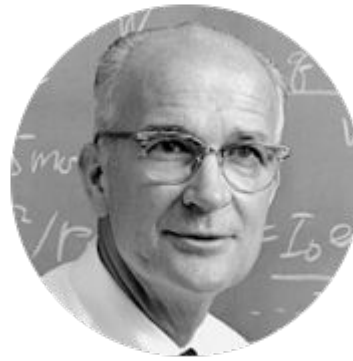
2013-2017年

Bifacial

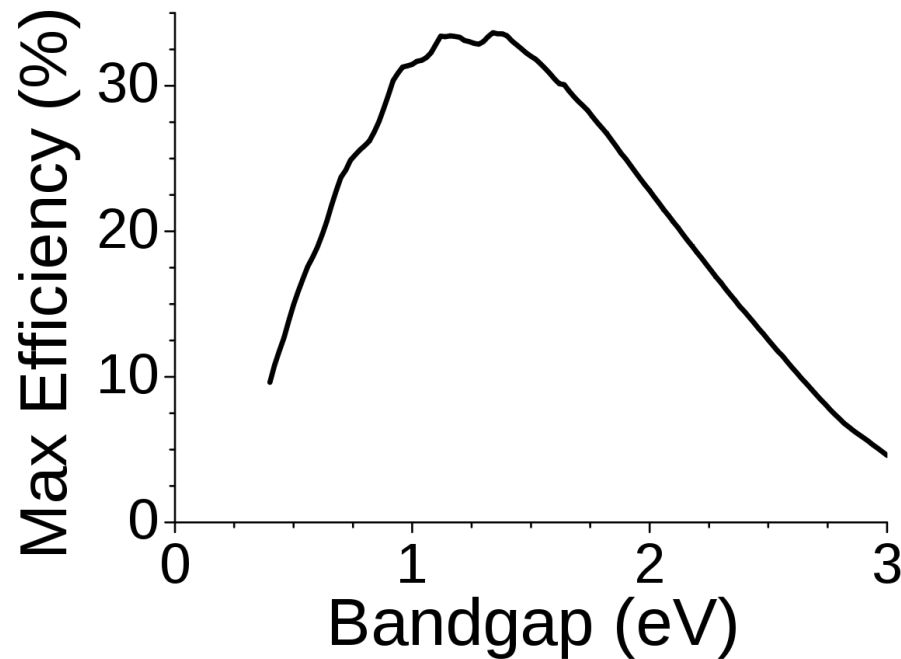
Is Sky the limit?



Shockley–Queisser limit (1961)



