



RECSILICON



FIRST QUARTER
2019

PRESENTATION

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Agenda

Q1 Financial Results

Financial Review

Market Outlook

Trade Update

Yulin JV Update

Long-term Market Development

Short Term Business Plan

Q & A

Highlights

Revenues: \$45.0M
EBITDA: (\$ 4.7M) Loss

March 31, 2019 cash balance of \$25.4M

- Cash decrease of (\$6.4M)
- Cash outflows from operations (\$3.5M)
 - Excludes lease payments of \$3.4M
- Working capital decrease of \$2.0M

FBR production costs of \$13.5/kg

- FBR capacity utilization ~25%
- Depreciation of leased assets of \$1.5/kg
- FBR production volume of 1,091MT (vs. target of 1,180MT)

Silicon gas sales

- Sales volume of 829MT (vs. guidance of 850MT)
- 3.3% Silane gas price decrease vs. Q4'18

Successful private placement of equity

- Completed on April 9, 2019 (settlement expected in May)
- NOK 170 million in gross proceeds (254,381,870 shares at NOK 0.67)

Curtailment of FBR production on May 15, 2019

- Long-term shutdown by June 30, 2019 if access to China polysilicon markets is not restored
- Continue to operate stable and profitable Butte facility
- Long term neutral cash flows in current market conditions

Key Metrics

Polysilicon Sales Volume **

Total	2,004MT
Inventory Decrease	496MT

FBR Production

Actual	1,091MT
Guidance*	1,180MT
Deviation	-7.5%

FBR Production Cost

Actual	\$13.5/kg
Guidance*	\$12.8/kg
Deviation	5.7%

Total Polysilicon Production

Actual	1,508MT
Guidance*	1,630MT
Deviation	-7.5%

Semiconductor Production

Actual	285MT
Guidance*	290MT
Deviation	-1.8%

Silicon Gases Sales Vol.

Actual	829MT
Guidance*	850MT
Deviation	-2.4%

* Guidance Presented February 12, 2018

** Excludes Fines and Powders

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Financial Review

Summary of Segments

(USD million)	Q1 2019		Q4 2018		2018	
	Revenues	EBITDA	Revenues	EBITDA	Revenues	EBITDA
Solar Materials	12.9	(7.4)	9.9	(9.1)	69.2	(26.6)
Semiconductor Materials	32.2	9.2	39.0	11.0	152.9	52.2
Other	-	(6.5)	-	(5.6)	-	(30.0)
Eliminations	0.0	0.0	(0.0)	(0.0)	(0.9)	(0.5)
REC Silicon Group	45.0	(4.7)	48.9	(3.8)	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)	
	Q1 2019	2019
Solar Materials	1.8	7.2
Semiconductor Materials	1.6	6.6
Other	0.0	0.0
Eliminations	-	-
Total Impact of IFRS 16	3.4	13.8

Key Financial Results

Solar Materials

Revenues: \$12.9M (30.2% Increase vs. Q4'18)

EBITDA Contribution: (\$7.4M) Loss

- › Polysilicon sales volumes 1,742MT (37.2% increase vs. Q4'18)
 - (1.3%) Average price decrease vs. Q4'18
 - (0.6%) Prime grade solar price decrease vs. Q4'18

Semiconductor Materials

Revenues: \$32.2M (17.6% Decrease vs. Q4'18)

EBITDA Contribution: \$9.2M

- › Polysilicon sales volumes 262MT (37.6% decrease vs. Q4'18)
 - 1.8% Average price Increase vs. Q4'18
 - 16.8% Semiconductor grade price increase vs. Q4'18
- › Silicon gas sales volumes 829MT (9.8% decrease vs. Q4'18)
 - (3.3%) Silane price decrease vs. Q4'18

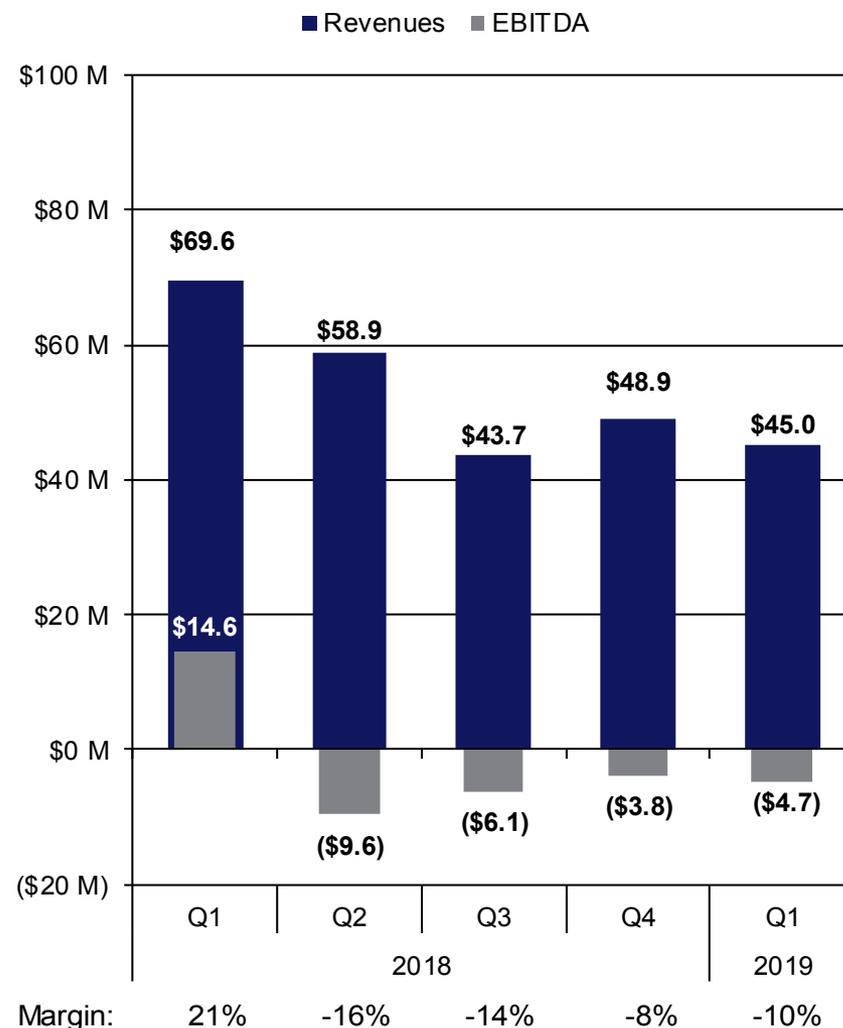
Other and Eliminations

Net cost: (\$6.5M) (compared to \$5.6M in Q4'18)

EBITDA Loss of (\$4.7M)

