

FIRST QUARTER 2021

**PRESENTATION** 

Disclaimer

2021

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# Agenda

Q1 Results	Tore Torvund		
Financial Review	James A May II		
Silicon Gases & Semiconductor Update	Kurt Levens		
PV Market Update	Chuck Sutton		
Yulin JV Update	Tore Torvund		
Battery Update	Tore Torvund		
Short-term Business Plan	Tore Torvund		
Q&A	Tore Torvund		

# First Quarter Highlights

2021

Revenues: \$28.1M

**EBITDA:** \$ 4.0M

### March 31, 2021 cash balance of \$131.5M

- Cash decrease of \$3.4M
- Cash outflows from operating activities of \$1.3M

## **BUTTE FACILITY**

## Silicon gas sales

Sales volume of 781MT

## Semiconductor segment polysilicon sales

- Semiconductor grade polysilicon sales volume of 137MT
- 227MT Total Semiconductor segment polysilicon sales

## DCS expansion project approved

- Approximately \$8.0M capital expenditure (anticipate \$4.9M in 2021)
- Completion estimated in 18 months
- Estimate 2.5-year payback period

### **MOSES LAKE FACILITY**

## **Solar Materials Developments**

- Continued strong PV demand growth
- Continued efforts to create a non-Chinese solar value chain

## **Battery Materials Developments**

- Continued discussions to establish silane supply contracts with battery materials companies
- Silicon anode company began operation of pilot plant in Moses Lake



James A. May II

2021

(USD million)	Q1 2021		Q1 2020		2020	
	Revenues	EBITDA	Revenues	EBITDA	Revenues	EBITDA
Semiconductor Materials	28.0	10.8	24.5	8.0	121.4	36.3
Solar Materials	0.1	(1.9)	0.2	(2.8)	0.5	6.7
Other	0.1	(4.9)	0.0	(4.1)	0.1	(19.3)
REC Silicon Group	28.1	4.0	24.7	1.0	122.1	23.8

## Revenues: \$28.0M (22.1% decrease vs. Q4'20)

- Total polysilicon sales volumes 227MT (32.9% decrease vs. 338MT in Q4'20)
  - Semiconductor grade volumes 137MT (45.2% decrease vs. 250MT in Q4'20)
  - (19.6%) Average price decrease vs. Q4'20
    - Price impact due primarily to lower sales volumes of semiconductor grade polysilicon compared to Q4'20
  - (6.7%) Semiconductor grade price decrease vs. Q4'20
    - Due primarily to mix of grades sold and timing of shipments
- Silicon gas sales volumes 781MT (11.3% decrease vs. 881MT in Q4'20)
  - 2.4% Silane price increase vs. Q4'20

## **EBITDA Contribution of \$10.8M**

Compared to Q4'20 EBITDA contribution of \$11.7M

- Lower silicon gas sales volumes
- Higher polysilicon production volumes
   (293MT 52.2% increase vs. Q4'20)



# Key Financial Results – Moses Lake Facility and Other

2021

## **Solar Materials**

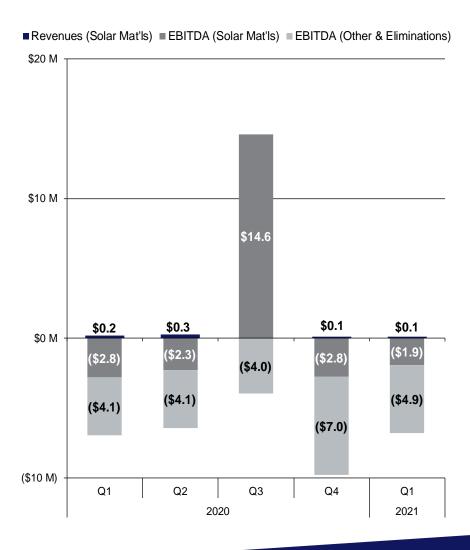
Revenues: \$0.1M

EBITDA Contribution: (\$1.9M) Loss

- Net Expense of \$1.9M
  - Comparable to prior period results excluding items of other income/expense

### Other and Eliminations

- Net cost: (\$4.9M) (compared to \$7.0M in Q4'20)
  - Q1'21 and Q4'20 include the impact of changes in estimates to arrive at accrued liabilities



