

RECSiLICON



SECOND QUARTER 2019

PRESENTATION

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Agenda

Q2 Financial Results

Financial Review

Market Outlook

Silicon Gas & EG Polysilicon

China Tariff Update

Moses Lake's Future

Yulin JV

Short-Term Business Plan

Q&A

Highlights

Revenues: \$47.0M

EBITDA: \$ 0.5M

June 30, 2019 cash balance of \$38.4M

- Cash increase of \$13.0M
- Net proceeds from private placement of equity \$19.1M
- Cash outflows from operations (\$4.0M)
 - Working capital decrease of \$3.2M

Silicon Gas sales

- Sales volume of 834MT
- 3.0% Silane Gas price increase vs. Q1'19

Successful completion of private placement of equity

- Settled on May 14, 2019
- NOK 170 million in gross proceeds (254,381,870 shares at NOK 0.67)

Shutdown of Moses Lake FBR facility

- \$20M additional impairment of assets
- Curtailment of FBR production on May 15, 2019
- Workforce reduction announced on July 15, 2019
- Long-term shutdown until access to China polysilicon market is restored or other significant positive developments in solar grade polysilicon markets occur

Key Metrics

Polysilicon Sales Volume **

Total	2,090MT
Inventory Decrease	1,110MT

FBR Production

Actual	679MT
Guidance*	620MT
Deviation	9.5%

FBR Production Cost

Actual	\$18.5/kg
Guidance*	\$16.7/kg
Deviation	10.8%

Total Polysilicon Production

Actual	980MT
Guidance*	980MT
Deviation	-0.2%

Semiconductor Production

Actual	216MT
Guidance*	220MT
Deviation	-1.9%

Silicon Gases Sales Vol.

Actual	834MT
Guidance*	960MT
Deviation	-13.2%

* Guidance Presented May 9, 2019

** Excludes Fines and Powders

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Financial Review

Summary of Segments

(USD million)	Q2 2019		Q1 2019		2018	
	Revenues	EBITDA	Revenues	EBITDA	Revenues	EBITDA
Solar Materials	12.2	(9.4)	12.9	(7.4)	69.2	(26.6)
Semiconductor Materials	34.8	15.2	32.2	9.2	152.9	52.2
Other	0.0	(5.3)	-	(6.5)	-	(30.0)
Eliminations	-	-	0.0	0.0	(0.9)	(0.5)
REC Silicon Group	47.0	0.5	45.0	(4.7)	221.2	(4.9)

› Implementation of IFRS 16 – Leases

- Effective date January 1, 2019
- Increased EBITDA equal to lease payments classified as finance leases
- Recognition of interest expense (imputed)
- Right of use assets depreciated over lease term

(USD million)	EBITDA Impact (IFRS 16 Leases)	
	Q2 2019	2019
Solar Materials	1.8	7.2
Semiconductor Materials	1.4	5.5
Other	0.0	0.0
Eliminations	-	-
Total Impact of IFRS 16	3.2	12.7

Key Financial Results

Solar Materials

Revenues: \$12.2M (5.0% decrease vs. Q1'19)
EBITDA contribution: (\$9.4M) Loss

- > Polysilicon sales volumes 1,738MT (0.2% decrease vs. Q1'19)
 - (4.8%) Average price decrease vs. Q1'19
 - (6.9%) Prime grade solar price decrease vs. Q1'19

Semiconductor Materials

Revenues: \$34.8M (8.2% increase vs. Q1'19)
EBITDA contribution: \$15.2M

- > Polysilicon sales volumes 352MT (34.2% increase vs. Q1'19)
 - (18.3%) Average price decrease vs. Q1'19
 - 4.3% Semiconductor grade price increase vs. Q1'19
- > Silicon gas sales volumes 834MT (0.6% increase vs. Q1'19)
 - 3.0% Silane price increase vs. Q1'19