Compared to Q4 EBITDA loss of (\$3.8M)

- › IFRS 16 implementation \$3.4M lower expense
- › Historically high electricity costs
- › Higher FBR sales volumes – lower prices
- › Lower silicon gas sales volumes and prices



Cash Flows

Cash outflows from operating activities (\$3.5M)

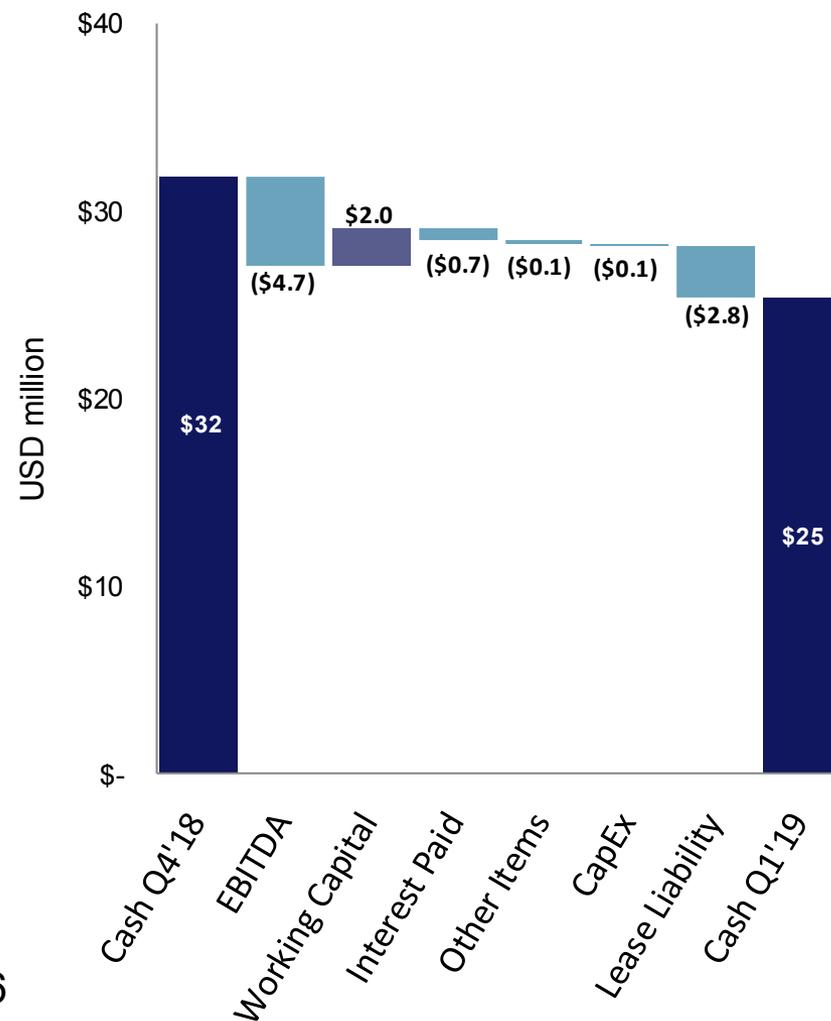
- › EBITDA - loss of (\$4.7M)
- › Working capital decrease \$2.0M
 - Increase in inventories (\$0.3M)
 - Decrease in receivables \$2.0M
 - Increase in payables \$0.2M
- › Interest paid (\$0.7M) – IFRS 16 leases
- › Other (\$0.1M)

Cash outflows from investing activities (\$0.1M)

- › Capex (\$0.1M)

Cash outflows from financing activities (\$2.8M)

- › (\$2.8M) Payment of Lease Liabilities – IFRS 16



Debt – March 31, 2019

Nominal debt - \$161.1M

- › Increase of \$28.1M in Q1'19
 - \$27.9M Increase in Lease Liabilities (IFRS 16)
 - \$0.3M Due to weaker USD relative to NOK

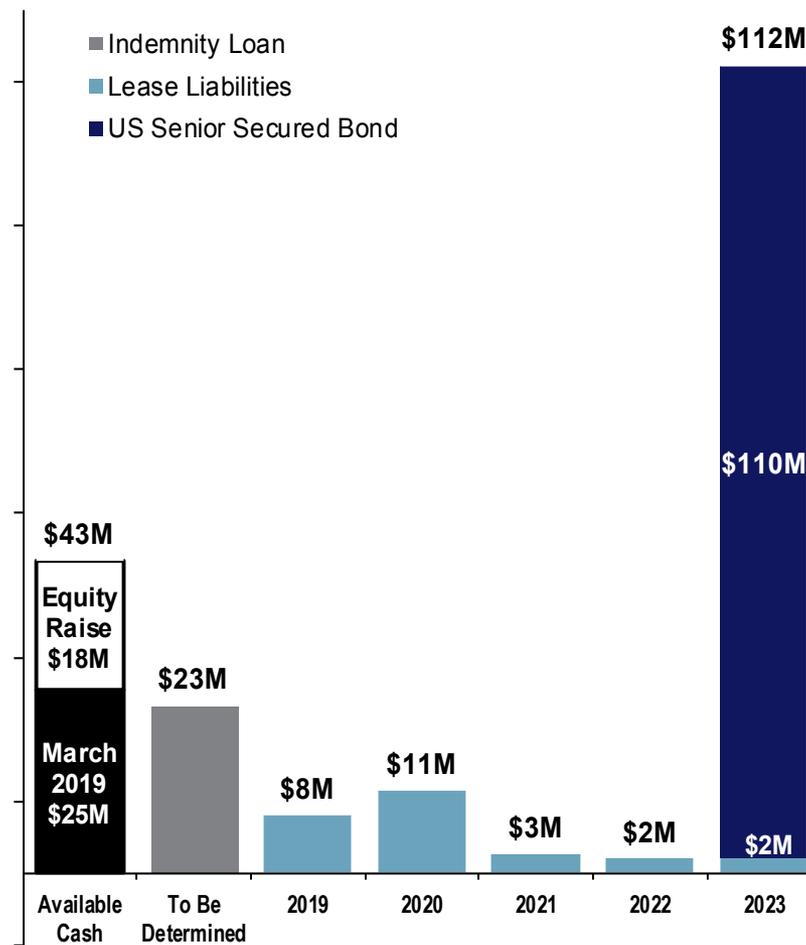
Nominal net debt - \$135.8M

- › Increase of \$34.6M in Q1'19
 - Decrease in cash of \$6.4M
 - Increase in nominal debt of \$28.1M