## Cash Flows

2021

# Cash outflows from operating activities (\$1.3M)

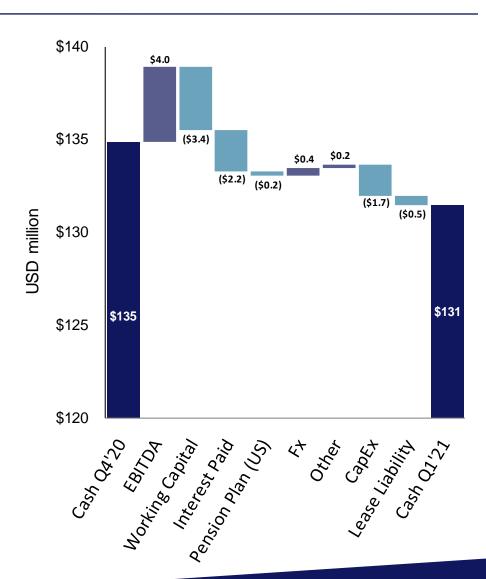
- > EBITDA of \$4.0M
- Working capital increase (\$3.4M)
  - Increase in inventories (\$7.6M)
  - Increase in receivables (\$0.7M)
  - Increase in payables and accruals \$4.8M
- Interest paid (\$2.2M)
- US pension plan contributions (\$0.2M)
- Currency gain of \$0.4M (Weaker USD vs. NOK)
- > Changes in other assets and liabilities \$0.2M

# Cash outflows from investing activities (\$1.7M)

Capex (\$1.7M)

# Cash outflows from financing activities (\$0.5M)

Payment of lease liabilities (\$0.5M)



2021

# Nominal debt - \$220.3M

- Decrease of (\$0.4M) in Q1'21
  - (\$0.4M) Decrease in Lease Liabilities (IFRS 16)
  - \$0.1M Increase in indemnity loan
     (Due to a weaker USD vs. NOK)

# Nominal net debt - \$88.8M

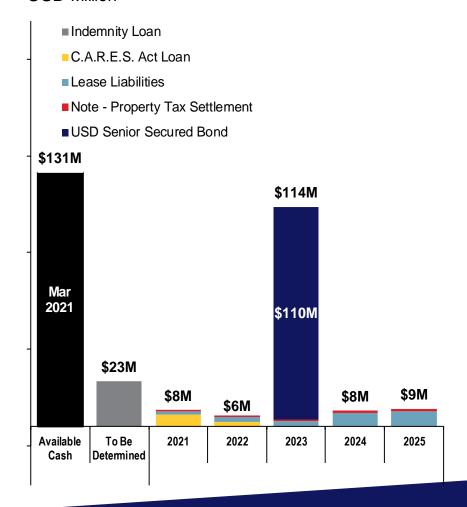
- Increase of \$3.1M in Q1'21
  - Decrease in cash of \$3.4M
  - Decrease in nominal debt of (\$0.4M)

# **Contingent Liabilities**

Indemnity loan - \$23.5M

## **Debt** maturity profile

#### **USD** Million





Butte Facility
Silicon Gases and
Semiconductor

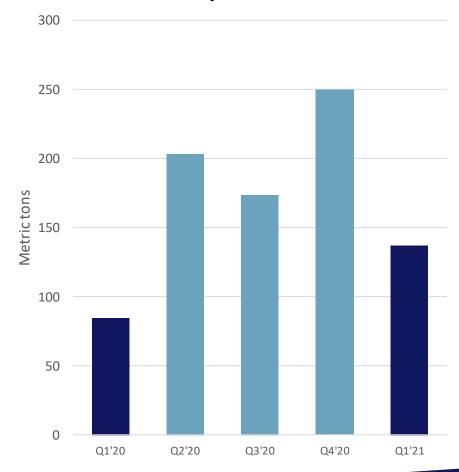
**Kurt Levens** 

# Electronic Grade Polysilicon in line with expected demand 2021

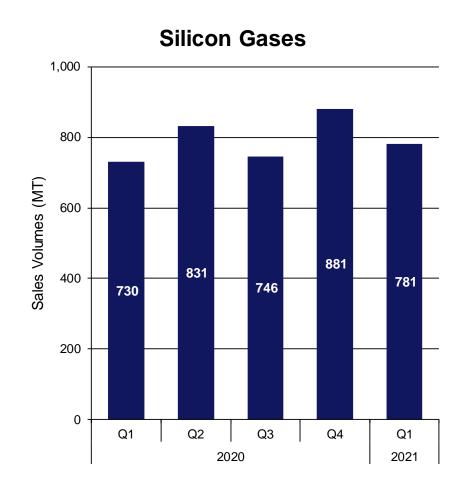
## Q1 shipments seasonally lower

- Year on year appreciably higher for Q1 shipments
- Traditionally lower quarter due to large customer forecasted order patterns
- Increased inventory drawdown for some product type
- Customer qualification nearly finalized at 3 customers
  - Volumes will gradually phase in starting second half of 2021