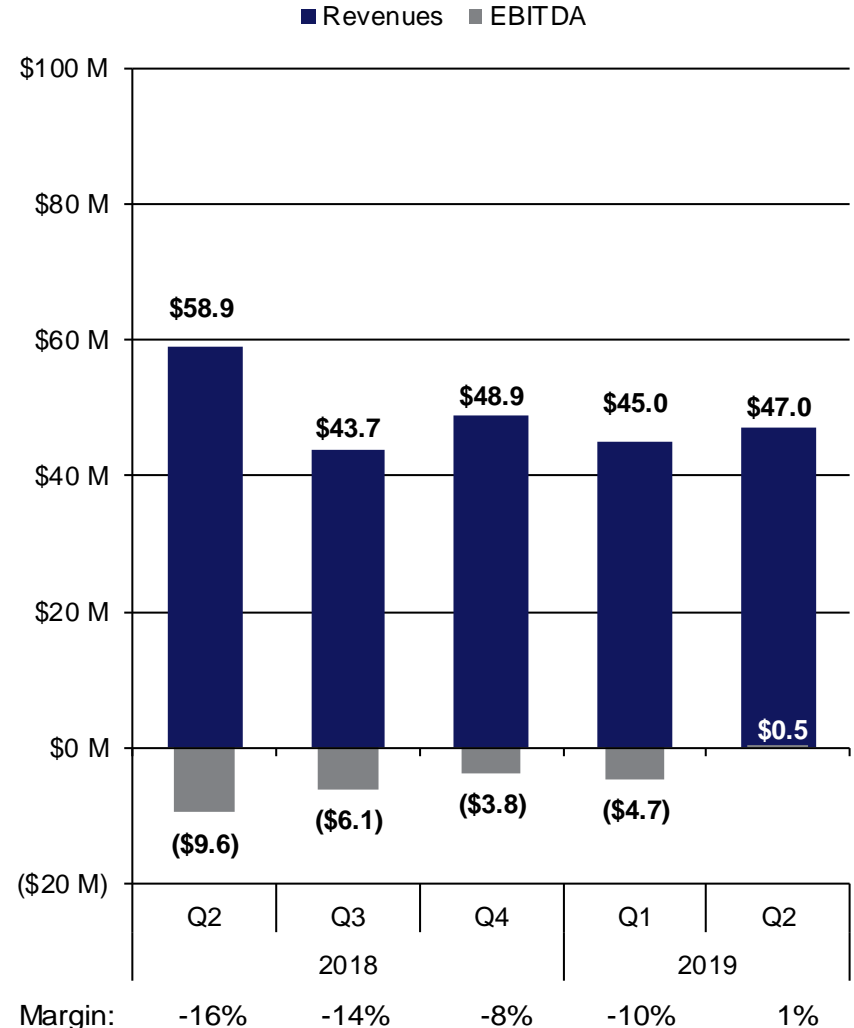
Other and Eliminations

Net cost: (\$5.3M) (compared to \$6.5M in Q1'19)

EBITDA of \$0.5M

Compared to Q1'19 EBITDA loss of (\$4.7M)

- > Low electricity costs (Q2'19 average ~\$19/MW)
- > Lower FBR production due to shut-down on May 15, 2019



Cash Flows

Cash outflows from operating activities (\$4.0M)

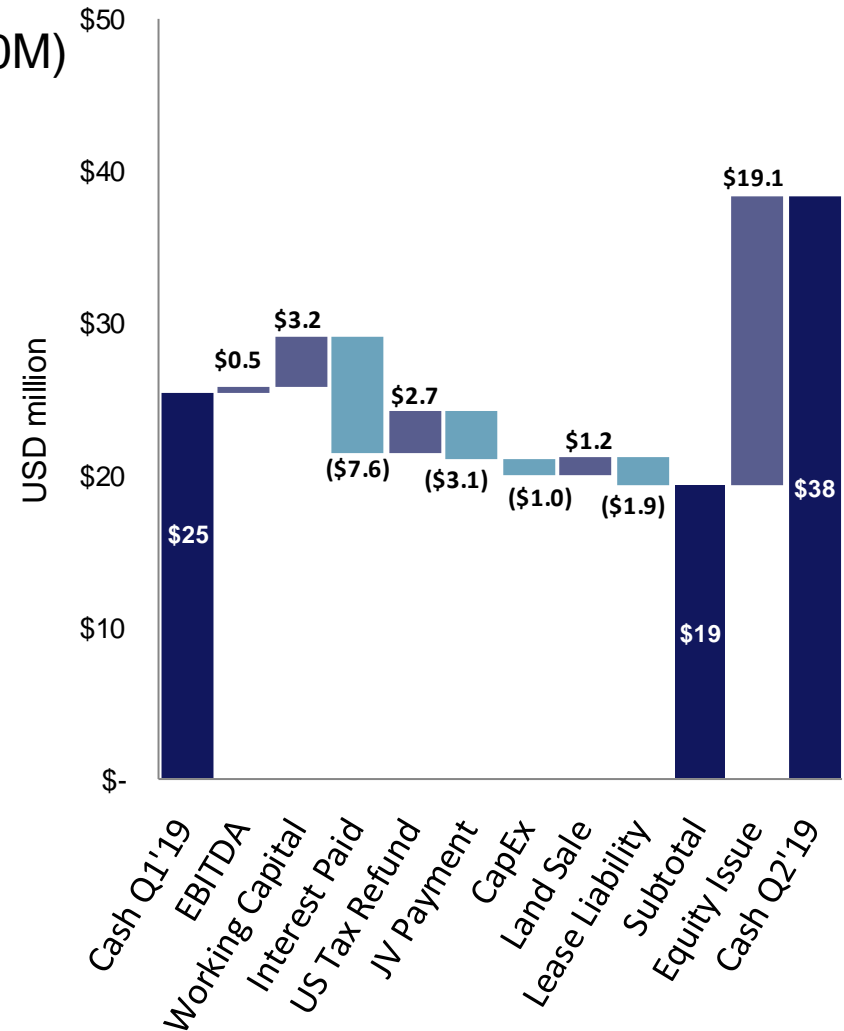
- › EBITDA of \$0.5M
- › Working capital decrease \$3.2M
 - Decrease in inventories \$7.0M
 - Increase in receivables (\$1.8M)
 - Decrease in payables (\$2.0M)
- › Interest paid (\$7.6M)
- › U.S. tax refund \$2.7M
- › JV equity settlement payment (\$3.1M)
- › Currency gain of \$0.5M (weaker USD vs. NOK)
- › Other (\$0.1M)

Cash outflows from investing activities (\$0.2M)

- › Capex (\$1.0M)
- › Land sale \$1.2M
- › Increase in restricted cash (\$0.3M)

Cash inflows from financing activities \$17.1M

- › Payment of lease liabilities (\$ 1.9M)
- › Proceeds from equity issue \$19.1M



Debt

Nominal debt - \$184.9M

- › Increase of \$23.8M in Q2'19
 - \$23.6M Increase in Lease Liabilities (IFRS 16)
 - \$0.2M Due to weaker USD relative to NOK