Contingent Liabilities

- › Reassessment of tax - \$30M
- › 2012 Property tax appeal - \$7.7M

USD Million



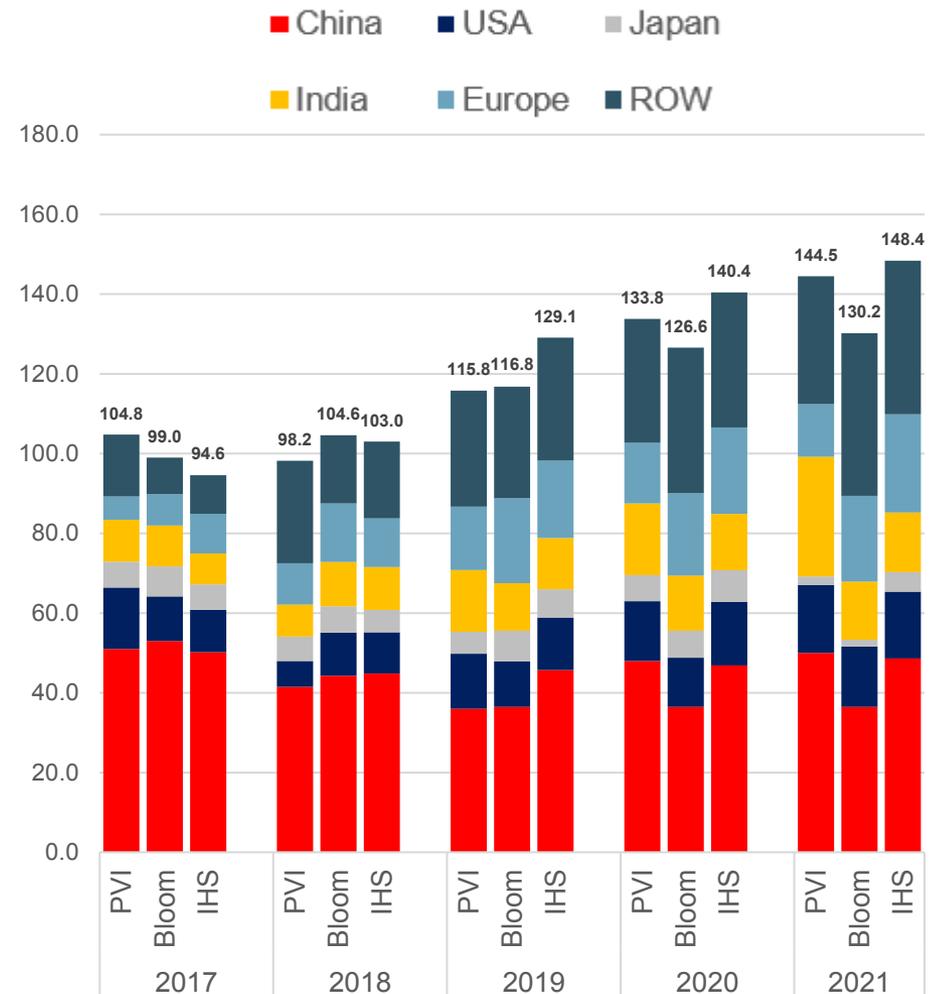
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Market Outlook

Global Installations 2017-2021

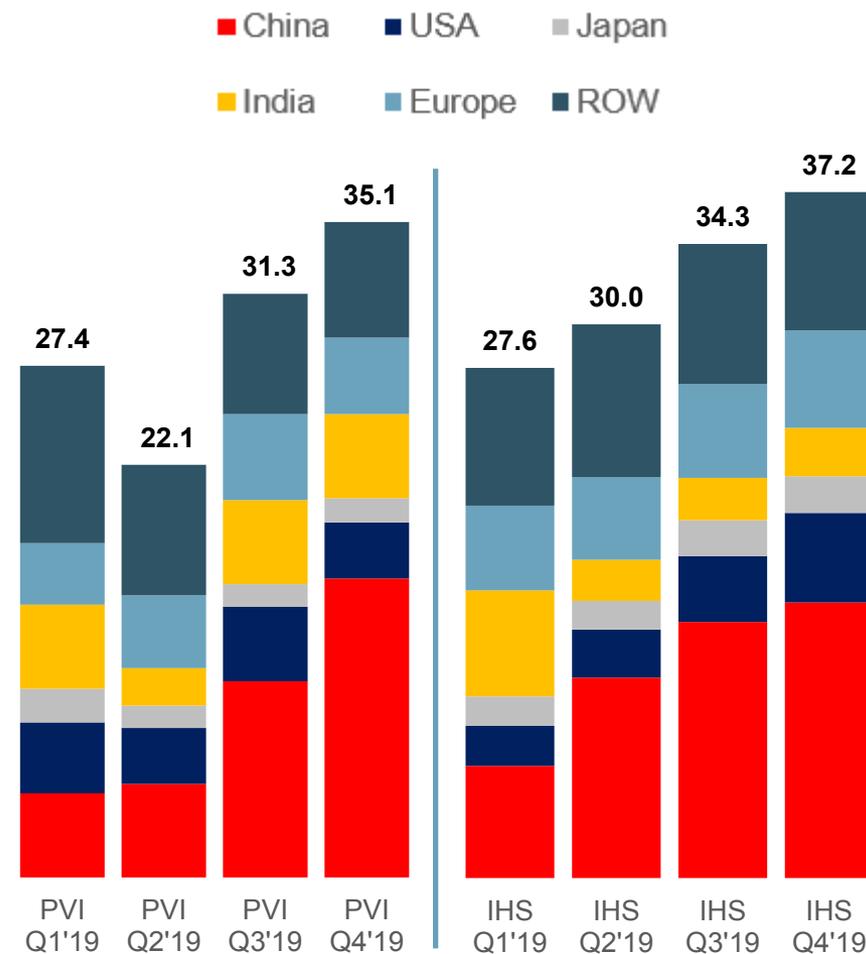
- › 2017 to 2018 growth was relatively flat
 - China declined by ~ 10%
- › Global 2019 installation
 - 115-125GW
- › Global Installations outside China increase by ~40%



Source: PV Infolink - Database April 23, 2019; BNEF, IHS Markit PV Installations Tracker March 15, 2019

Quarterly Installations in 2019 by Region

- › China driving 2H demand
 - China 35-45GW in 2019
- › USA installations remain steady
- › Europe strong growth in 2019
- › India declining through the year
 - Fiscal year ends March 31

