

COMPANY PROFILE

THE POWER OF ASTRONERGY



ASTRONERGY

A **CHNT** COMPANY



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“The rapid industrial growth and excessive use of natural resources are leading to a global environment and energy crisis with severe consequences. The world is embracing renewable energy sources such as solar energy to maintain a sustainable environment and realize low-carbon economy. It’s our mission to make it happen as fast as possible.”

— **Mr. Cunhui Nan**

Chairman of the Astronergy Board
Founder of Chint Group

About **Astronergy**

Chint, a leading electrics and power distribution manufacturer founded Astronergy as a solar energy subsidiary in 2006. In only a few years, the company made the leap to become a world-class integrated solar manufacturer.

Module Manufacturing

Astronergy specializes in research, development & production of high performance monocrystalline and polycrystalline cells and modules.

System Solution

In our strategic development, Astronergy expands to offer integrated PV system solutions with the support of our parent company - Chint Group's product portfolio. This provides the customers with a true one-stop turnkey product, offering integrated design and lower system cost, providing the industry first "One Manufacturer" total system warranty.

Project Development

Astronergy is also involved in project development by supporting customer in pre-developing the system requirements, design and performance, as well as coordinating the financing parties. Its domestic team has been developing and acting as a promoter for up to 200 MWp of solar plants during 2011 and expects a higher volume for 2012.

Forbes voted Astronergy as "An Enterprise with Most Potential" in 2011.

Photon ranked Astronergy No5 in its latest solar manufacturer sustainability ranking.



Key Facts

Founded: 2006

Shareholders:

Chint Group, Shanghai Alliance investment Ltd, Cybernaut

Revenue (2011): \$750 Million USD

Employees: 4000+

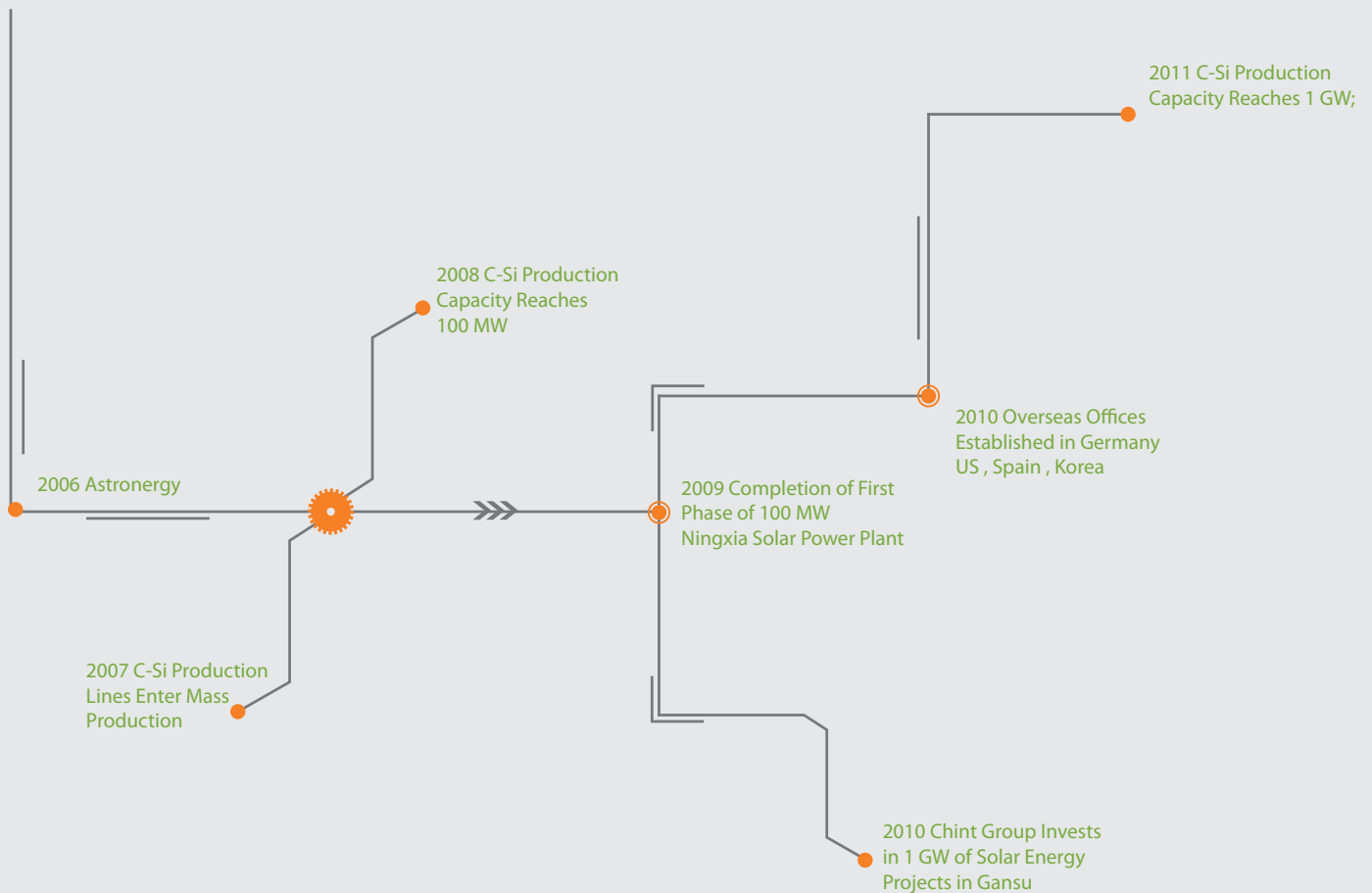
Current Capacity: 1 GW Crystalline Cells & Modules