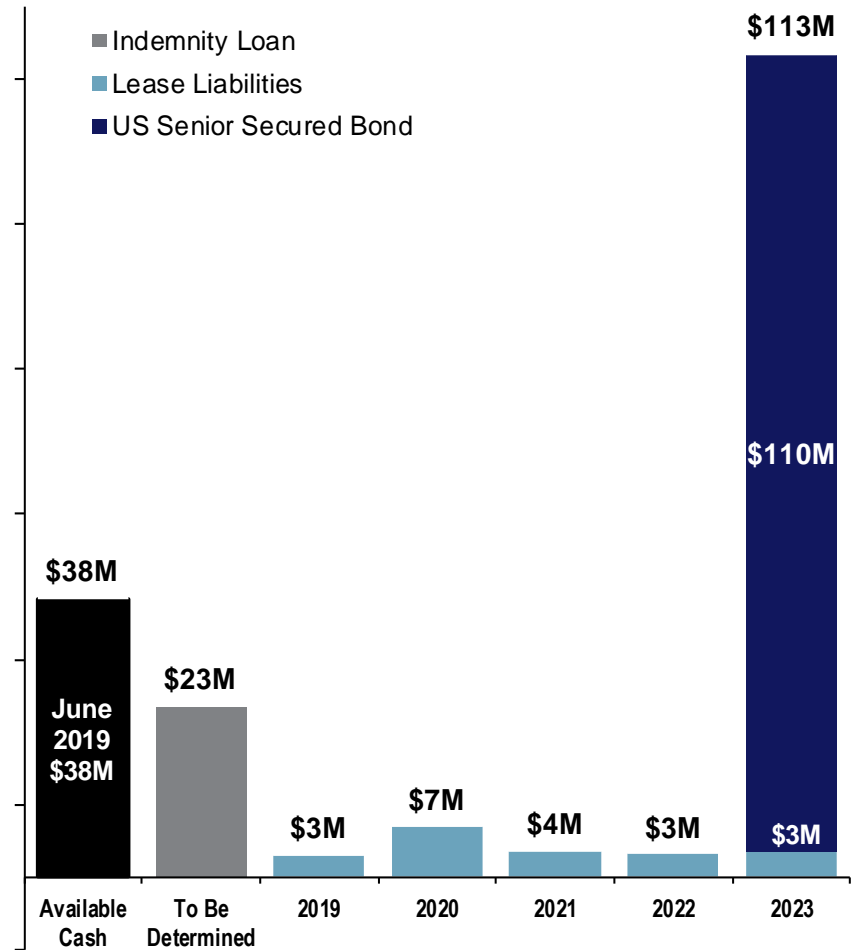
Nominal net debt - \$146.6M

- › Increase of \$10.9M in Q2'19
 - Increase in cash of \$13.0M
 - Increase in nominal debt of \$23.8M

Contingent Liabilities

- › Reassessment of tax - \$30.0M
- › Indemnity loan - \$23.5M
- › 2012 Property tax appeal - \$7.7M

USD Million



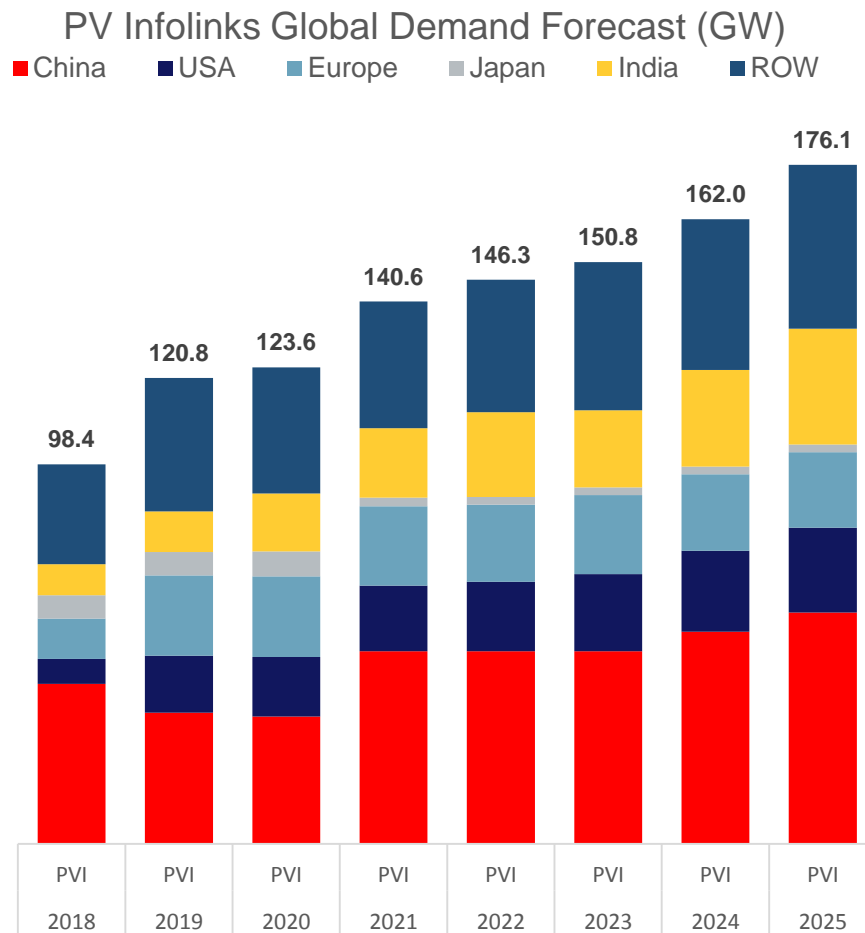
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Market Outlook

Global PV Module Demand Forecast: 2018 - 2025

- › 2019 Global demand forecasted to be ~120 GW which is a ~20% increase from 2018
- › Europe, USA and ROW is the main driver for growth in 2019
- › A continuous growth in PV installations is expected for the next 5 years