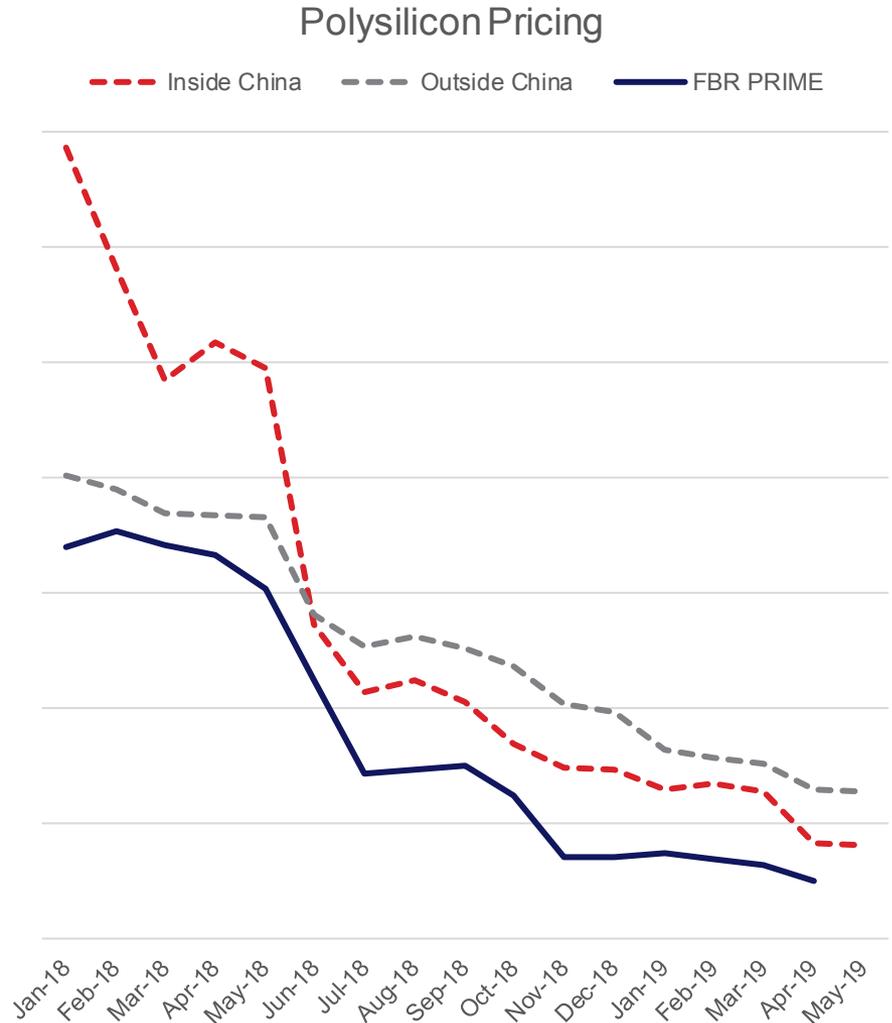


Source: PV Infolink - Database April 23, 2019; Bloomberg PV Market Outlook, Q1 February 21, 2019, IHS Markit PV Installations Tracker March 15, 2019

Continued Pricing Pressure on Polysilicon

- › Oversupply in China driving prices lower
 - Several China polysilicon undergoing maintenance shutdowns

- › China FIT policy clarification to improve demand in 2H 2019
 - Second half demand expected to reduce inventory



Source: PV Insights

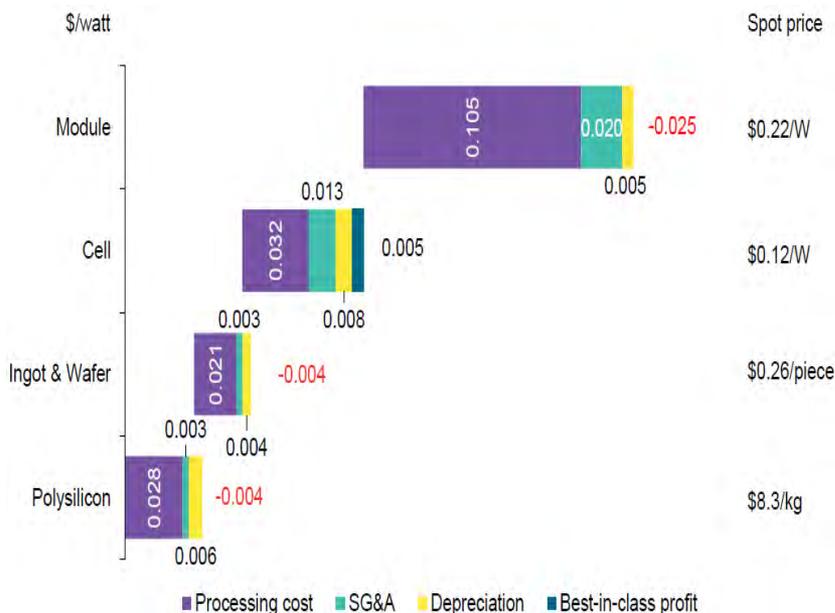
“Almost all Polysilicon Enterprises are Facing Losses”

2019

Source: China Silicon Industry Association

Multi-crystalline silicon module cost build-up

Chinese multi-Si module (275W/60 cells) cost build-up best-in-class March 2019



Source: BNEF

Polysilicon Weekly Review - Touching historical lows again (April 17, 2019)

Domestic polysilicon market prices have bottomed out this week after experiencing a two-month downturn

Three Reasons:

- › **First-** long-term low-cost transactions, polysilicon enterprises internal silicon stocks have been exhausted no supply pressure
- › **Second-** polysilicon prices fell to historical lows compared with 58.9% at the beginning of 2018 domestic **Almost all polysilicon enterprises are facing losses**. Some trade companies and downstream enterprises with high acumen have already seen the opportunity to make bottom-selling. The demand for single polycrystalline is now picking up.
- › **Third-** some polysilicon enterprises started maintenance this week and overhaul in May. The plan has increased the atmosphere of market stabilization and recovery.

Source: China Silicon Industry Association

Polysilicon remains a drag on group EBITDA and FCF

Sales in Polysilicon were down 4% YOY as strong volume growth [REDACTED] could not offset lower ASPs. EBITDA was even weaker than expected [REDACTED] due to low prices as well as write-downs of inventory and higher energy cost. [REDACTED] noted that it currently does not see prices improving and we also expect the division to remain a drag on group earnings and FCF going forward as prices are likely to **remain below cash cost**. Positive news flow out of China (solar targets) could provide temporary relief, however.