Headquarters: Hangzhou, China

Production sites: Hangzhou, Shanghai, Jiuquan

Subsidiaries: Germany, Spain, North America, Korea, Japan, Thailand, India

Milestones



Parent Company **Chint Group**

A Clean & Efficient Energy Management Solution Provider

Astronergy's parent company, Chint Group, has set its footprint in the energy industry since its founding in 1984. Chint is currently the fourth largest private company in China and is a well-recognized supplier for clean & efficient energy solution.

The group consists of eight major subsidiaries and owns more than 2000 domestic distribution centers and more than 40 sales organizations worldwide.

Chint Group manufactures high and low voltage electronic products for power transmission and distribution, measuring instruments, construction appliances, automobile appliances, as well as photovoltaic modules and other BOS (Balance of System) components.

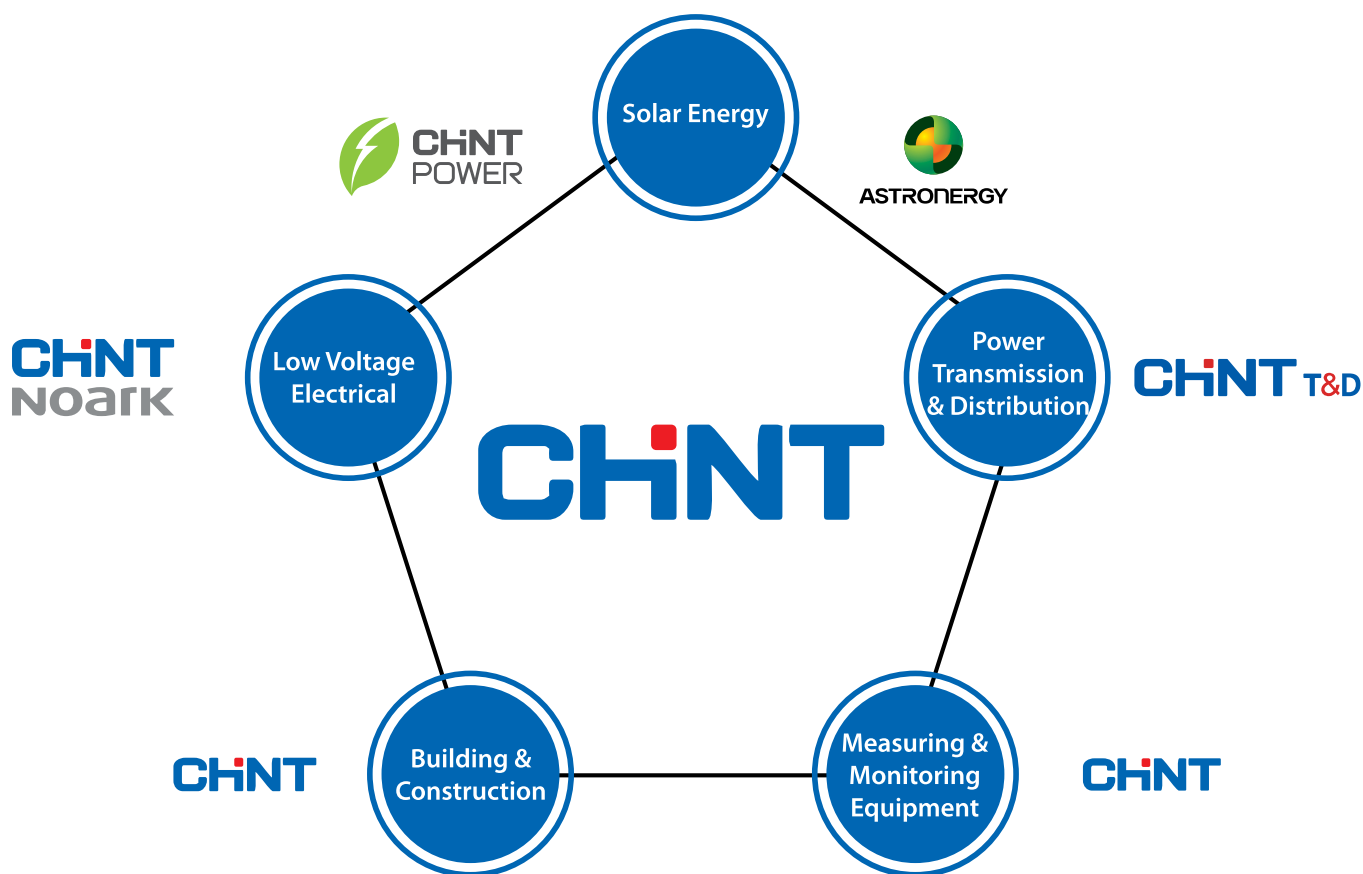
From the Three Gorges Dam to the 2010 Shanghai World Expo, the strong performance of Chint Group's products and services have made Chint one of the most comprehensive enterprises in China. With the rapid expansion of its solar division Astronergy, Chint's strong commitment in clean and efficient energy management is reaching a whole new level.



CHNT

Key Facts

4th Largest Private Enterprise in China
Leader in Low Voltage Electronics & Components
Revenue (2011) \$3.9 Billion USD
Number of Employees: 30,000+



Smart Electric

