RECSiLICON

# FOURTH QUARTER 2020

PRESENTATION

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# Agenda

| | |
|---|---|
| Q4 Results | Tore Torvund |
| Financial Review | James A May II |
| Silicon Gases & Semiconductor Update | Kurt Levens |
| PV Market Update & Non-Chinese Solar Value Chain | Francine Sullivan<br>Chuck Sutton |
| Yulin JV Update | Tore Torvund |
| Battery Update | Francine Sullivan |
| Short-term Business Plan | Tore Torvund |
| Q&A | Tore Torvund |

# Fourth Quarter Highlights

**Revenues:** **$36.0M**
**EBITDA:** **$ 1.9M**

## December 31, 2020 cash balance of $134.9M

- Cash increase of $99.0M
- Cash outflows from operating activities of $2.8M
- Private placement of equity NOK 1.0 billion

## Silicon gas sales

- Sales volume of 881MT (vs. 746MT in Q3'20)
- 2.8% Silane gas price decrease vs. Q3'20

## Semiconductor segment polysilicon silicon

- Semiconductor grade polysilicon sales volume of 250MT

› 0.2% Semiconductor grade polysilicon price decrease vs. Q3'20

## Private placement of equity

- Completed on October 14, 2020
- Issued 92,592,592 shares at NOK 10.8/share
- Received gross proceeds of:
  - NOK 302M on October 27, 2020
  - NOK 698M on November 19, 2020

## Solar Materials Developments

- Increases in PV demand is driving polysilicon prices higher
- Substantial increases in available polysilicon capacity will be required to meet increases in PV demand
- Continued interest in developing a Non-Chinese PV supply chain

## Battery Materials Developments

- High level of interest by several battery materials companies to secure silane supply
- Group 14 Technologies installing pilot facility at Moses Lake plant

## Yulin JV

- Write down of investment due to estimates of fair value
- Mono capable FBR production
- Design capacities demonstrated

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# Financial Review

James A May II

# Summary of Segments

| (USD million) | Q4 2020 | | 2020 | | 2019 | |
|---|---|---|---|---|---|---|
| | Revenues | EBITDA | Revenues | EBITDA | Revenues | EBITDA |
| Semiconductor Materials | 35.9 | 11.7 | 121.4 | 36.3 | 126.7 | 37.8 |
| Solar Materials | 0.1 | (2.8) | 0.5 | 6.7 | 33.4 | (26.6) |
| Other | 0.0 | (7.0) | 0.1 | (19.3) | 0.0 | (24.1) |
| Eliminations | - | - | - | - | 0.0 | 0.0 |
| REC Silicon Group | 36.0 | 1.9 | 122.1 | 23.8 | 160.2 | (12.9) |

# Key Financial Results – Semiconductor Materials

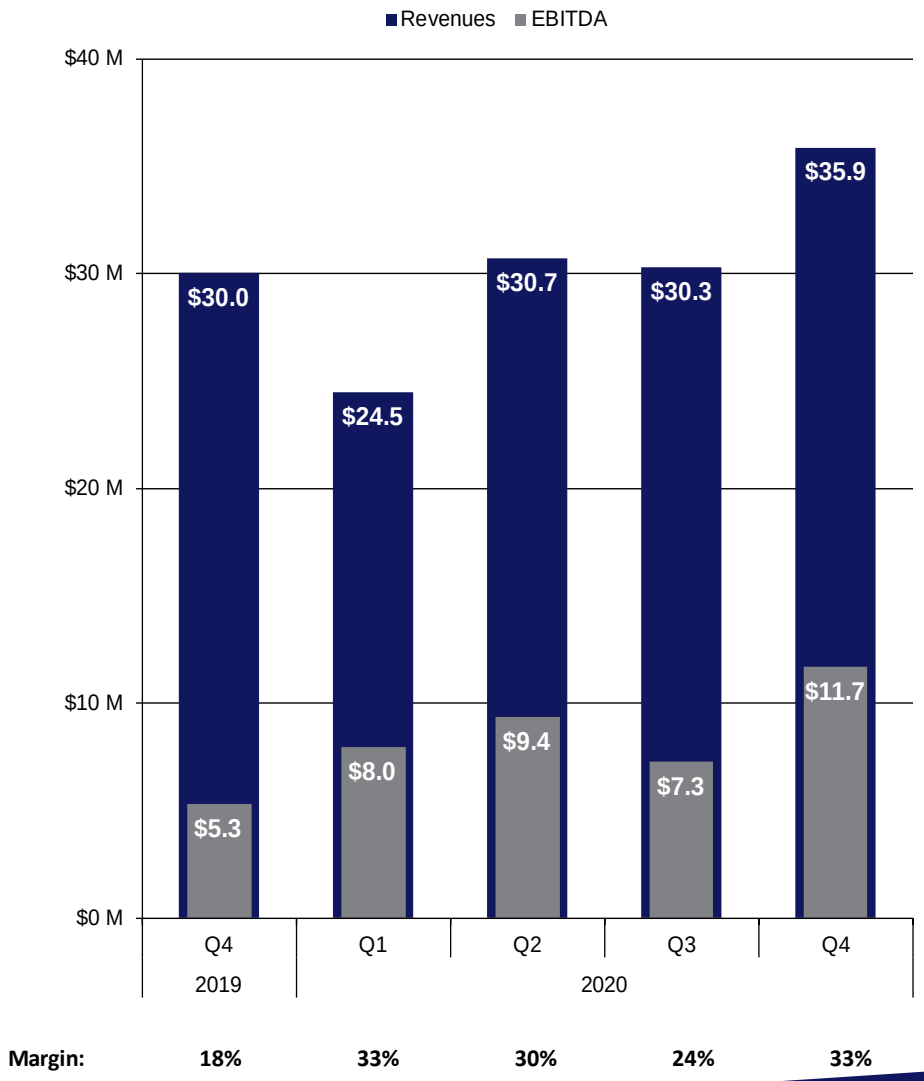
## Revenues: $35.9M (18.3% increase vs. Q3'20)