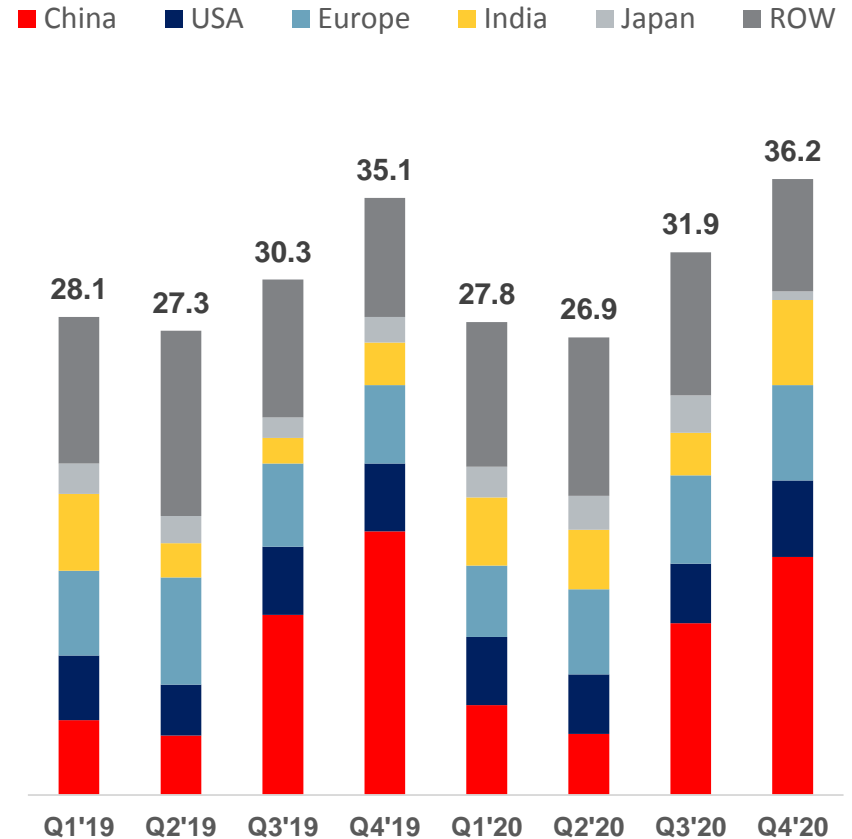


Source: PV Infolink - Database July 2019

Quarterly Installation Estimates: 2019 – 2020

- › Forecasting strong 2H/2019 after China policy clarity
- › China 2H/2019 installation is forecast estimated to be 25-30GW
- › Europe 2H/2019 ~10GW
- › U.S. 2H/2019 ~8GW

PV Infolinks Global Module Demand by Quarter



Source: PV Infolink - Database July 16, 2019



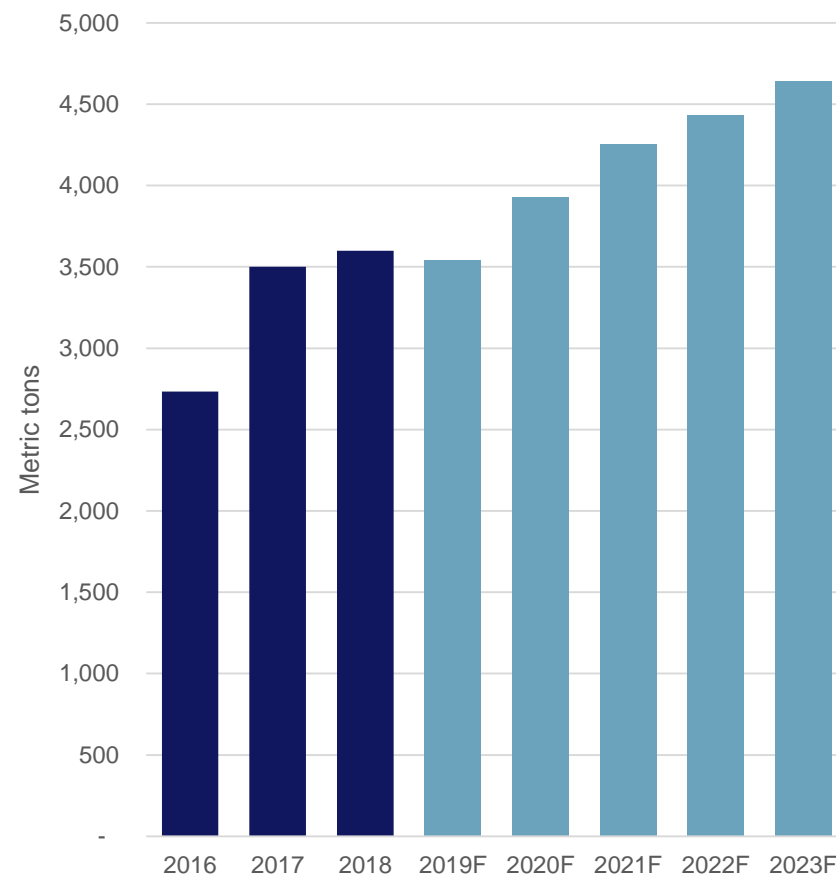
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SILICON GAS &
EG POLYSILICON

Silicon Gas Sales Forecasted to Increase in H2/2019

- › Silicon gas sales
 - Sales volume of 834MT versus 829MT in Q1'19
- › Silicon gas sales lower than guidance
 - Inventory control due to demand uncertainty
 - Reduced demand of PV requires less volume of Silane
 - “Buy China” sentiment due to China tariffs
 - 3.0% Silane Gas price increase vs. Q1'19 due segment product mix
- › Forecast of 900MT in Q3'19
 - Inventory replenishment
 - Increased activity in the PV sector