System & Smart Total Solution

- Smart Grid
- Measurement Control
- Energy Efficiency Management

Renewable Energy

- Solar Technology Research & Product Production
- Project Investment

Investment & Finance

- Biopharmaceuticals
- Renewable Energy
- Energy Conservation
- Environmental Protection
- Green Manufacturing

Public Welfare

Chint Commonwealth Foundation

- Education Aid
- Poverty Reduction
- Technological Innovation
- Energy Conservation & Environmental Protection



Product Portfolio

Complete PV Product Line

Crystalline Modules



Monocrystalline	
Cells	36 -72
Output	85-310 Wp
Module Efficiency	Up to 15.9%
Dimensions	Up to 1.96 x .99 m



Black Series	
Cells	60 -72
Output	185-255 Wp
Module Efficiency	Up to 15.7%
Dimensions	Up to 1.96 x .99 m



Polycrystalline	
Cells	36 -72
Output	135-305 Wp
Module Efficiency	Up to 15.7%
Dimensions	Up to 1.96 x .99 m

NOVA™ mono product line with Ion Implantation technology: cell efficiency exceeding 19.3%





All PV System Components Out of One Hand

- All quality components are meticulously selected, matched and proven to ensure high compatibility & optimized system output
- Lower system costs
- One company guarantee

Customers are our priority

Service

Technical Support
Customer Service
Hotline
PV System Design Support
PV System Troubleshooting

“Punctuality is the principle of our service: our worldwide logistic facilities ensure minimized delivery time; our well-trained customer service team is always there to satisfy your needs on time.”