- Polysilicon sales volumes 338MT
  (15.6% decrease vs. 401MT in Q3'20)
  - Semiconductor grade volumes 250MT
    (43.9% increase vs. 174MT in Q3'20)
  - 62.8% Average price increase vs. Q3'20
    - Price impact due to lower sales volumes of solar grade polysilicon compared to Q3'20
  - (0.2%) Semiconductor grade price decrease vs. Q3'20
- Silicon gas sales volumes 881MT
  (18.1% increase vs. 746MT in Q3'20)
  - (2.8%) Silane price decrease vs. Q3'20

## EBITDA Contribution of $11.7M

Compared to Q3'20 EBITDA contribution of $7.3M

- Higher silicon gas sales volumes
- Higher Semiconductor grade polysilicon sales volumes



# Key Financial Results – Solar Materials and Other

## Solar Materials

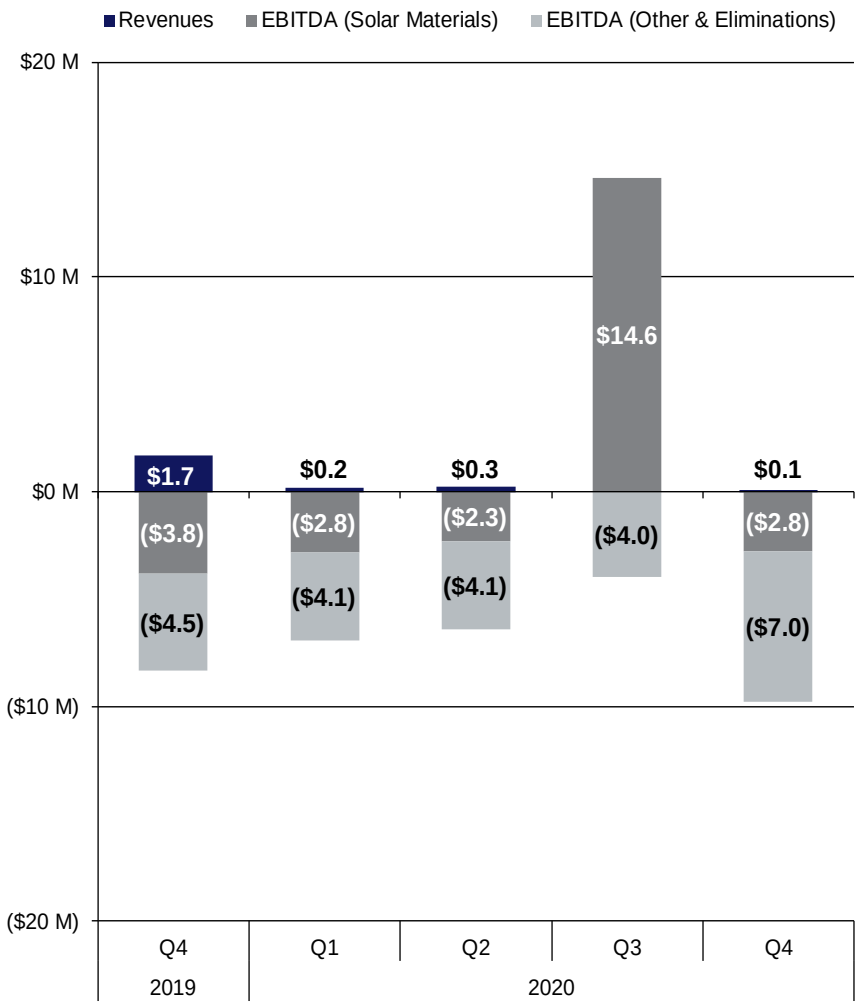
Revenues: $0.1M

EBITDA Contribution: ($2.8M) Loss