Theoretical limit for 1 PN Junction = ~~33.7%~~
29.4%



2 Junctions → 42%

3 Junctions → 48%

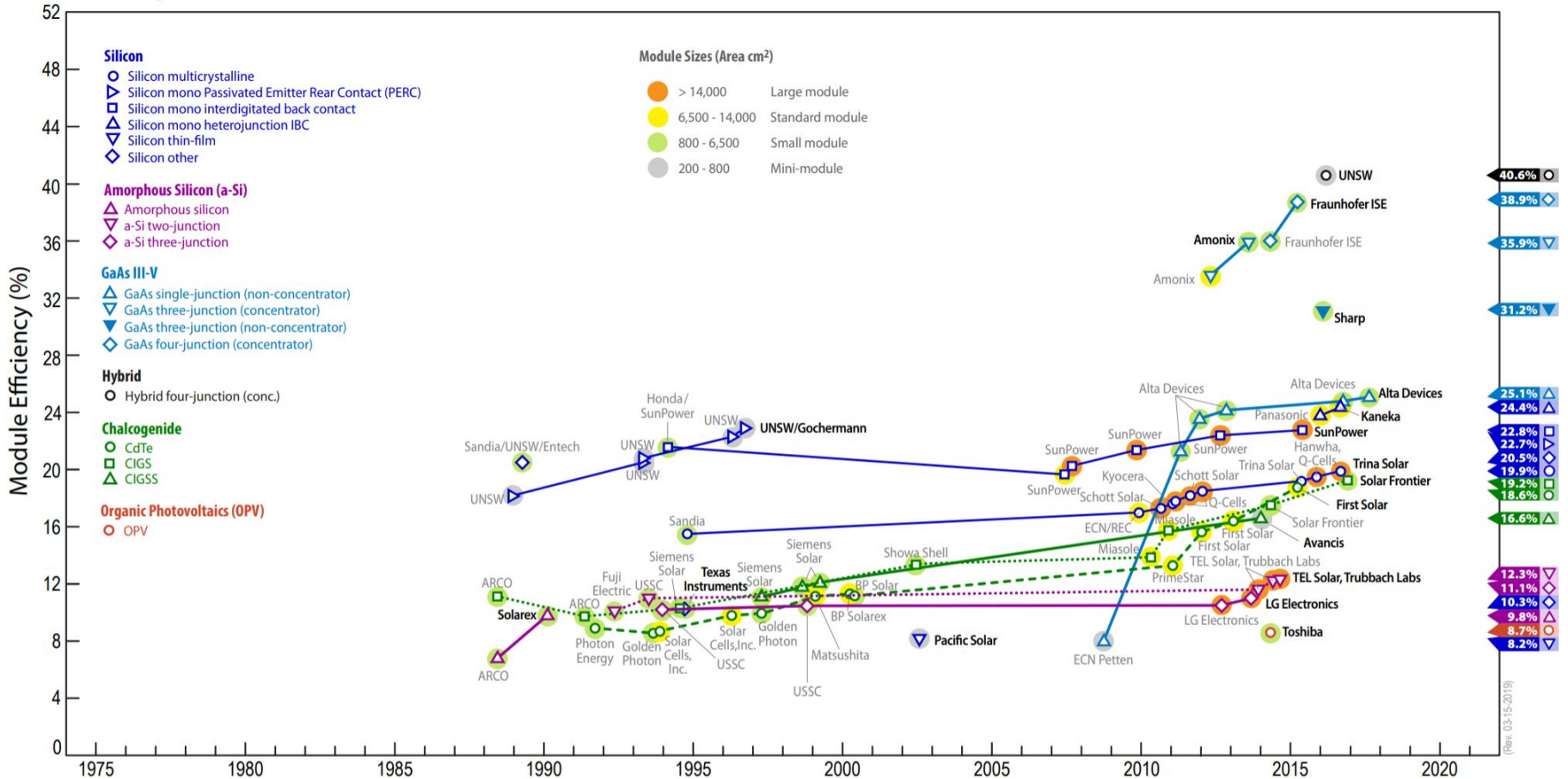
4 Junctions → 52%

Infinite nb. of jun. → 86%

What is coming Next?