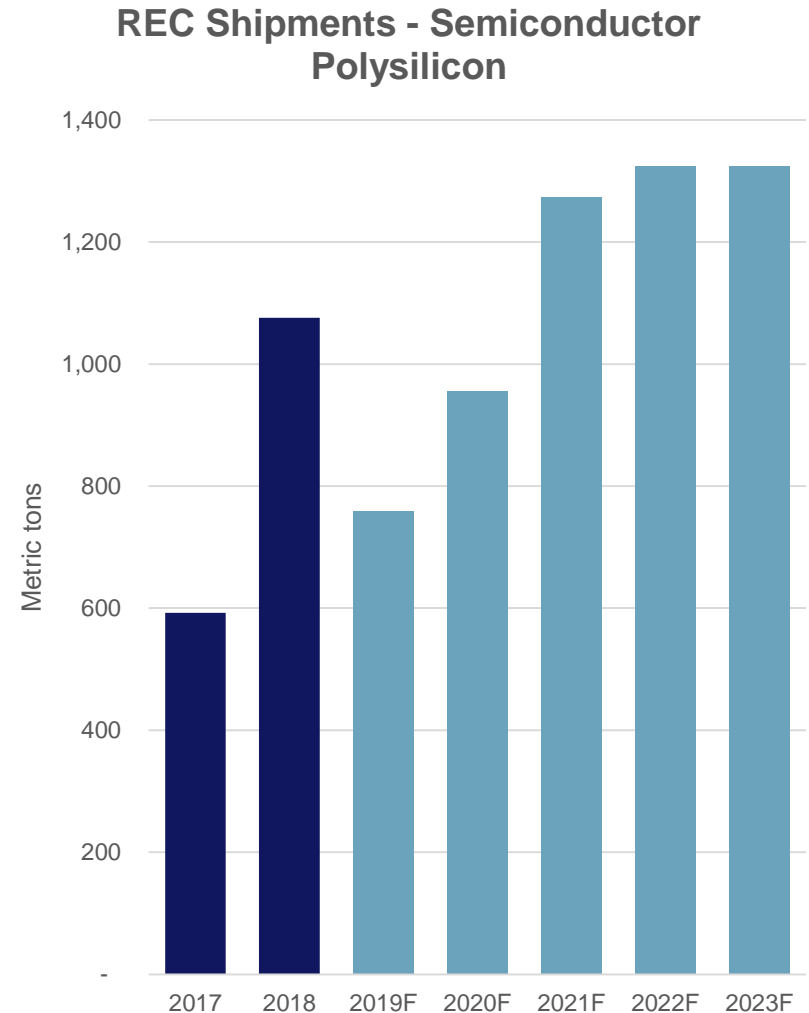
REC Shipments - Silicon Gases



Semiconductor Grade Polysilicon (Market Uncertainty Persists)

SECOND
QUARTER
2019

- › Semiconductor polysilicon sales
 - Total polysilicon sales from Butte was 352MT (34.2% increase vs. Q1'19)
 - (18.3%) Average price decrease vs. Q1'19
 - 4.3% Semiconductor grade price increase vs. Q1'19
- › Uncertainty in semiconductor market
 - Demand is normally correlated very closely with global GDP
 - China weakness
 - Delay of incremental capacity additions and associated qualifications in order to balance inventories with demand
- › Focus on high end semiconductor polysilicon
 - Only 2 companies able to make Float Zone
 - Production of Float Zone will reduce volume but contributes higher margins
 - Production will be managed based on customer orders




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CHINA TARIFF UPDATE

Polysilicon is a U.S. Government Priority

- › US/China trade negotiations have resumed following G-20 in Osaka
 - In-person meetings scheduled in Beijing on July 30, 2019
- › Uncertainty around timeline for a resolution
- › US government committed to prioritize the U.S. polysilicon industry in trade negotiations



Senator Daines, Montana: “U.S. polysilicon industry has been targeted by China and retaliatory tariffs are threatening manufacturing jobs at REC Silicon.... **Is removing these tariffs on U.S. polysilicon a priority / will you work to address them as negotiations with China continue?**”



The Honorable Robert Lighthizer: “Yes, it’s something we’ve raised on numerous occasions and will continue to raise. You know the background. What we think of as an unfair retaliatory AD case brought against those products by the Chinese. **Something we’ve raised and will continue to raise. If we find ourselves with an agreement, we expect this to be part of it.**”

U.S. Senate Finance Committee June 18, 2019

Polysilicon is Foundational to Growth Industries

- › REC is actively exploring options in coordination with the USG to re-open markets for U.S.-made Polysilicon
- › Polysilicon is important for future economic growth, it is foundational to Semiconductor, Solar & in future Li ion Battery's/Electric Vehicles
- › REC Silicon is the only U.S. producer of Silane Gas which will be a critical material for Li ion Battery
- › “Made in China 2025” and the reliance on China is a growing concern globally



Rubio Releases Report Outlining China's Plan for Global Dominance and Why America Must Respond

FEB 12 2019

Washington, D.C. – U.S. Senator Marco Rubio (R-FL), Chairman of the Senate Committee on Small Business and Entrepreneurship, today released a report titled “[Made in China 2025 and the Future of American Industry](#).” The report outlines the challenges posed by China’s whole-of-state industrial planning for America’s prosperity and productivity, including the jobs and wages of American workers and small businesses. It also lays out policy recommendations to strengthen the American economy against its rivals by increasing high-value, high-labor production in the United States.