- Net Expense of $2.8M
  - Comparable to prior period results excluding items of other income/expense

## Other and Eliminations

- Net cost: ($7.0M) (compared to $4.0M in Q3'20)
  - Includes the impact of changes in estimates to arrive at accrued liabilities at year end



# Cash Flows

## Cash outflows from operating activities $2.8M

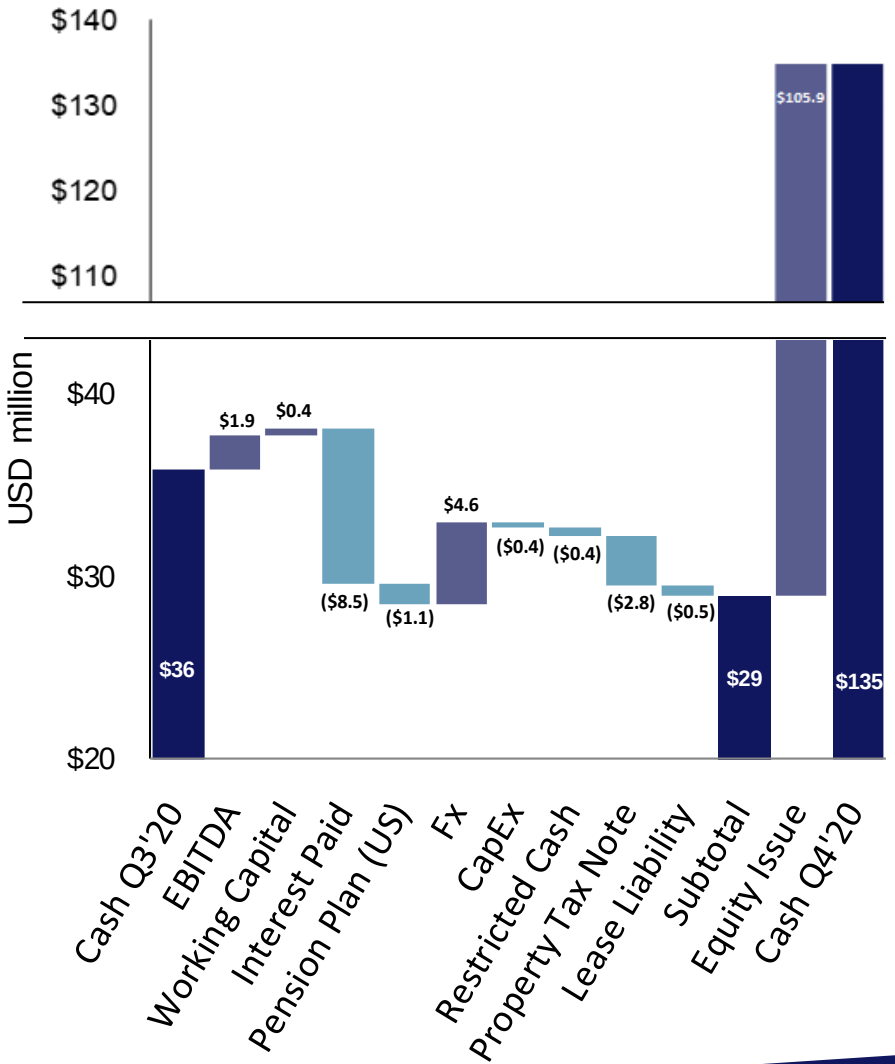
- EBITDA of $1.9M
- Working capital decrease $0.4M
  - Decrease in inventories $5.5M
  - Increase in receivables ($4.9M)
  - Decrease in payables and accruals ($0.2M)
- Interest paid ($8.5M)
- US pension plan contributions ($1.1M)
- Currency gain of $4.6M (Weaker USD vs. NOK)

## Cash outflows from investing activities $0.8M

- Capex ($0.4M)
- Increase in restricted cash balances ($0.4M)