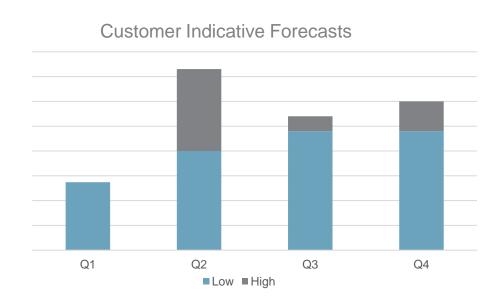
## **REC Shipments - Semiconductor Polysilicon**



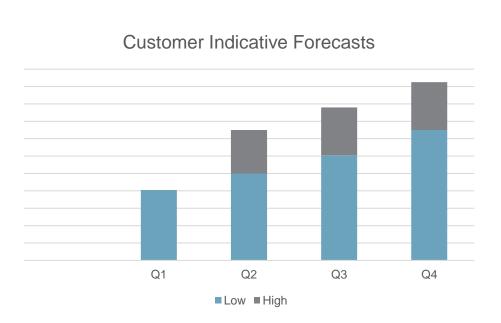
- Underlying demand remains strong
  - Q1 is normally seasonally low
  - Semi, FPD and PV remained at high utilization
  - Logistics cycle times increasing due to Ocean Freight
  - Backlog increasing due to global logistics challenges
- Advanced Silicon Gases
  - Demand is increasing with device technology advancement
  - De-bottleneck/process improvements to increase volume
  - Expect to continually increase shipment level every quarter



- Customer provided forecasts provide a relatively high level of visibility
- Current forecasts are in a range
  - Dependent upon customer inventory drawdown
  - Dependent upon success and timing of qualification
- Shipments are expected to increase
  - Ramp over remaining quarters in 2021
  - Quarterly fluctuation due to above factors and logistics timing
- New wafer and fabrication capacity will be required to push volumes significantly above current production levels



- All 3 main consuming segments are increasing
- Semiconductor increases are tied to full utilization and capacity debottlenecking
- Flat Panel capacity has remained fully utilized
  - Some companies have delayed planned shut-downs and conversion
  - Panel makers reporting visibility into 2022 at this point
- PV is expected to grow in 2021 by 20%
  - The largest silane consuming segment
  - Not a large part of REC portfolio
- Quarterly shipment increases are forecast
  - Customer new facility start up may affect timing
  - Global logistics bottlenecks will also affect timing



# Butte Expansion - DiChlorosilane (DCS)

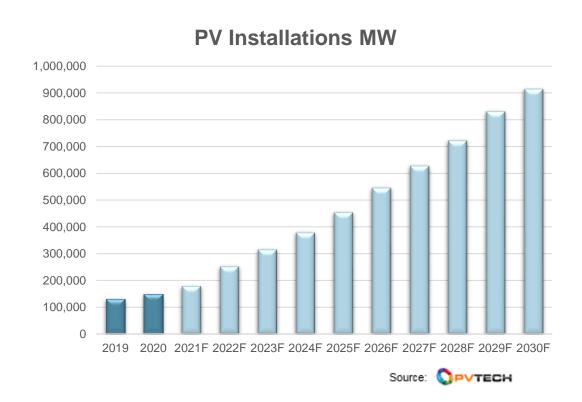
2021

- Part of REC Silicon Gases portfolio
  - Demand growth driven by new investments in leading edge semiconductor fabrication
  - CAGR above underlying semiconductor materials rate (>12%)
  - REC scale and process enable "world class" cost position
  - Currently at full capacity
- New investment in capacity
  - Approved project scope will increase production capacity by more than 2X and nearly double current packaging capability
  - Design basis to allow for more rapid incremental expansions as market continues to grow
  - Product quality designed for next generation processes and requirements
- Estimated 2.5-year payback period