Champion Module Efficiencies



Innovation for BoP

Structures in 2008



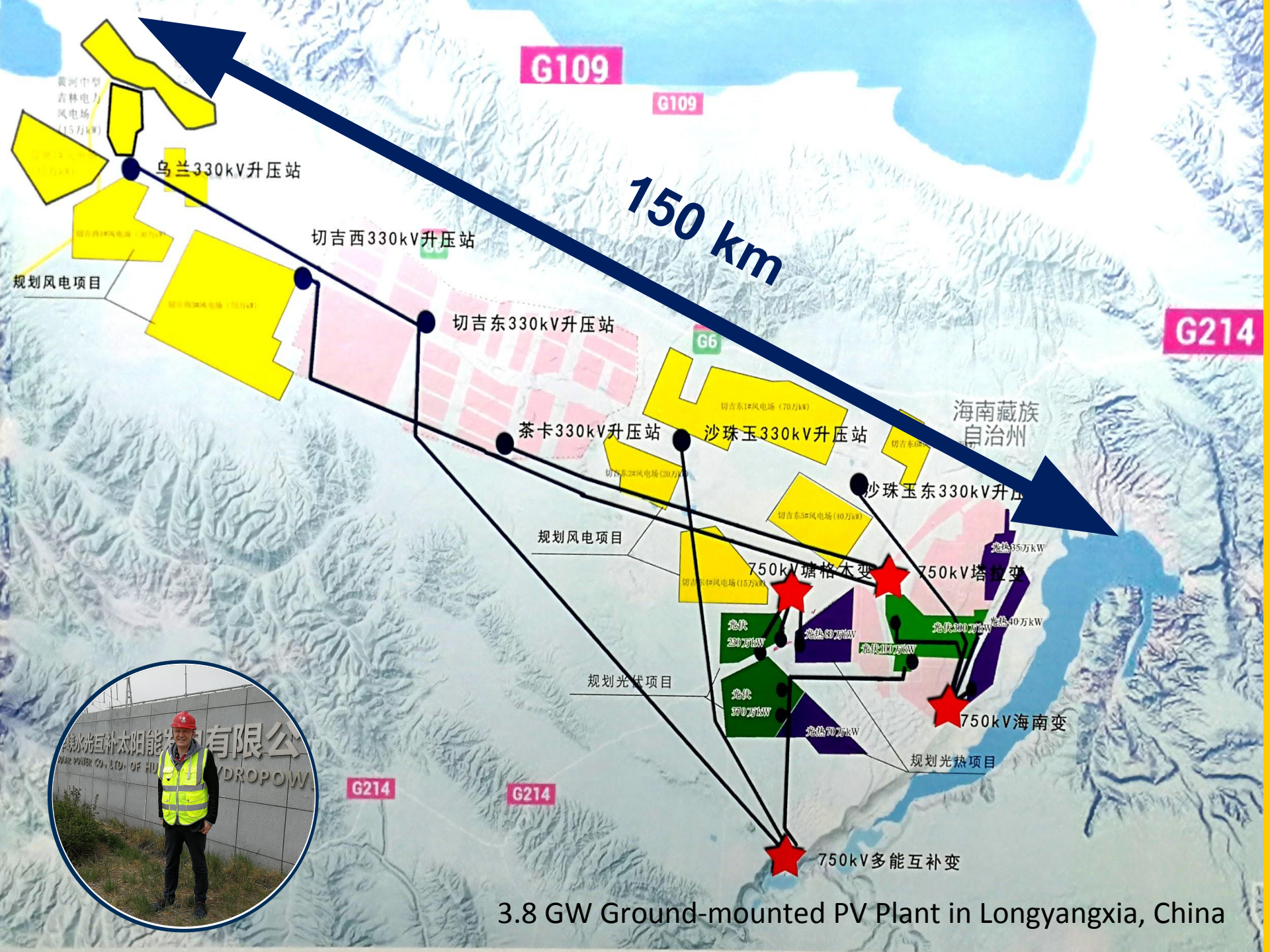


BELECTRIC[®]
Structures in 2018

PEG[®]
PV Plant

The Revolution in
Utility-scale PV Power

Reaching the lowest cost of electricity with a revolutionary new PV plant technology



G109

G109

150 km

G214

黄河中型
吉林电力
风电场
(15万kW)