## Cash inflows from financing activities $102.6M

- Payment of lease liabilities ($0.5M)
- Payment of property tax Note ($2.8M)
- Private placement of equity $105.9M



# Debt

## Nominal debt - $220.6M

- Decrease of $0.8M in Q4'20
  - ($0.4M) Decrease in Lease Liabilities (IFRS 16)
  - ($2.8M) Decrease in Property Tax Note
  - $2.3M Increase in indemnity loan (Due to a weaker USD vs. NOK)

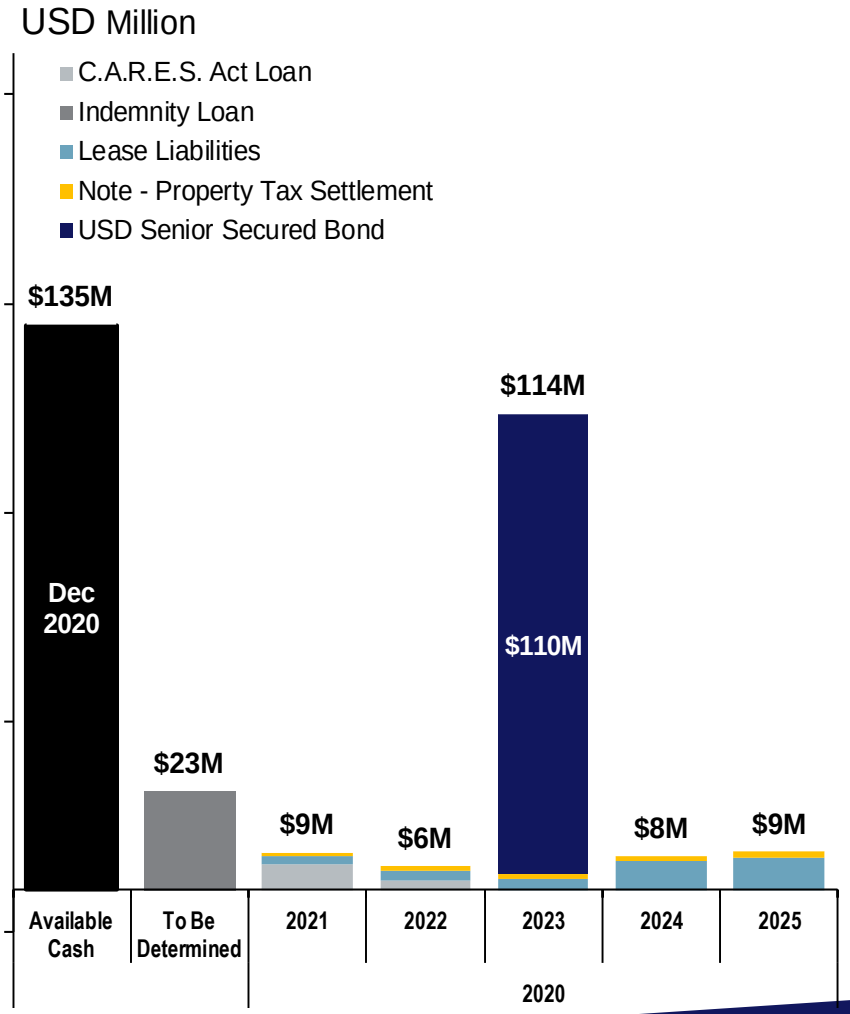
## Nominal net debt - $85.7M

- Decrease of $99.9M in Q4'20
  - Increase in cash of $99.0M (Placement of Equity)
  - Decrease in nominal debt of $0.8M