Source: Kepler Cheuvreux

Current Polysilicon Prices Lead to Curtailments

- › Still seeing production curtailments inside and outside China
- › Continued capacity increases will put further pressure on non cost competitive companies

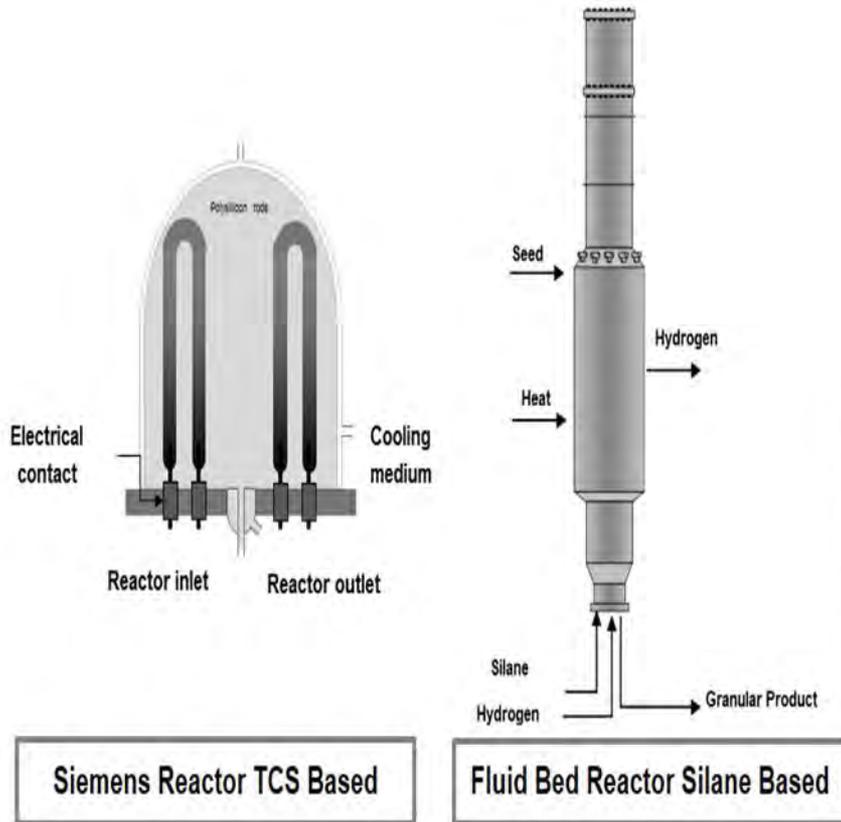
Calculation of Polysilicon Capacity Increase/Decrease from 4Q18 to 2Q19, Unit: Tons			
Estimated Decrease	Capacity	Estimated Increase	Capacity
Company A	8,000	Company I	72,000
Company B	15,000	Company J	50,000
Company C	10,000	Company K	36,000
Company D	10,000	Company L	15,000
Company E	1,500	Company M	15,000
Company F	12,000	Company N	13,000
Company G*	60,000		
Company H	26,000		
Total	142,500	Total	201,000

*Under discussion

Source: PV Infolink - Database April 23, 2019

FBR is a More Advanced Technology than Siemens in Making Polysilicon for the PV Industry

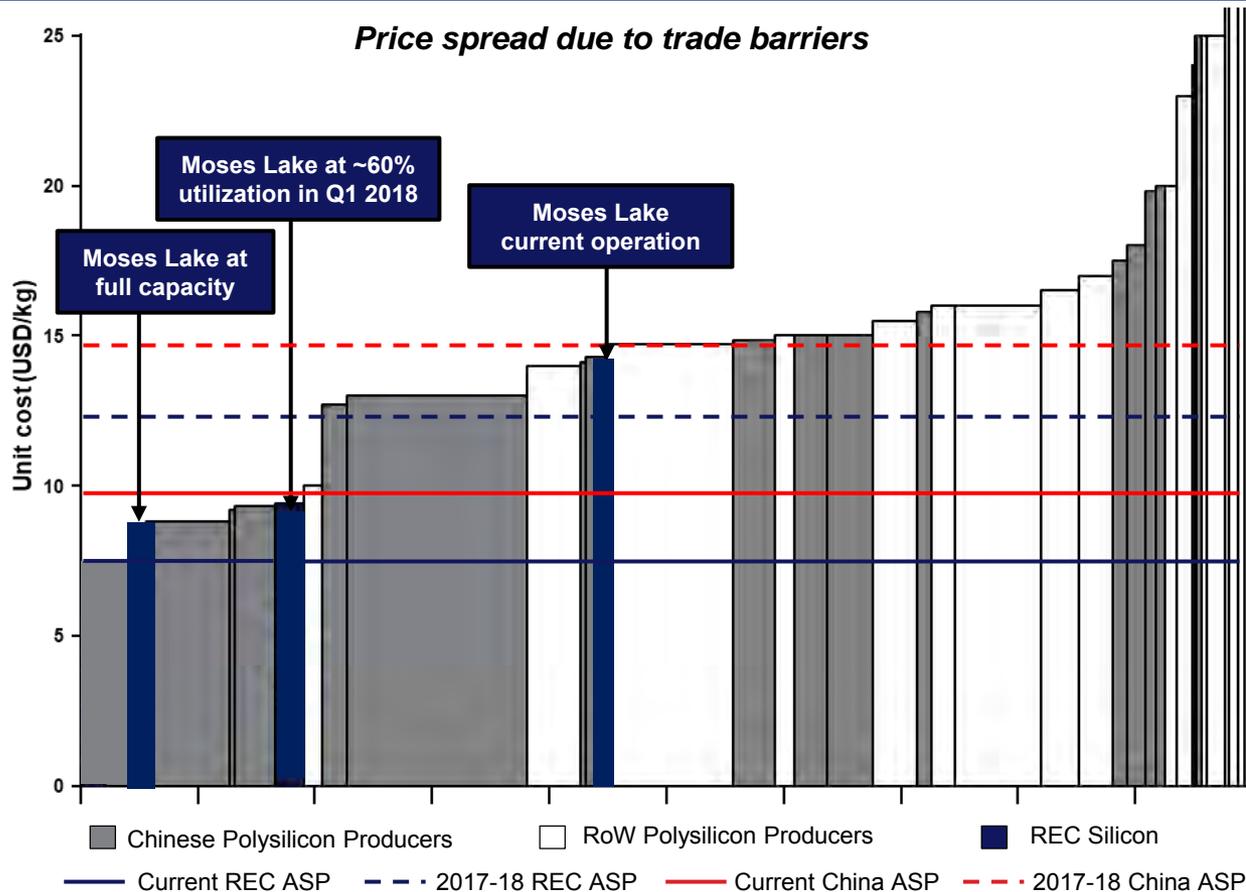
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Siemens Reactor	Silane Based FBR
<ul style="list-style-type: none"> › Low energy efficiency 	<ul style="list-style-type: none"> › Low energy efficiency <ul style="list-style-type: none"> - 50% Reduction in energy - Reduced Co^2
<ul style="list-style-type: none"> › Batch process <ul style="list-style-type: none"> - Needs turnaround every week - Labor intensive 	<ul style="list-style-type: none"> › Continuous production <ul style="list-style-type: none"> - FBR reactors run for over 1 year - 1/3 of the manpower
<ul style="list-style-type: none"> › Produced polysilicon requires post processing <ul style="list-style-type: none"> - Adding costs 	<ul style="list-style-type: none"> › Produced polysilicon is ready for use