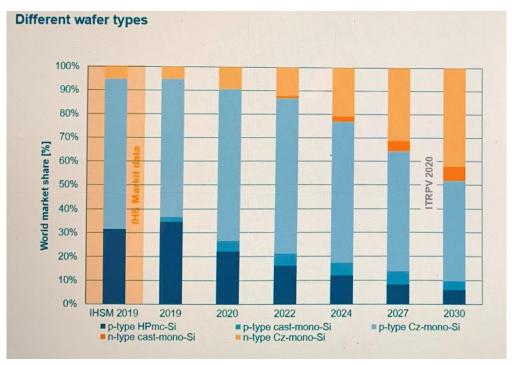




- Continued decline in total PV project installation costs
- High power modules and higher efficiency modules
- Increasing governmental support for renewable energy
- Global desire for climate change

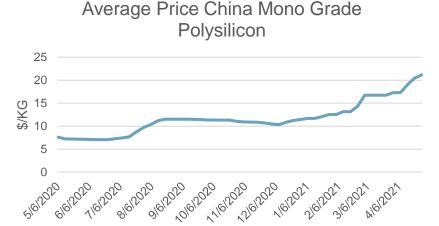


- Market for High power and increased efficiency modules is increasing
  - N-type wafer technology next steps for higher efficiency
- FBR-B polysilicon meets quality requirements
  - Demonstrated in Yulin JV plant
  - Limited investment to upgrade FBR-A in Moses Lake
- Investment in Cell technology primary cost in switch to N-type

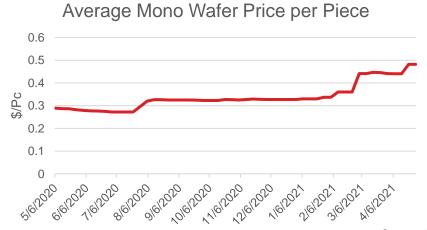


Source: ITRPV 2020

- Demand for PV installations requires all existing polysilicon capacity
- Polysilicon and wafer prices continue to increase
- New polysilicon capacity will be required
  - Potential risk for over investment

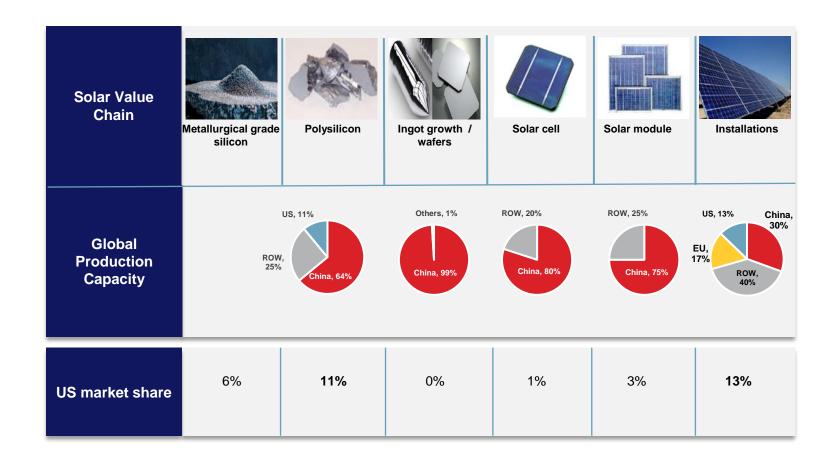


Source: PV Insights



Source: PV Insights

# Ultra Low-carbon PV value chain under development



## **US Political Initiatives**

Create and Support US PV Value Chain

#### American Jobs Plan

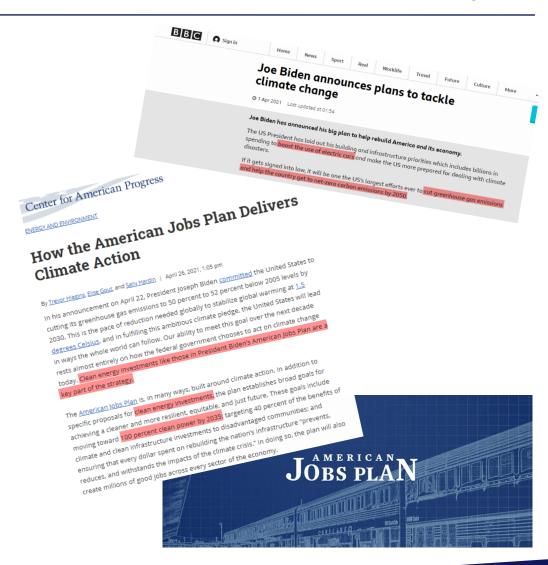
- Revitalize manufacturing, Increase capital to support rural manufacturing and clean energy
- Buy American to spur jobs that deliver clean energy
- Strengthen manufacturing supply chains for critical goods.
- **Extension of Investment Tax Credit** (ITC), jobs that modernize power generation and deliver clean energy