## Contingent Liabilities

- Indemnity loan - $23.4M

**Debt maturity profile**

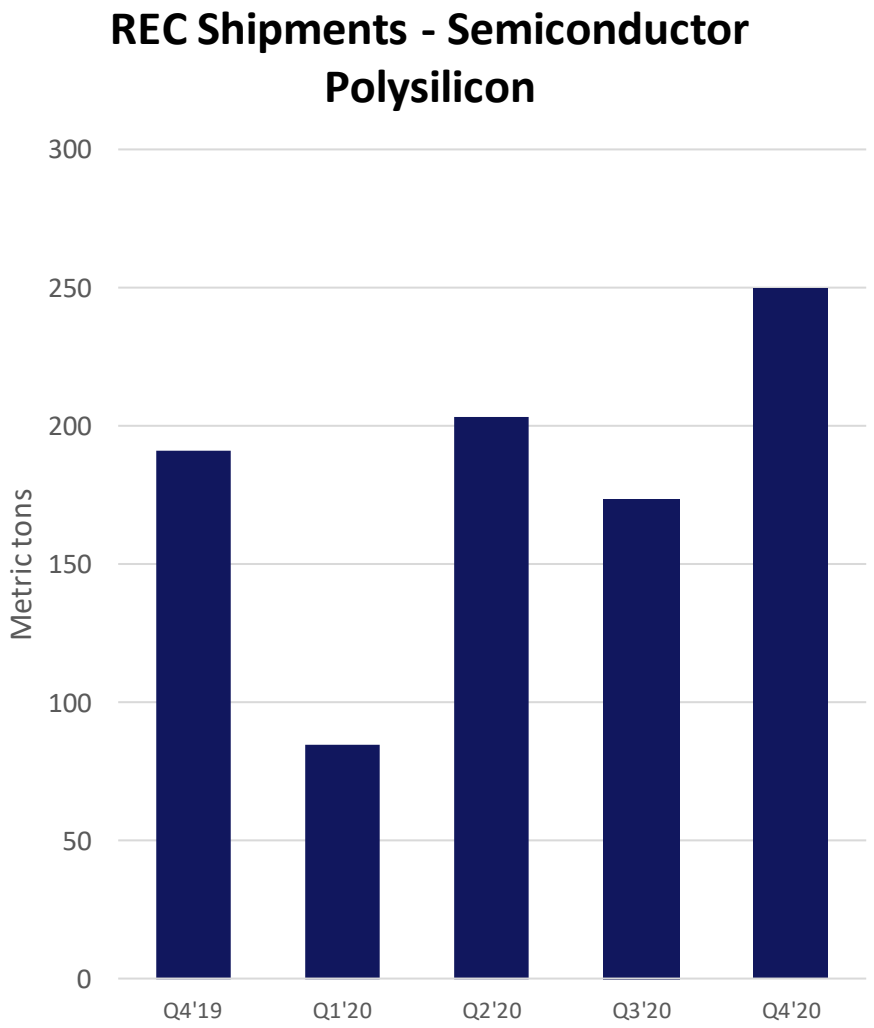


# Silicon Gases and Semiconductor

Kurt Levens

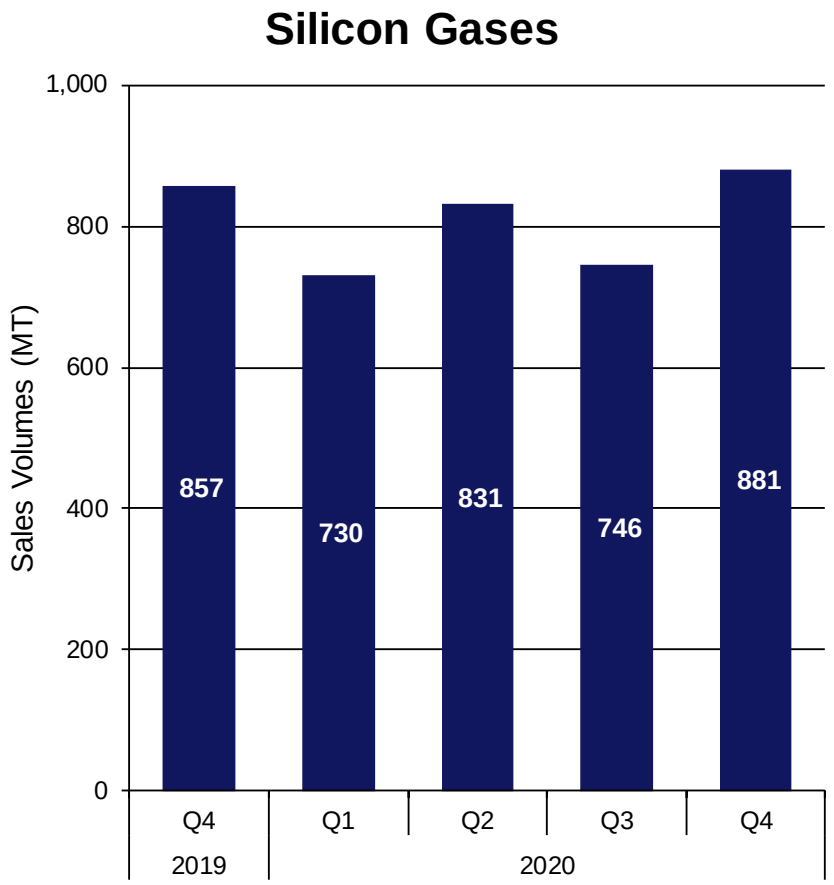
# Electronic Grade Polysilicon Increase

- Q4 in line with stronger H2 2020
  - 250MT in Q4'20 vs. 174MT in Q3'20
  - Customer prep for operations during Lunar New Year period
  - Strongest shipment quarter since 2018
- 2021 demand picture is firming
  - Q1 seasonally lower shipments
  - Potential for stronger quarters through the year
  - Customers are considering increased demand scenarios