REC Silicon is the Cost Leader at Design Capacity

Polysilicon industry unit cash costs¹



1) Analysis carried out on 2018 data. Analysis does not include idle capacity

- > REC Silicon highly competitive cost position if able to operate at full rates
- > Current record low prices will not sustain the polysilicon industry
- > Re-opening of polysilicon market in China will force supply rationalization

Source: REC Silicon internal research

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Trade Update

US/China Trade Negotiations On-Going & Optimistic

- › Ongoing high level meetings between China and the US
- › Substantial optimism in the markets that parties will conclude a deal
- › No announcement of a signing meeting between President Xi and President Trump continued speculation this will occur in late May or latest at G20 meeting in Osaka in June
- › Withdrawal of China's tariffs on US polysilicon has been widely reported to be a key priority of the US
- › The US Trade Representative (USTR) has repeatedly publicly committed to work towards a re-opening of the China market for US polysilicon as part of a trade deal
- › USG continues to negotiate from a position of strength
 - Economic indicators strong in US economy
 - Bipartisan support
 - International support

Addressed to:

State Representative Gianforte

The Honorable
U.S. House of
Washington, DC

Dear Representa

Thank you for y
American polysi
on American pol

I am committed
trade protection
negotiations will
market. It is im
can complete an
action to work to

Please do not be

Addressed to:

Senator Maria Cantwell

The Honorable
United States Se
Washington, DC

Dear Senator C:

Thank you for y
understand you
businesses, part
constituents.

I have specifica
For too long, C
China abide by
playing field. I
will seek a reso

USTR Congres
hesitate to con

Thank you for your letter regarding China's action to block American polysilicon exports. I understand your concerns regarding the effects of their actions on American polysilicon businesses, particularly REC Silicon. I know this is an enormous concern for you and your constituents.

I have specifically raised the issue of polysilicon throughout the negotiations with the Chinese. For too long, China has unfairly restricted American access to its market. It is imperative that China abide by its international commitments so that U.S. exporters can compete on a level playing field. I cannot predict the outcome on the polysilicon issue, but I can assure you that I will seek a resolution if possible.

USTR Congressional Affairs will keep your office updated on any developments. Please do not hesitate to contact me if you would like to discuss this or other issues.

Sincerely yours,



Robert E. Lighthizer

MARKETS

Kudlow says White House will be 'very aggressive' in China trade talks with US economy doing so well

PUBLISHED FRI, APR 26 2019 - 9:52 AM EDT | UPDATED FRI, APR 26 2019 - 10:47 AM EDT

Source: CNBC April 26, 2019

GDP Growth Gives U.S. Leverage in China Trade Talks: White House Adviser

By Reuters

Source: New York Times April 26, 2019

US Manufacturing Becoming a Strategic Priority

- › Growing awareness of the importance of strengthening the US industrial base and preserving and encouraging US manufacturing
- › Growing Focus:
 - Internalizing and supporting supply chains
 - Countering China's dominance
 - Ensuring US can support & nurture new growth industries
- › Strong congressional support & one of few bipartisan issues
- › In addition to public reassurances reasons to be optimistic that USG would not conclude a historic trade agreement without providing for US manufacturing that has been targeted by China



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

Polysilicon Foundational to Growth Industries

- › Polysilicon foundational to semi-conductor solar & in future LIBs/electric vehicles
- › REC Silicon is the only US producer of Silane Gas which is becoming a critical material for LIBs
- › Focus on countering China's industrial policies
 - Solar
 - Semi-conductor
 - Planned dominance in batteries
- › Reducing reliance on China
- › Made in China 2025 a growing concern globally



Members of the U.S. trade delegation Robert Lighthizer and Steven Mnuchin arrive at a Hotel in Beijing, China March 28, 2019. REUTERS/Jason Lee
Source: Business News April 23, 2019

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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
- › Fits with China long-term technology goals

Near Term Outlook

- › Unplanned outage in Silane unit reduced production in Q1/2019 - production resumed
- › Production is expected to increase throughout H2 2019
- › The Silane units and the FBR reactors have demonstrated design capacities

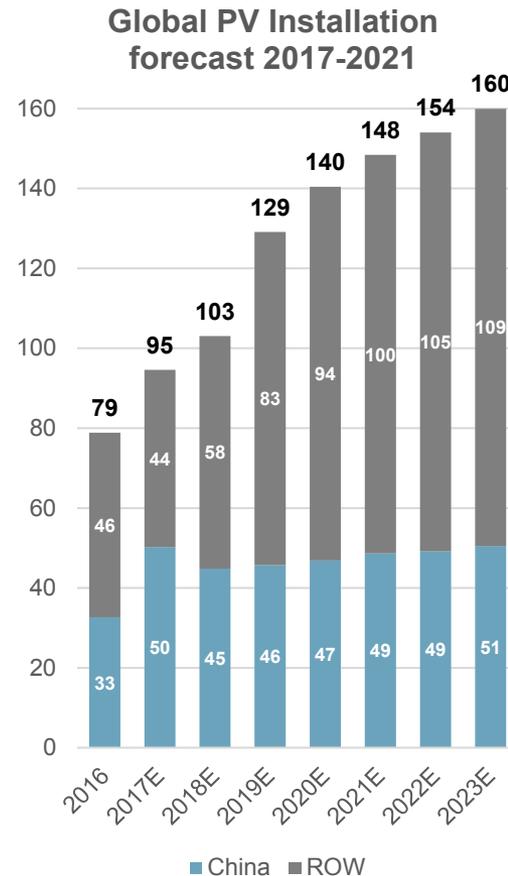
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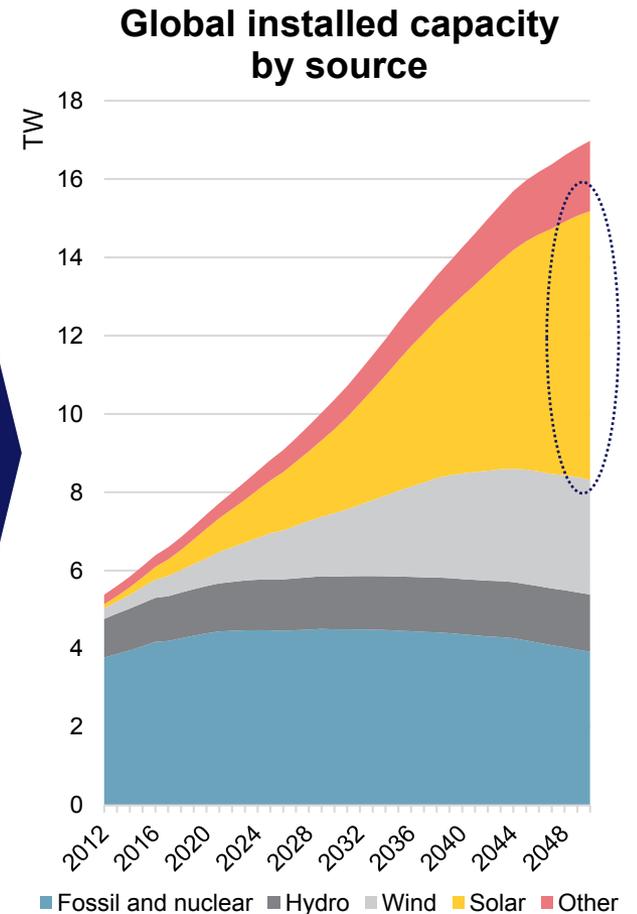
Long-term Market Outlook