Quality & Reliability

Production

We aggressively pursue high quality throughout our entire production process. Automated controls including our [Manufacturing Execution System \(MES\)](#) and [Statistical Process Control \(SPC\) system](#) not only group cells by output current, but also track their production route and performance data in order to rapidly pinpoint and correct any production line variations.

Finally, module output wattage performance is measured and labeled before shipping using a “flasher”—calibrated every two hours to ensure a positive power tolerance. Additionally, modules undergo extensive final testing to detect micro cracks, dead cells or dead strings which could impact long term reliability via a [double electroluminescence \(EL\) inspection](#). Astronergy is one of the first manufacturers to implement double EL inspection.

Quality Assurance

- Supplier Management System
- Manufacturing Execution System
- Statistical Process Control
- Power Measurement Calibration
- Process Change Control
- Outgoing Quality Assurance – Double EL Inspection
- Non-Conformance Control

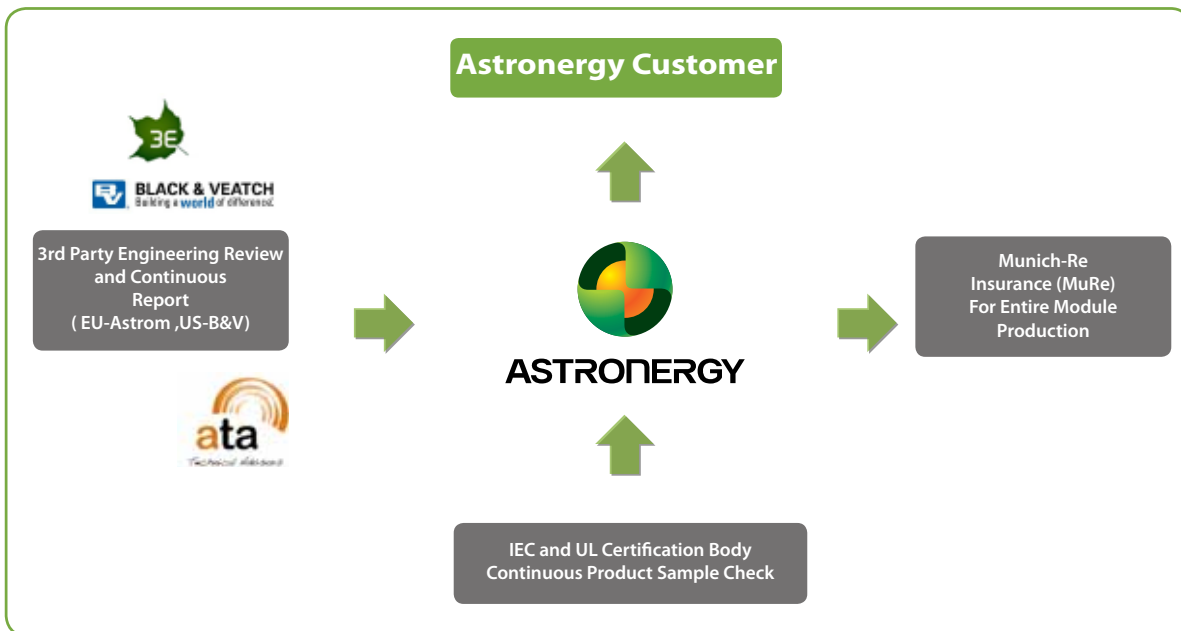


Warranty

As a measure of our confidence in our products, every Astronergy module comes with a **10-year product guarantee** against defects in materials or workmanship and a **25-year performance guarantee**.