乌兰330kV升压站

切吉西330kV升压站

切吉东330kV升压站

茶卡330kV升压站

沙珠玉330kV升压站

沙珠玉东330kV升压站

海南藏族
自治州

规划风电项目

750kV塘格木变

750kV塔拉变

光伏
230万kW

光热
80万kW

光伏
100万kW

光伏
300万kW

光热
40万kW

规划光伏项目

750kV海南变

规划光热项目

G214

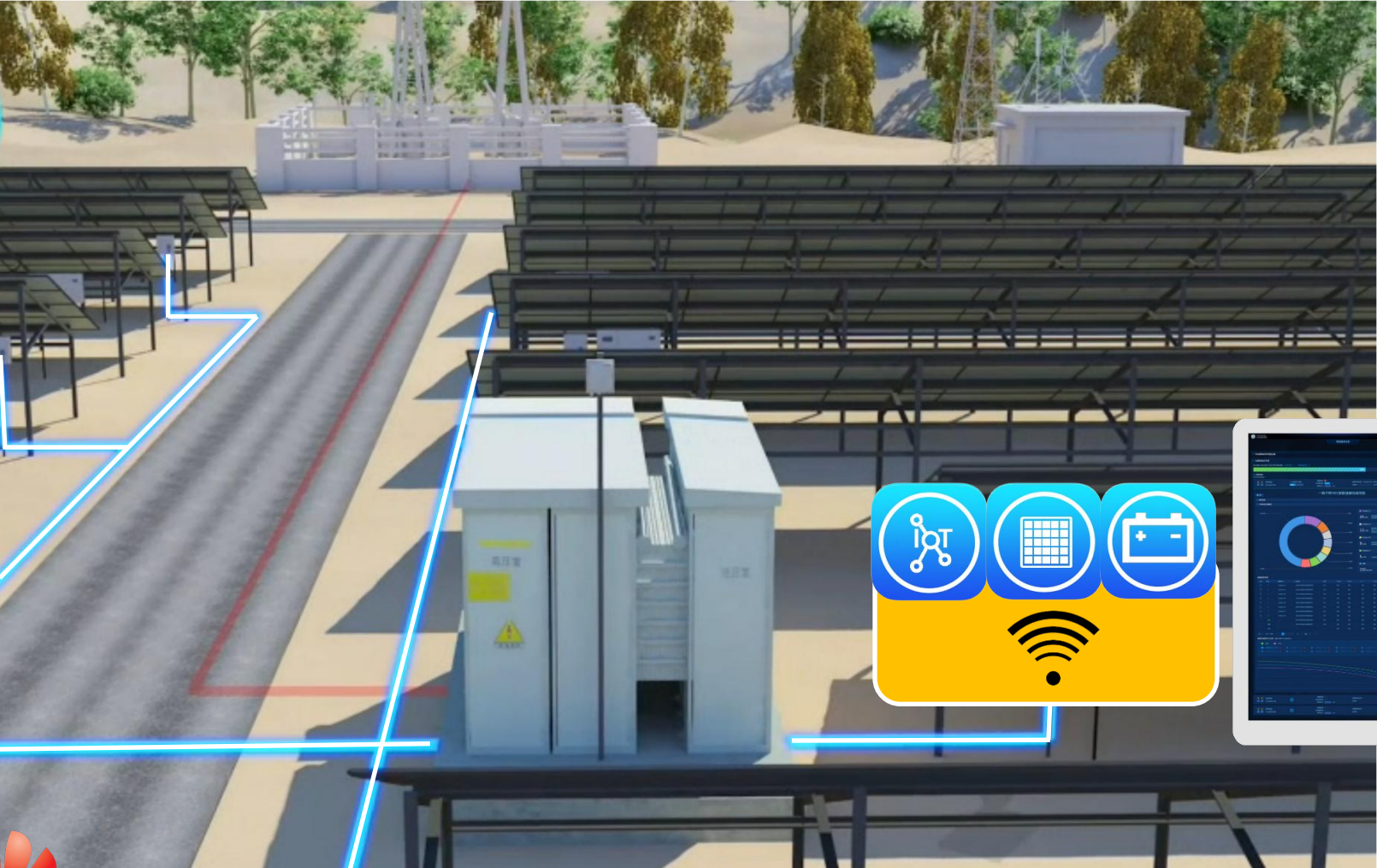
G214

750kV多能互补变



3.8 GW Ground-mounted PV Plant in Longyangxia, China

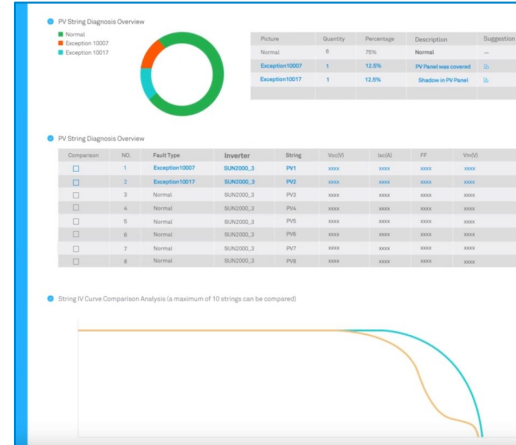
DC/AC Conversion



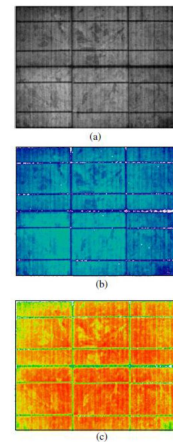
1 GW Ground-mounted PV Plant in Yanchi, China

O&M

IV-Curve



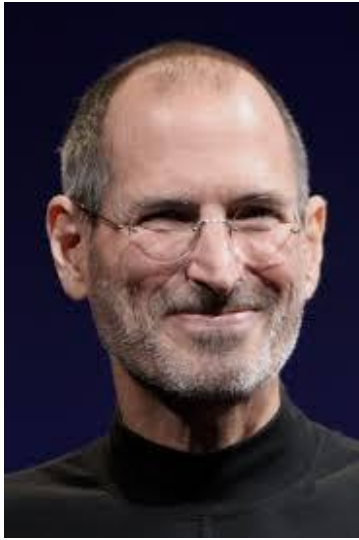
Drone Inspection



Docking station for battery charging + data/pictures download
Fully automated flights including take-off and landing
IR - EL acquisition at night



A word of wisdom



Technology is nothing. What's important is that you have a faith in people, that they're basically good and smart, and if you give them tools, they'll do wonderful things with them.

Steve Jobs