Massive long term growth for solar PV

- > PV has become the fastest growing source of new power generation globally
- > Robust global PV demand growth in 2018 despite reduction of solar incentives in China
- > Rapid growth expected to continue as solar has become the cheapest source of power in solar rich regions
 - Growth consistently outpaces analyst expectations
- > **Long term demand growth supports option value of Moses Lake FBR facility**



Source: IHS Markit Installations Tracker March 15, 2019

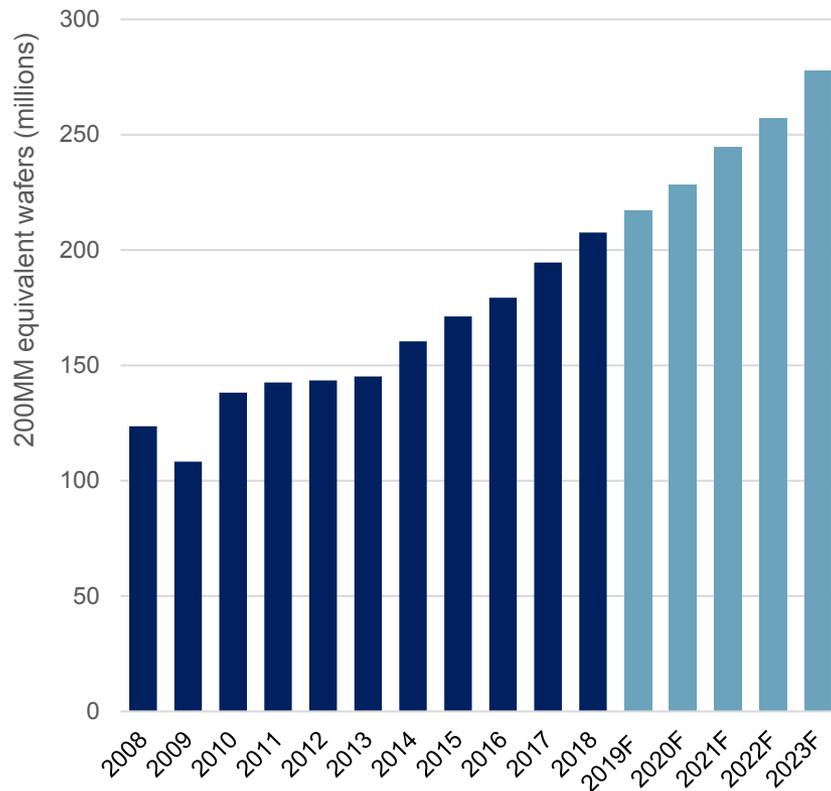


Source: BNEF

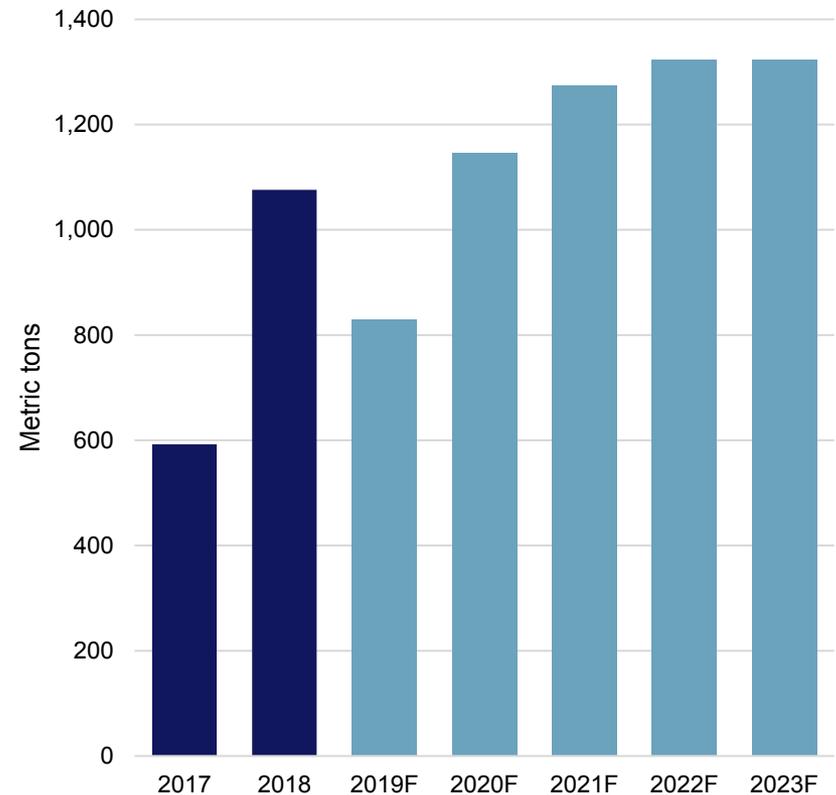
Growth for Semiconductor Polysilicon

- › Semiconductor polysilicon used in a wide range of microelectronic devices
- › REC outpacing market growth in the short term due to market re-entry

Semiconductor wafer market (wafer starts)