Third Party Review & Assurance

Astronergy's products have been tested by a number of institutes and laboratories. Our products meet many national and international standards, including **TUV, UL, IEC, CE, JET, MCS, RoHS, CSA** certifications, and many others.



Our production processes also received a thorough 3rd party independent review—**Black & Veatch** and **astrom Corsán**, two engineering consultants who conduct yearly audits on Astronergy's manufacturing processes and propose any improvements that can advance reliability and quality. Our product line has also achieved positive results in **3E's** independent bankable quality analysis.

Reinsurance, a secondary guarantee of Astronergy's own warranty, is designed to add an additional layer of reassurance to the relationship between Astronergy and its customers. **Munich Re**—the world's largest reinsurance entity—is obligated to back up all claims made on Astronergy modules for the full duration of the original warranty. Munich Re is famous for its strict reinsurance requirements.

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Corporate Sustainability

Sustainability

Economic Progress

Revenues
Net cash flow
Earnings

Social Progress

Human rights
Employee opinion
Labor standards
Occupation development

Environmental Protection

Regulatory compliance
Zero waste
Emissions reduction

Astronergy has been paying special attention to promote its sustainability which includes social responsibly, environmental protection and economic development.

We have been proactive to communicate with the Global Reporting Initiative (GRI) on GRI's Sustainability Reporting Framework to better measure corporate sustainability performance.

A Corporate Sustainability Report which is based upon GRI G3.1 and AA1000 standards is issued in 2012 and will be assured by British Standards Institution (BSI). Astronergy is the first Chinese PV company PV company with its Corporate Sustainability Report (CSR) assured by third party.

Our contribution to the environment in 2011:

Electricity exported to grid: 790014 MWh

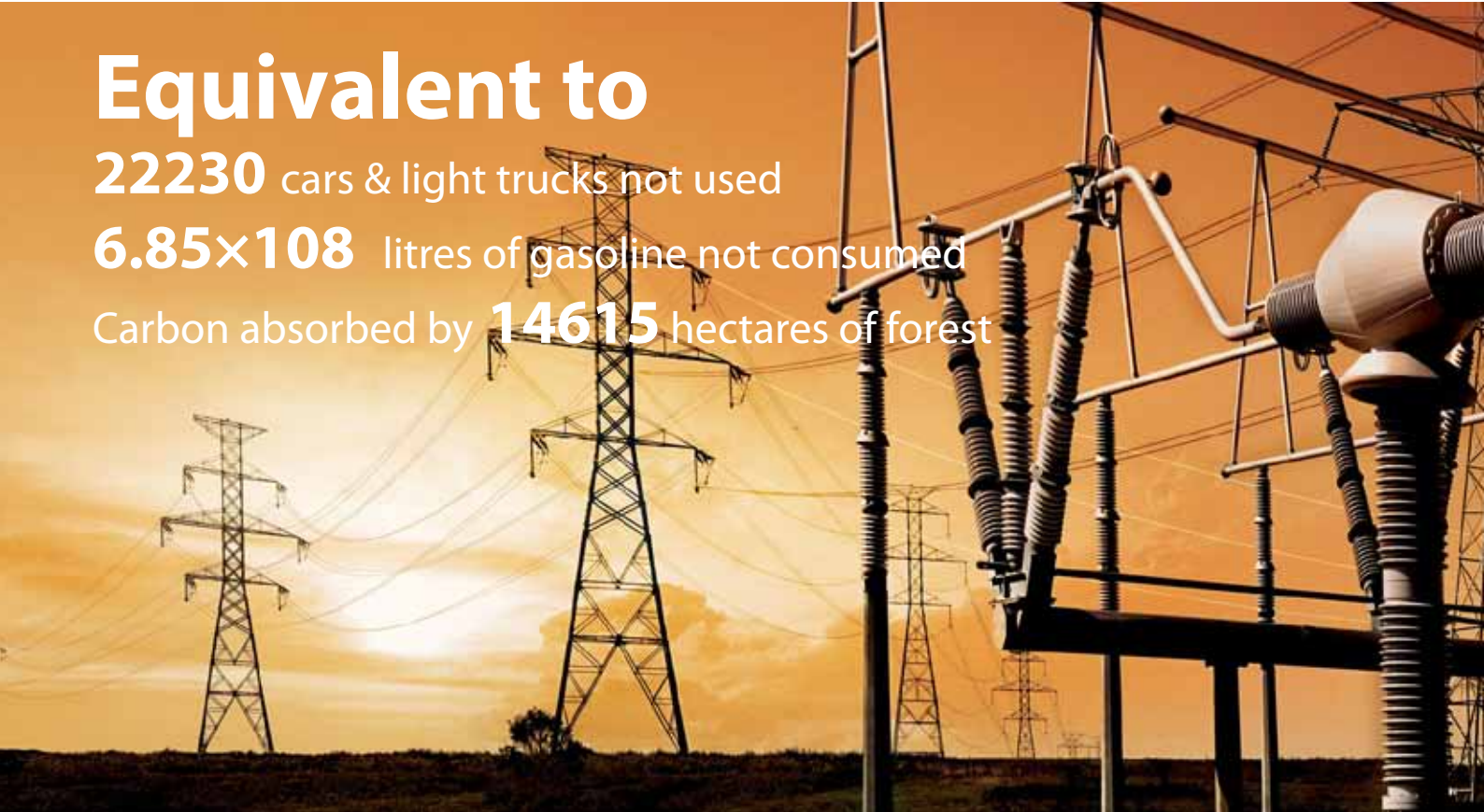
Annual emission reduced: 162743 tons CO₂