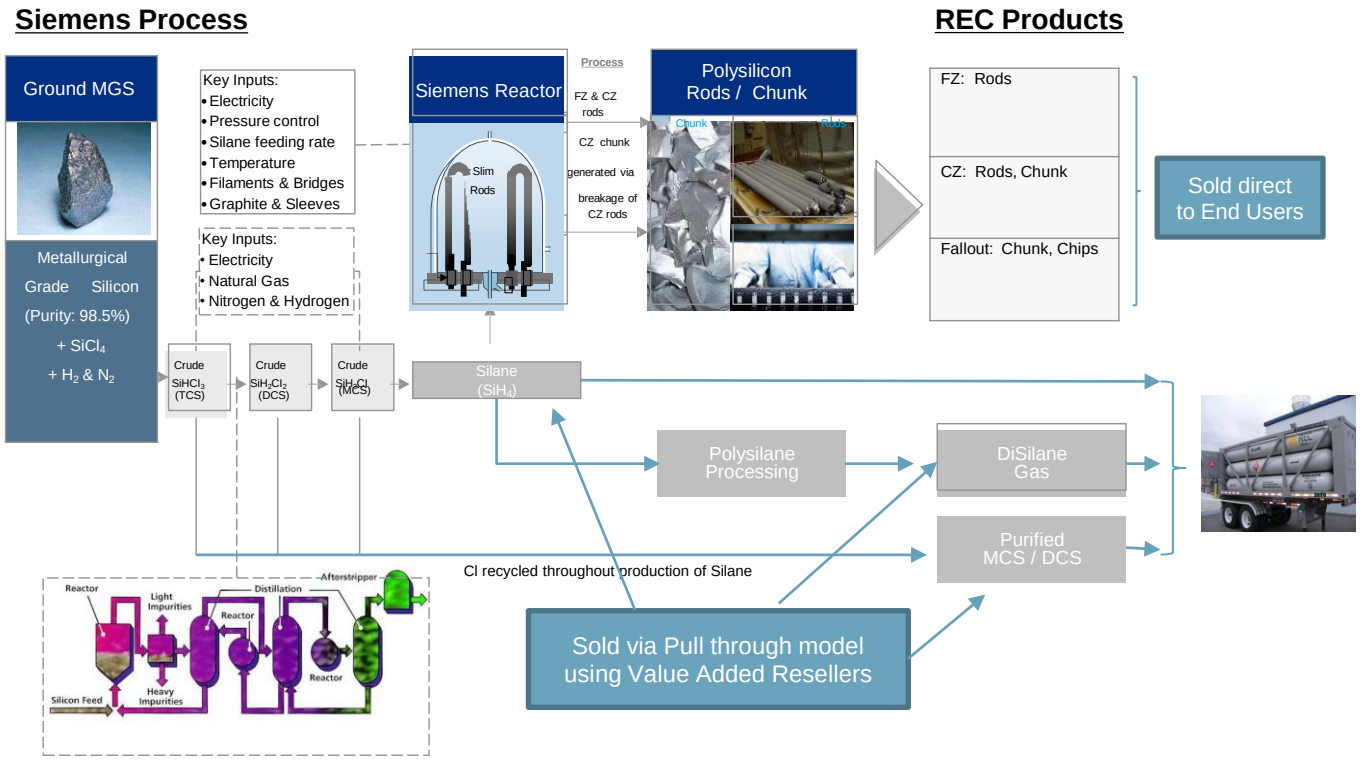
# Silicon Gas Shipments Respond to Demand

- Increase in Silicon Gas shipments
  - Less inventory in supply chain – Quicker response
  - Semi and FPD remained at high utilization
  - Logistics cycle times increasing due to Ocean Freight
  - Q1 firming up to be stronger than normal Q1 periods
- Silicon Gases for Advanced Process nodes in Integrated Circuits (IC)
  - Demand continues to increase
  - Increasing in share of overall shipments
  - Trend to continue over next 5 years
  - Need additional capacity to meet customer growth



