



ADVANCED SOLUTIONS FOR POLYSILICON PRODUCTION.
THE SOLAR INDUSTRY BEGINS WITH US.

Poly Plant Project, Inc.

*Advanced Solutions for Polysilicon Production.
The Solar Industry Begins With Us.*

About Poly Plant Project, Inc.

- Poly Plant Project, Inc. (PPP) provides the solar energy and semiconductor industries with solutions for polysilicon production.
- From modular packages to complete plants, PPP's customized solutions integrate advanced, proven process technology, engineering, equipment, and field services required to construct and operate world-class, high-purity polysilicon production plants.
- Our focus on uptime, reduced operating costs and safety enables plant owners and investors to maximize profits from the efficient, reliable and safe production of high-purity polysilicon.



Kunical International Group, Ltd.

- Kunical International Group (KIG) is the sister company to PPP
- Kunical has been buying and selling polysilicon materials worldwide for the past 30 years
- Kunical offers polysilicon, products and services to the semiconductor, wafer fabrication, solar and silicon crystal growing industries
- Kunical buys silicon materials from manufacturers around the world including plants using PPP's process technology and equipment
- Kunical can pre-sell some or all of the material from polysilicon plants before the plants are built or operating

www.Kunical.com



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Industry Experts

Our Experience Makes the Difference

Executive Team

- Terry Kunimune – Chairman & CEO
- Jan Maurits – Vice-Chairman
- Jesse Chen – President
- Greg Gutierrez – VP, Finance
- Michael Hsia – VP, Business Development
- Dan Feinberg – VP, Marketing
- Scott Lam – Corporate Counsel

Industry Experts

- Terry Kunimune has >30 years of polysilicon experience
 - Chairman, CEO and Owner of KIG and PPP
 - Has numerous polysilicon industry contacts with producers and consumers of polysilicon as well as silicon crystal growers, cell and module manufacturers
- Jan Maurits has >40 years of industry experience
 - Involved in construction of 3 poly plants: 100 MTY pilot plant, 1500 & 5000 MTY production plants and 2 plant expansions
 - Polysilicon industry expert with impressive credentials:
 - ◆ Semiconductor Equipment and Materials Institute (SEMI)
 - ◆ Chairman - SOS Committee, Polysilicon Task Force, Silane Standards
 - ◆ American Society for Testing Materials (ASTM), Committee F1.06, Silicon Materials
 - ◆ Electrochemical Society
 - ◆ Chairman - High Purity Silicon Symposium
 - ◆ Semiconductor Safety Association

Our Team - Overview

- We are 50 people; most are experienced chemical engineers
- Our staff have >300 years of combined experience in designing of polysilicon production process and equipment and in polysilicon production plants
- A number of our staff joined us having previous polysilicon plant operational experience
- Two members of our Field Service Team are former polysilicon Plant Superintendents
- Our Field Service Team supports customer projects during facility and equipment commissioning and plant startup
- Multiple customers are operating their plants using our process technology and equipment
- Our team has polysilicon production plant operational experience at the newest plants

"Our skilled, experienced people are our most important asset"

Why Companies Work with Us

- Experience - Plant design & operation
- Client Services – Project consulting, training, plant startup and operation support, plant and equipment troubleshooting and optimization services
- Solutions – Complete plant solutions and plant systems
- Technology - Advanced, proven process technology in use at plants worldwide
- Equipment - State-of-the-art equipment in operation producing high-purity polysilicon
- Intellectual Property – No IP issues using PPP's designs and equipment



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Polysilicon Plant Solutions

PPP's Complete Plant Solution
Guarantees Success

Client Services

- Provide strategic services to potential clients and existing customers
- Strategic planning and consulting services include:
 - Project concept
 - Feasibility study & economic justification
 - Project planning
 - Project financial planning and potential for investment by PPP
 - Recruiting & staffing of project team and plant personnel
 - Project support
 - Project management
 - Construction support
 - Plant ramp-up
 - Troubleshooting & plant optimization
 - Polysilicon material sales
- Our services go beyond engineering; we provide managerial and business consulting services as part of our complete plants solutions

Complete Plant Solution

- PPP's Complete Plant Solution is unique in the industry
- Uses PPP's advanced, proven process technology and equipment
- PPP partners with the EPC company PPP provides to design and engineer the plant customized for each project and site
- PPP's Complete Plant Solution is provided at a fixed price and comes with guarantees for the plant design for nameplate capacity, TCS capacity and yield, output of polysilicon from CVD reactors, and the purity of plant's polysilicon produced