Equivalent to

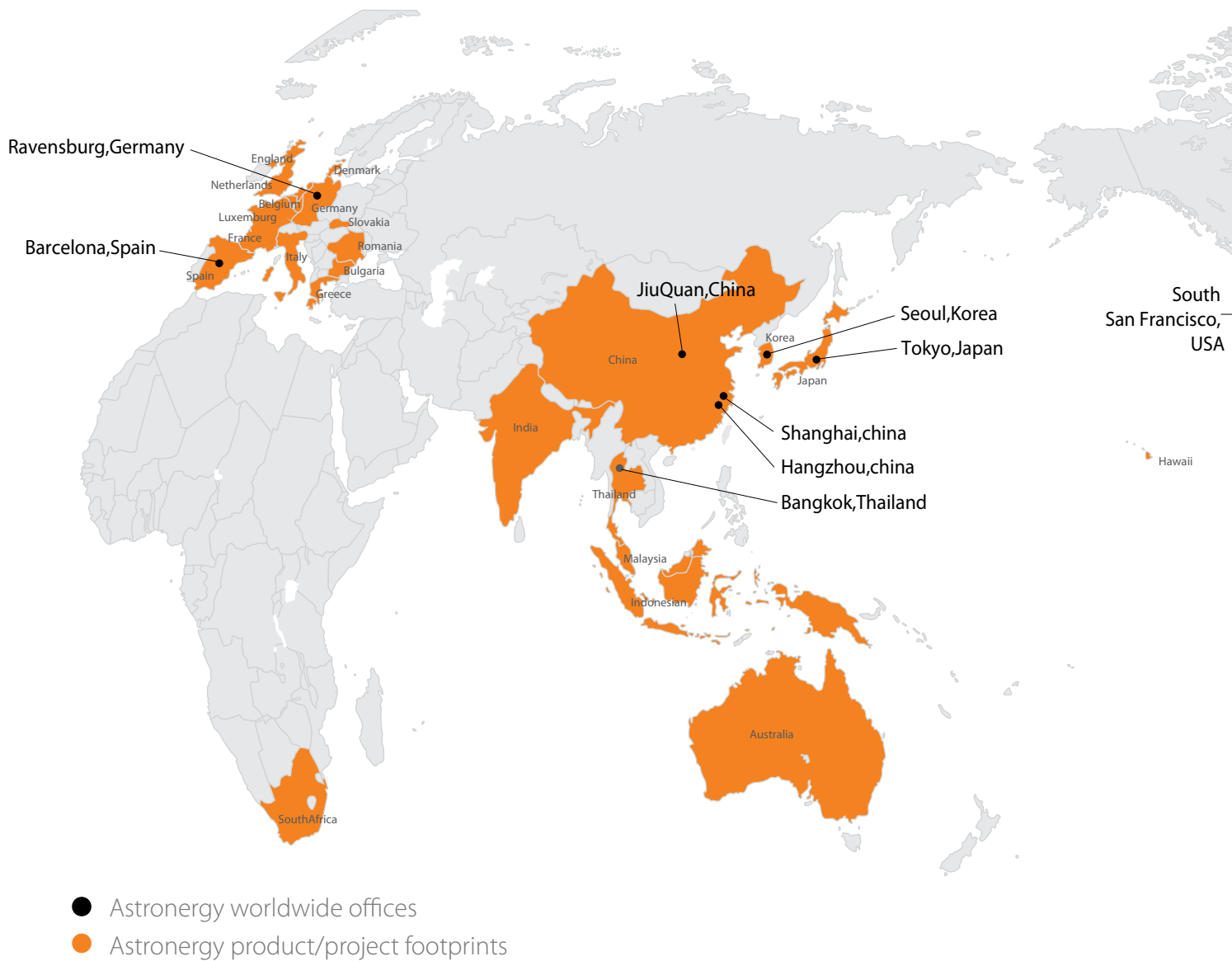
22230 cars & light trucks not used

6.85×10⁸ litres of gasoline not consumed

Carbon absorbed by **14615** hectares of forest



Global Reference Projects



Commercial Rooftop



Butler Plaza Project
 Location: Gainesville, FL, USA
 Module Used: CHSM6610P
 System Size: 2.2 MWp



Dresden PV Rooftop Plant
 Location: Dresden, Germany
 Module Used: CHSM6610P
 System Size: 1 MWp



Hangzhou East Railway Station PV System
 Location: Hangzhou, China
 Module Used: CHSM6610P
 System Size: 10 MWp



Ground-Mounted



Rovigo Project
Location: Rovigo, Italy
Module Used: CHSM6610M | CHSM6610P
System Size: 70 MWp (15 MWp using Astronergy modules)



San Giovanni Rotondo Project
Location: Posta Della Valle, Italy
Module Used: CHSM6610P
System Size: 8 MWp (5 MWp using Astronergy modules)



Depot Park Project
Location: Sacramento, CA, USA
Module Used: CHSM6610P