#### **Endless Frontier Act**

- Supports R&D in key technologies
- Support activities that develop domestic supply chains

### Ultra Low-Carbon Solar Alliance

Working to build a product label declaring Ultra Low Carbon production used to produce product





Yulin JV Update

**Tore Torvund** 



# Yulin JV, China

## Improvement in operational performance

**FIRST QUARTER** 

#### Plant characteristics

- Construction completed in 2018
- Large scale silicon manufacturing facility with
  - 19,000 MT FBR-B granular Polysilicon
  - 300 MT Siemens semiconductor grade Polysilicon
  - 500 MT Silane Gas loading
- **Operating Performance** 
  - Mono capable FBR production
  - Design capacities demonstrated

#### **Current Status**

- Delay in Equity Settlement Payment of \$4.7M:
  - Ongoing negotiations toward acceptable resolution regarding outstanding performance test issues and payment for REC technical services



#### 1st Quarter Production

- Q1 Production
  - 121 MT of Loaded Silane
  - 2746 MT of FBR Granular
  - 17 MT of Siemens
- Production expected to increase in Q2 2021



**Opportunities** 

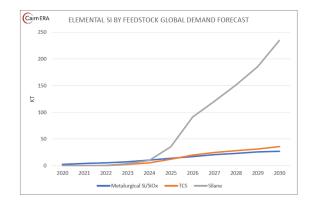
**Tore Torvund** 

# Silane will be the preferred Silicon source in Battery Anodes

- The US market for silane may exceed 50,000MT/year by 2030
- Global market for silane may exceed 200,000MT/year by 2030

#### LIB ANODE MATERIALS LANDSCAPE Breakdown by Si Source

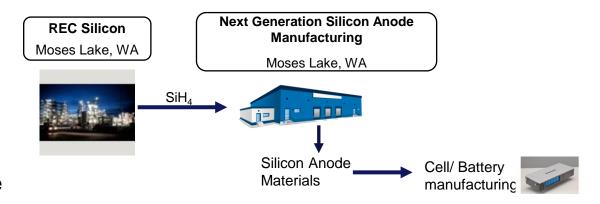
- · Silane will become the most common Si source material by 2024 and will reach 40 KT by 2025 and 268 KT by 2030. By then it will account for 75% of all Si source shipments used in the LiB industry.
- Metallurgical Si will be the most commonly used material in the first few years of the forecast, thanks to it's use as a lower-grade material in low-intensity (i.e. 1%). Metallurgical Si is especially cheap to convert to SiOx formulations, which dominate the lowintensity spectrum of Si usage.
- · TCS (trichlorosilane) will be the smallest proportion of Si sourcing after 2024, thanks to the difficulty in handling and limited availability. By 2030, Cairn ERA forecasts that 36 KT of TCS will be utilized in the LiB industry.



CairnERA

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- REC Silicon is the only company with large-scale production facilities for silane outside of China
  - 25,000MT Moses Lake
  - 7.200MT Butte
- Supply agreements between REC Silicon and silicon anode companies still under negotiations
- Silicon anode pilot in Moses Lake in operation and producing anode material



#### Silane production capacity:

~25,000 tons per year Highest purity & lowest cost Hydroelectricity = low carbon footprint



Short Term Business Plan

**Tore Torvund** 

# Silane: Feedstock for the Energy Transition

2021

## **SILANE**

## SEMICONDUCTOR

## SOLAR VALUE CHAIN

## **BATTERY VALUE** CHAIN

## Proven **Global Leader**

### Butte

- ~3,200MT Si-gas
  - 70% Semi global demand
- High-purity FZ polysilicon

EBITDA ~\$35M

## **Established Footprint** to Capture Solar **Market Upside**

### Moses Lake

Moses Lake FBR Poly: ~18.000MT

## **Technology**

FBR technology very cost competitive

Market Inflection

## Silicon Anodes to Drive **Silane Market Expansion**

### Moses Lake

- Sole supplier of pure silane in western world
- Co-Location discussions with multiple potential partners
- > ~\$1.7B invested in Moses Lake for Silane and FBR capacity

**Growth Driver** 