Source: Marco Rubio US Senator for Florida Web Site, Press Releases



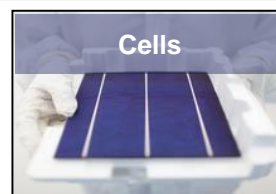
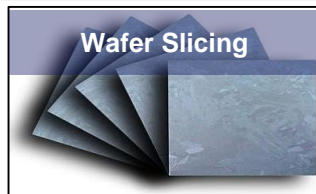
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The future of the
Moses Lake FBR
Facility

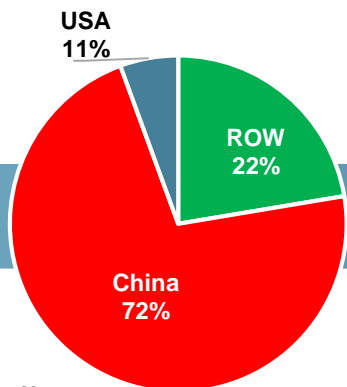
The PV Manufacturing Value Chain-

China has almost a Monopoly except within Polysilicon and Solar Module capacity

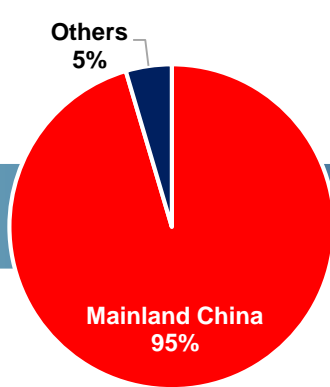
U.S. Market Share	11%	0%	0%	1%	3%
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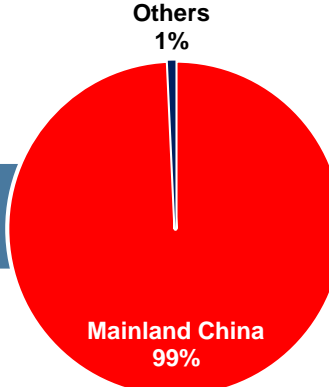
PV Grade Polysilicon Capacity



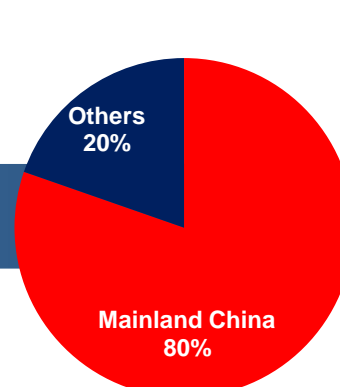
Solar Ingot Capacity



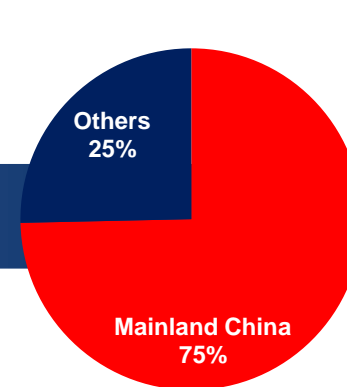
Solar Wafer Capacity



Solar Cell Capacity



Solar Module Capacity






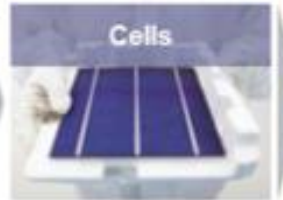


Note:

- All figures based on 2019
- "Others" consists of mainly South Korea, Taiwan, India, Vietnam, Malaysia

Sources:

Polysilicon: PV Infolink - Database dated April 23, 2019
 Ingot, Wafer, Cell, and Module: BNEF, REC Silicon Data Base, Bloomberg

U.S. has Several Tariffs Layered on Imported PV Cells and Modules 2019

U.S. Market Share	6%	11%	0%	1%	3%	13%
						
201	0%	0%	0%	2.5GW without Tariff then 25%	25% Tariff	
301				25%	25%	
AD/CVD	~140%			~30%	~30%	

- › Section 201: All non-U.S. manufactured cells and modules (certain cell technologies exempt from tariff)
- › Section 301: China manufactured cells and modules
- › AD/CVD: China manufactured MGS, cells and modules

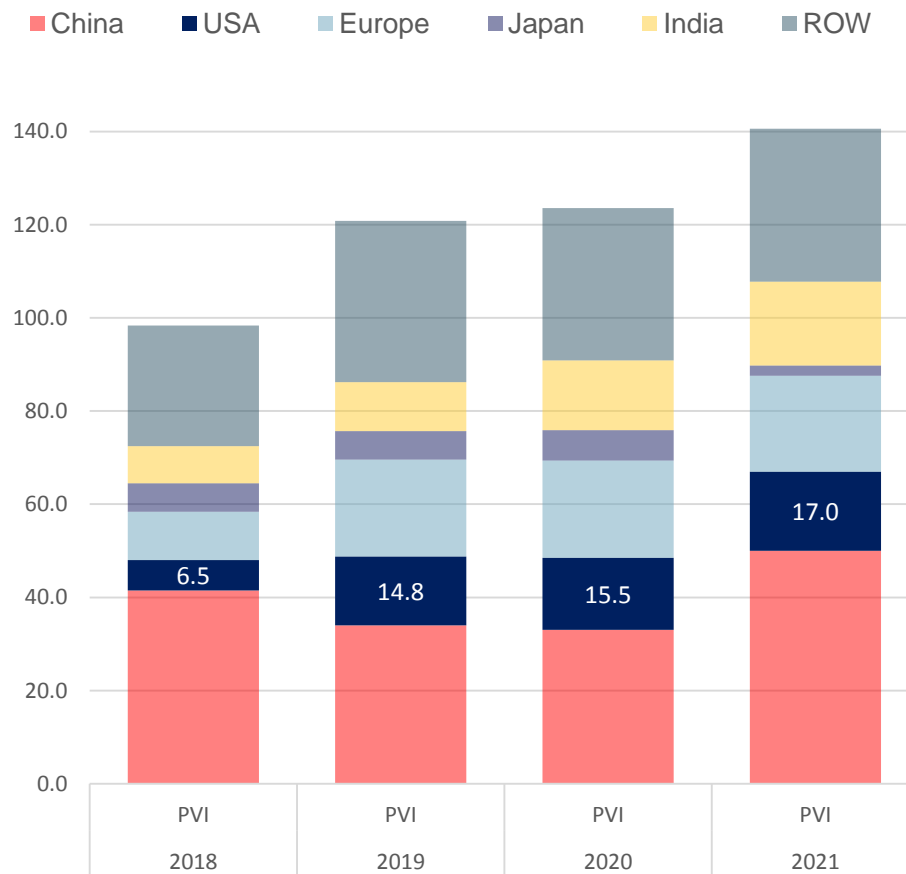
Sources:
REC Silicon Data Base, Bloomberg