System Size: 3 MWp



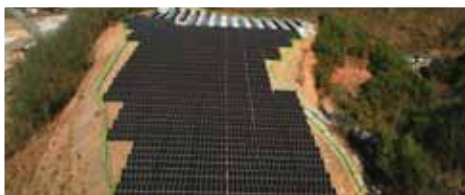
Lincoln County Project
Location: Fayetteville, TN, USA
Module Used: CHSM6610P
System Size: 3 MWp



Golmud Solar Park
Location: Golmud, Qinghai, China
Module Used: CHSM6610P
System Size: 20 MWp



Shizuishan Solar Power Station
Location: Shizuishan, Ningxia Province, China
Module Used: CHSM5001T | CHSM5612M
System Size: 100 MWp (First phase completed ~10MWp)



Daebang PV Plant
Location: Daebang, Korea
Module Used: CHSM6610M
System Size: 1 MWp



Boogeo-seom PV Plant
Location: Songam-dong, Chuncheon city, Korea
Module Used: CHSM6610M-230W
System Size: 6 MWp

Residential Rooftop



MaxSolar Rooftop PV Plant
Location: Eggstatt, Germany
Module Used: CHSM5612M
System Size: 1.2 MWp



Shire of Mundaring WA
Location: Shire of Mundaring, WA Australia
Module Used: CHSM5612M
System Size: 16 KWp



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