Proven Technology & Equipment

- PPP's advanced, proven process technology & equipment packages are customized for each customer's requirements and plant site
- Our modular packages include:
 - TCS synthesis – Our advanced FBR system offering continuous operation
 - TCS purification – Uses fewer columns providing lower Capex & Opex
 - Polysilicon production - High-yield Chemical Vapor Deposition Reactors
 - Recovery & neutralization - Chlorosilane recovery & neutralization pkg.
 - Advanced Thermal Converters – Proven STC-to-TCS conversion equipment
 - Cold Conversion - Advanced hydrogenation package converts STC-to-TCS
- Our Complete Plant Solutions integrate our modular packages and are customized for each plant/site (e.g. nameplate capacity & poly purity specs)



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Polysilicon Market

The World Needs Poly & Plants

Polysilicon Market Potential

Solar Energy as a % of World Wide Electricity Demand

- According to Energy Information Administration –
 - Worldwide electrical energy use in 2004: 14.7 trillion Kwhr
 - Worldwide electrical energy use in 2015: 21.7 trillion Kwhr
- If photovoltaics (PV) are to provide just 1% of the world's electrical energy demand by 2015, the amount of polysilicon required (assuming 8 metric tons per megawatt) will be 1.76 million metric tons (MT)
- In 2007 photovoltaics accounted for an estimated 0.04% of worldwide electrical power generation (per IC Knowledge LLC; October 2009)
- Current worldwide production is less than 50,000 MTY
- Producing 1.76 million MT of polysilicon requires 176 plants each with a 10,000 MTY capacity. There are currently only 2 operating plants that size

Industry Analyst's View of the Market

- Jesse Pichel of Piper Jaffray is a leading polysilicon industry analyst
- Jesse said, "The industry could grow 30 to 40 percent a year for the next 20 years and it still won't amount to (much) in terms of energy production."
- "If solar is going to be anything other than a (small) industry, the world needs 100 more polysilicon plants and multi-gigawatts more of production."



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Project Information

Polysilicon Production Plants

Tianwei Sichuan Silicon-Tech Project

- 3200 MTY nameplate capacity
- Plant site in Sichuan Province, China
- 2nd phase expansion project
- PPP provided equipment & engineering package including:
 - 16 advanced CVD Reactors
 - 8 STC-to-TCS Thermal Converters,
 - Power supplies, transformers
 - Operator and safety instruction and plant startup support



Leshan Ledian Tianwei Silicon-Tech

- 3200 MTY nameplate capacity
- Plant site in Sichuan Province, China
- 3rd phase expansion project
- PPP provided equipment and engineering package including:
 - 16 high productivity, advanced Chemical Vapor Deposition Reactors
 - 8 STC-to-TCS Thermal Converters,
 - Power supplies and transformers
 - Operator and safety instruction and plant startup support.



Hankook Silicon Project

4800 MTY plant in Korea; PPP provided:

- Advanced process technology packages for production and purification of high-purity trichlorosilane (TCS) and integration of equipment
- Fluid Bed Reactor system for TCS synthesis, Chemical Vapor Deposition Reactors for polysilicon production, STC-to-TCS Thermal Converters for recycling, power supplies and transformers for Reactors & Converters, graphite elements
- Expert operator/safety instruction, equipment and plant commissioning and plant startup support



Other Projects

Confidential Client

- 1600 MTY at a plant site in Yunnan Province, China
- Complete plant solution including advanced process technology, basic and detailed engineering, equipment packages, project management, operator and safety instruction and plant & equipment startup support.

Dalu Semi-conductor Material Co.

- 2800 MTY; plant site in Inner Mongolia, China
- Engineering and equipment package including CVD Reactors, STC-to-TCS Thermal Converters, power supplies, transformers, and operator and safety instruction and plant startup support.

Confidential Client

- 3000 MTY; plant site in the Middle East
- Complete plant solution including advanced process technology, basic and detailed engineering, equipment packages, project management, operator and safety instruction and plant & equipment startup support.

Let's Get Started

- Would you like to find out more?
- Do you have questions you'd like answered?
- Want to talk about how Poly Plant Project can help you build your polysilicon production plant?
- For more information contact us at info@PolyPlantProject.com or use the contact information on the next slide

Thank You

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