The U.S. is Globally the 2nd Largest Market for PV

U.S. Polysilicon Unable to Access the Solar Market Due to Unfair Chinese Trade Practices

- › The U.S. PV market is estimated ~15GW in 2019
 - Requires ~60,000MT of Polysilicon
 - The US Polysilicon capacity ~ 80,000MT
- › The U.S. Polysilicon industry is competitive
- › U.S Polysilicon is blocked from its domestic market as a result of China's domination of ingot and wafer manufacturing due to unfair policies
- › U.S. Polysilicon makers should be able to access the U.S. market when Solar continues to grow in the U.S. and receive policy support

Global Demand Forecast (GW)



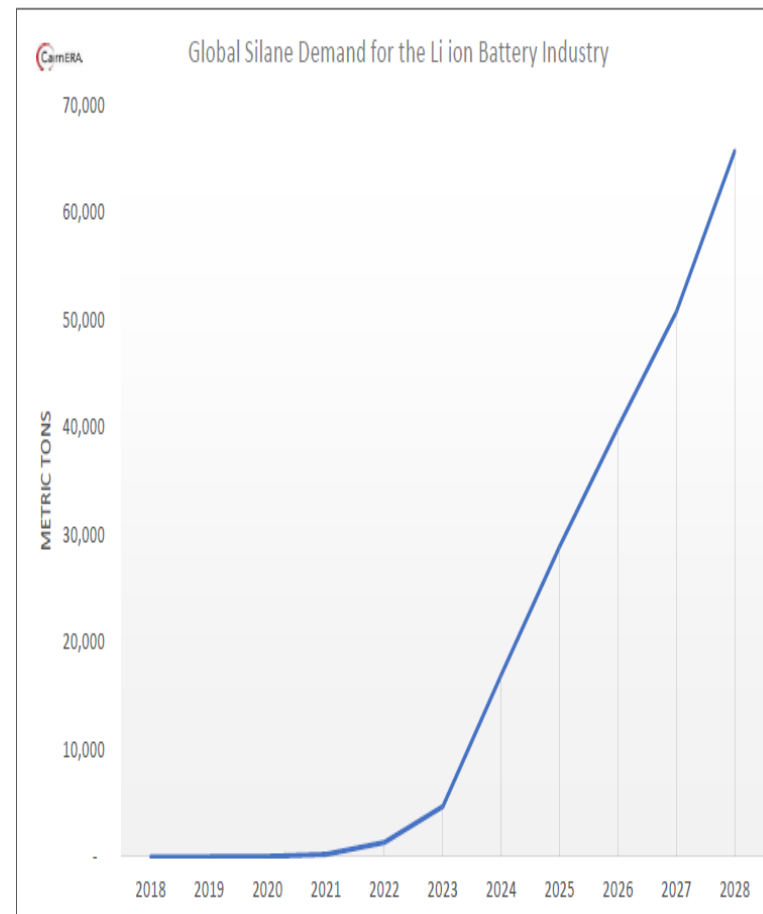
Source: PV Infolink - Database July 2019

Silicon in Anodes Increases Capacity and Reduce Cost

2019

Why Put Silicon Into Li ion Batteries?

- › Improves energy density thereby reducing the weight of the Battery pack as well as the cost of the Battery
- › Dramatically increases the power acceptance of the Battery which allows much faster charging of Battery packs.
- › A Li ion Battery with an Anode comprised of 15% Si and 85% Graphite improves energy density by one third (from 220 Wh/KG to over 300 Wh/KG)
- › However the average price for the same Li ion Battery would drop from \$140 per kWh to ~\$98/kWh



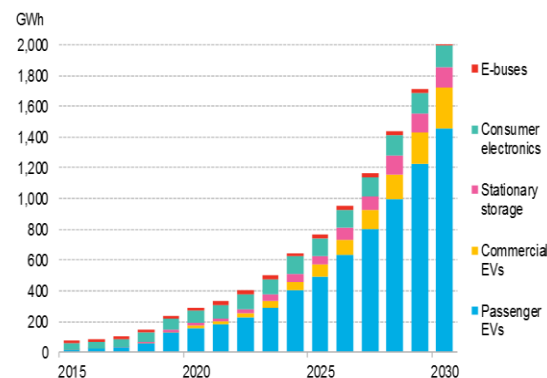
Source: Cairn ERA

Silane Gas- The Preferred Source of Silicon in Anodes

- › Silicon (1-3%) already in use in the anodes for batteries in the electronic industry
 - Target 30% within 5 years.
- › Electric vehicles will be the main driver
- › The global anode market could be \$10B in 2025
- › Silane Gas considered to be the best source of silicon
- › REC Silicon working closely with the most advanced R&D anode companies

Executive summary

Figure 14: Annual lithium-ion battery demand



Source: BloombergNEF, Avicenne.