# REC Silicon Products

**REC Silicon produces FZ rods, EG CZ rods/chunk, Silicon Gases – All value creation starts with Silane Production**



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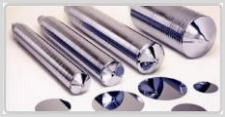
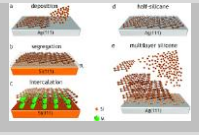
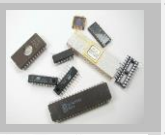
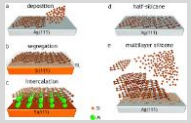
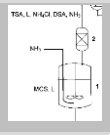
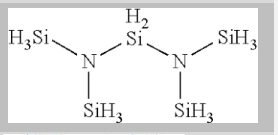
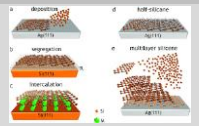
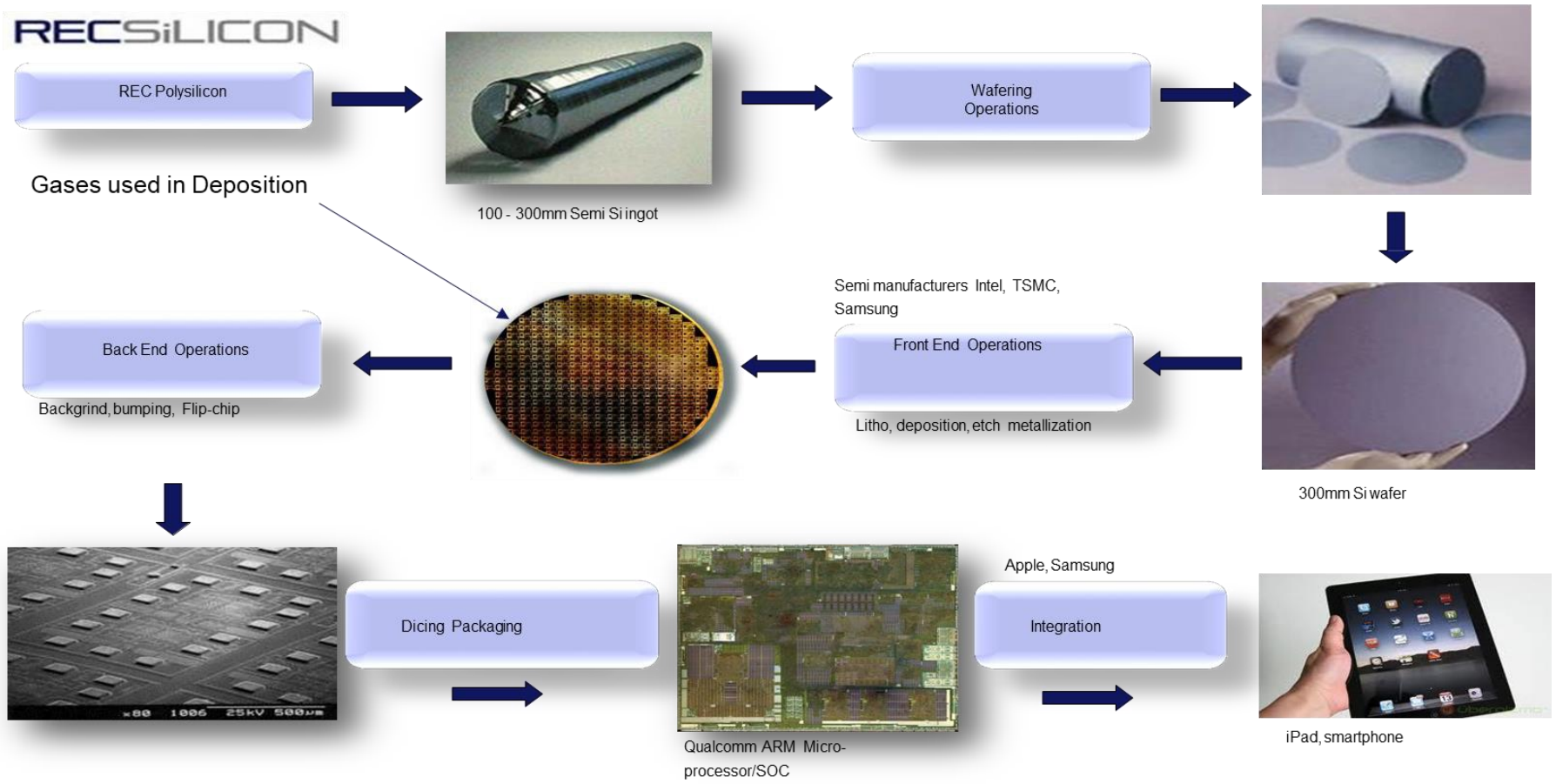
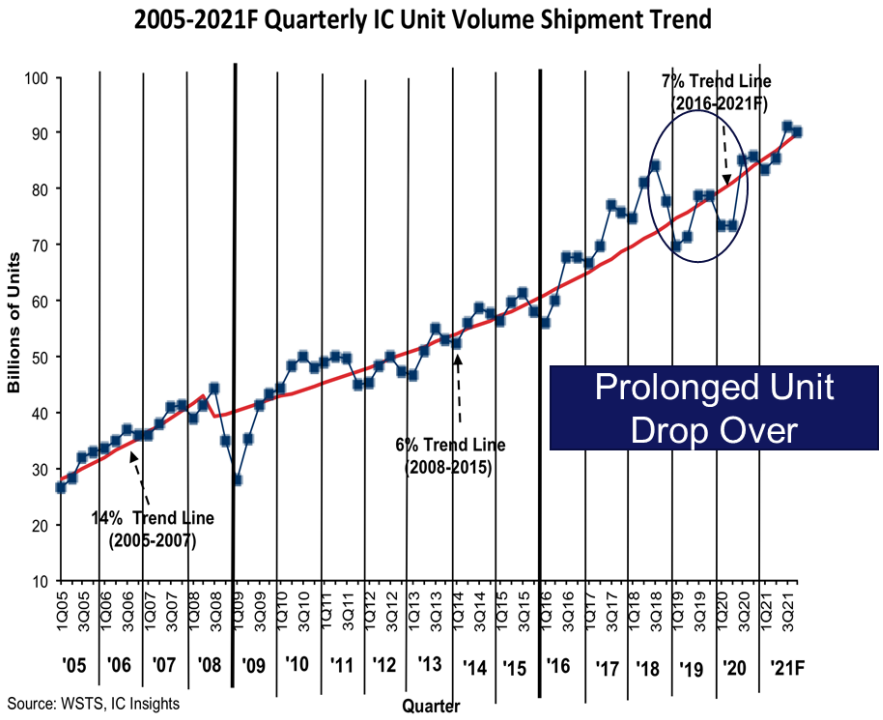
# REC Silicon Product Applications