REC Shipments - Semiconductor Polysilicon

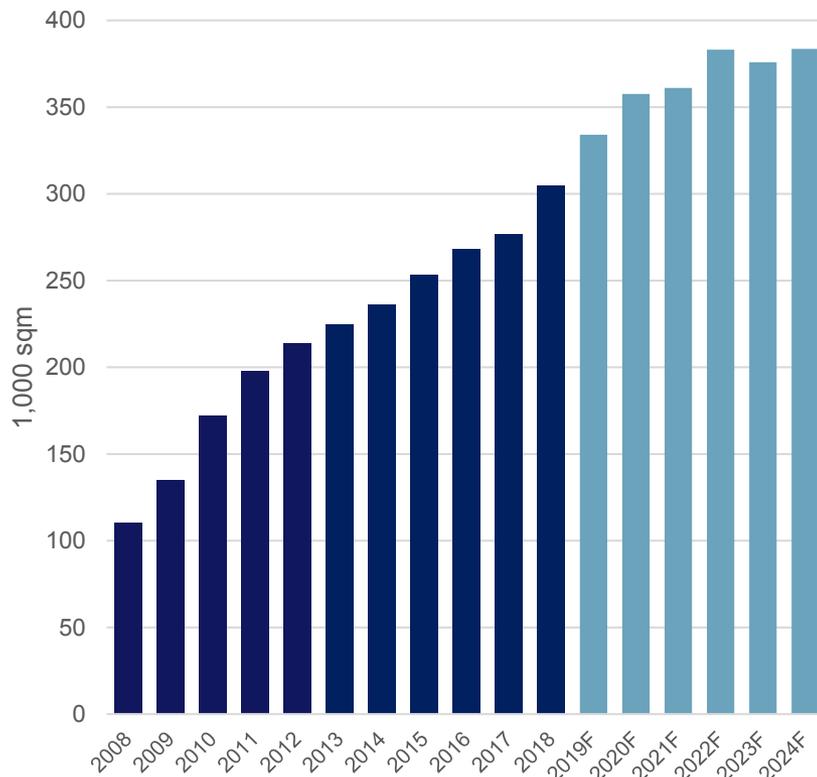


Source: The McClean report 2019 - by IC Insights, Inc.

Growth for High Margin Silicon Gases

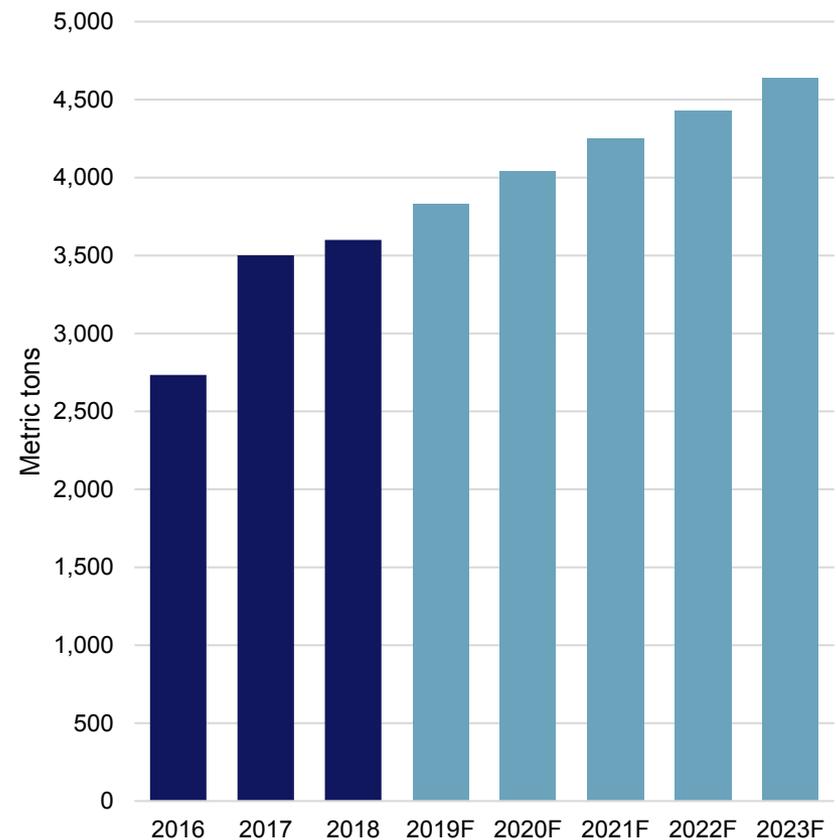
- › Silicon gases used in flat panel display (FPD), semiconductor, and PV applications
- › Dominant position in consistent high growth/margin semiconductor and FPD applications

Flat panel display capacity 2008-2024



Source: IHS Markit AMOLED and LCD Supply Demand & Equipment Tracker – Q4 2018

REC Shipments - Silicon Gases



Use of Silicon in Anodes Could Increase the Overall Capacity of Lithium Batteries by 30-40%

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- › Silicon anode can theoretically hold 10x electrons compared to graphite
- › Silicon 300x expansion is the main problem
 - Several companies working on solutions
- › The global anode market could be \$10B in 2025
- › REC Silicon is in discussions with the main companies

Silicon-based anodes offer more energy density than graphite and more stability than lithium

ANODE MATERIAL	SPECIFIC CAPACITY, (mA h)/g	VOLUME CHANGE, %	BENEFITS	CHALLENGES
Lithium	3,862	None	Highest energy density; light	Unstable; slow charge rate
Silicon	3,600	320%	High energy density	Capacity fade due to damage from expansion and contraction
Aluminum	2,235	604	Better energy density than graphite	Worse energy density and more expansion than silicon
Tin	990	252	Stabler than silicon	Worse energy density than silicon
Graphite	372	10	Stable; widely used	Poor energy density

Source: Prog. Mater. Sci. 2014, DOI: 10.1016/j.pmatsci.2014.02.001; C&EB research. Note: (mA h)/g is a measure of the amount of charge (electrons) per gram of material



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Short-Term Business Plan

Short Term Business Plan

- › Curtail Moses Lake FBR production on May 15, 2019
 - Move to full capacity utilization if access to China market restored
 - Long-term shutdown by June 30, 2019 if access to China market not restored
 - 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 flows in current market conditions

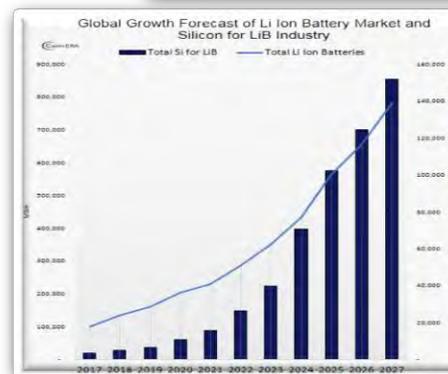


Potential Upside for REC Silicon

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

- › Increased ownership in Yulin JV
 - Attractive option to increase from 15% to 49% in January 2021

- › The battery market
 - Substantial increase in demand for silane



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Guidance

Q2 and 2019 Guidance

FBR Production **	
Q2	620MT
2019	1,711MT

FBR Production Cost **	
Q2	\$16.7/kg
2019	\$19.8/kg

Total Polysilicon Production	
Q2	980MT
2019	3,301MT

Semiconductor Production	
Q2	220MT
2019	1,040MT

Silicon Gas Sales	
Q2	960MT
2019	3,830MT

2019 CapEx *	
Maintenance	\$3M

* Additions to Property Plant and Equipment

** Includes shutdown of FBR on May 15, 2019

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Q2 2019 Reporting
July 25, 2019

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