11 May 15, 2019

BloombergNEF

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Yulin JV Update



Yulin, China – REC Silicon Presence in Primary Market

2019

Plant characteristics

- › Construction completed in 2018
- › Large scale silicon manufacturing facility with
 - 19,000 MT FBR-B granular Polysilicon
 - 300MT Siemens semiconductor grade Polysilicon
 - 500MT Silane Gas loading

Positioned to capitalize on growing PV industry

- › Located in principal market – China
- › FBR-B is semiconductor grade capable which is optimal for monocrystalline PV applications
- › Current REC ownership of 15%, option to increase exposure to 49% from January 2021



Near Term Outlook

- › Unplanned outage in Silane unit reduced production in H1/2019 – 2,400 metric ton produced
- › Production is expected to increase throughout H2 2019
- › The Silane units and the FBR reactors have demonstrated design capacities



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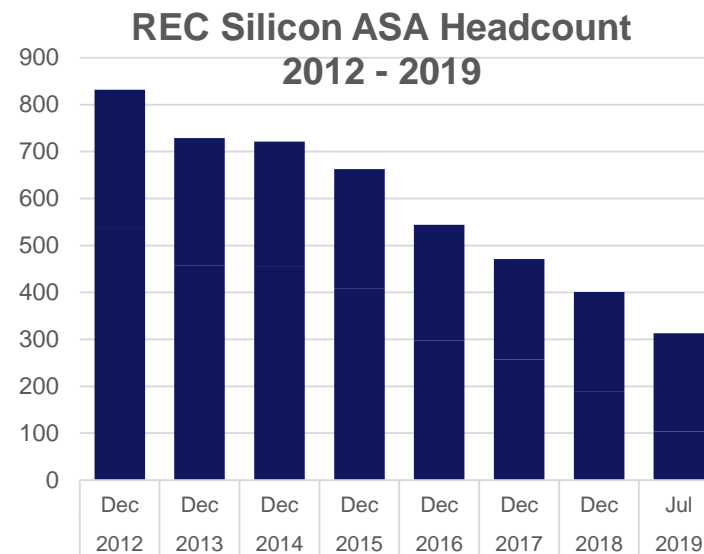
Short-Term Business Plan

Short Term Business Plan for REC Silicon

- › Moses Lake FBR production curtailed on May 15, 2019
 - Organizational adjustment in Moses Lake July 15th, 2019
 - Preserve option value at minimal cost

- › Continue to operate stable and profitable Butte facility
 - Annual EBITDA contribution of USD ~50M
 - Minimal capex requirements to maintain facility – consistent cash flow contribution

- › Long term neutral cash flow in current market conditions

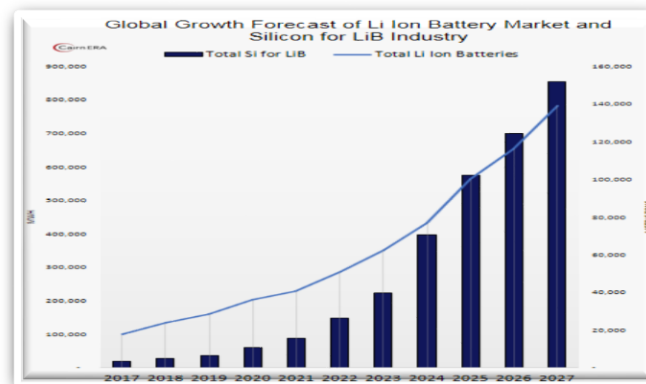
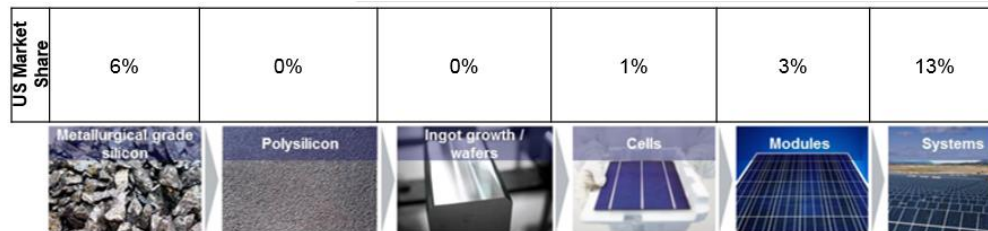


REC Silicon's Long Term Strategy for Moses Lake

- › Re-opening of China markets
 - 100% FBR Utilization
 - Cash cost of ~\$8/kg
 - Higher polysilicon prices

- › Establish a Solar value chain which is independent of China
 - Re-open markets & establish new markets for U.S. produced Polysilicon
 - New Solar markets are rapidly developing and an alternative supplier to the China monopoly is required

- › The Battery market
 - Substantial increase in demand for Silane expected



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Guidance

Updated 2019 Guidance

FBR Production **	
Q3	0MT
Q4	0MT
2019	1,770MT

FBR Cash Cost **	
Q3	N/A
Q4	N/A
2019	\$21.3/kg

Total Polysilicon Production	
Q3	340MT
Q4	310MT
2019	3,138MT

Semiconductor Production	
Q3	220MT
Q4	200MT
2019	920MT

Silicon Gas Sales	
Q3	900MT
Q4	900MT
2019	3,463MT

2019 CapEx *	
Maintenance	\$3M

* Additions to Property Plant and Equipment
 ** Reflects shutdown of FBR on May 15, 2019

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Q3 2019 Reporting
October 30, 2019

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