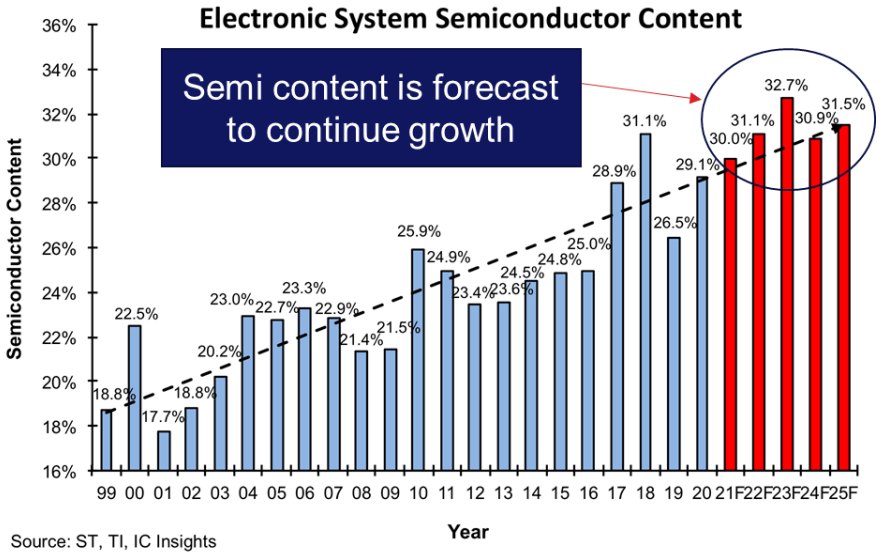
| | | | | | |
|---|---|---|---|---|---|
| Float Zone Polysilicon Sour Rods |  | FZ Crystal Pulling and Wafering |  | Power Semiconductor |  |
| Czochralski Polysilicon Chunk |  | CZ Crystal Pulling and Wafering |  | Consumer Electronics |  |
| Silane |  | Chemical Vapor Deposition |  | Semiconductor, Flat Panel (TFT), PV |   |
| Dichlorosilane |  | Chemical Vapor Deposition |  | Semiconductor Advanced Processes |   |
| Monochlorosilane |  | Precurser Gas Feedstock |   | Semiconductor Advanced Processes |   |
| Disilane |  | Chemical Vapor Deposition |  | Semiconductor, Emerging Technologies |  |

# Basic Semiconductor Manufacturing Process



# Unit Volume Growth Resumes & Content Increases



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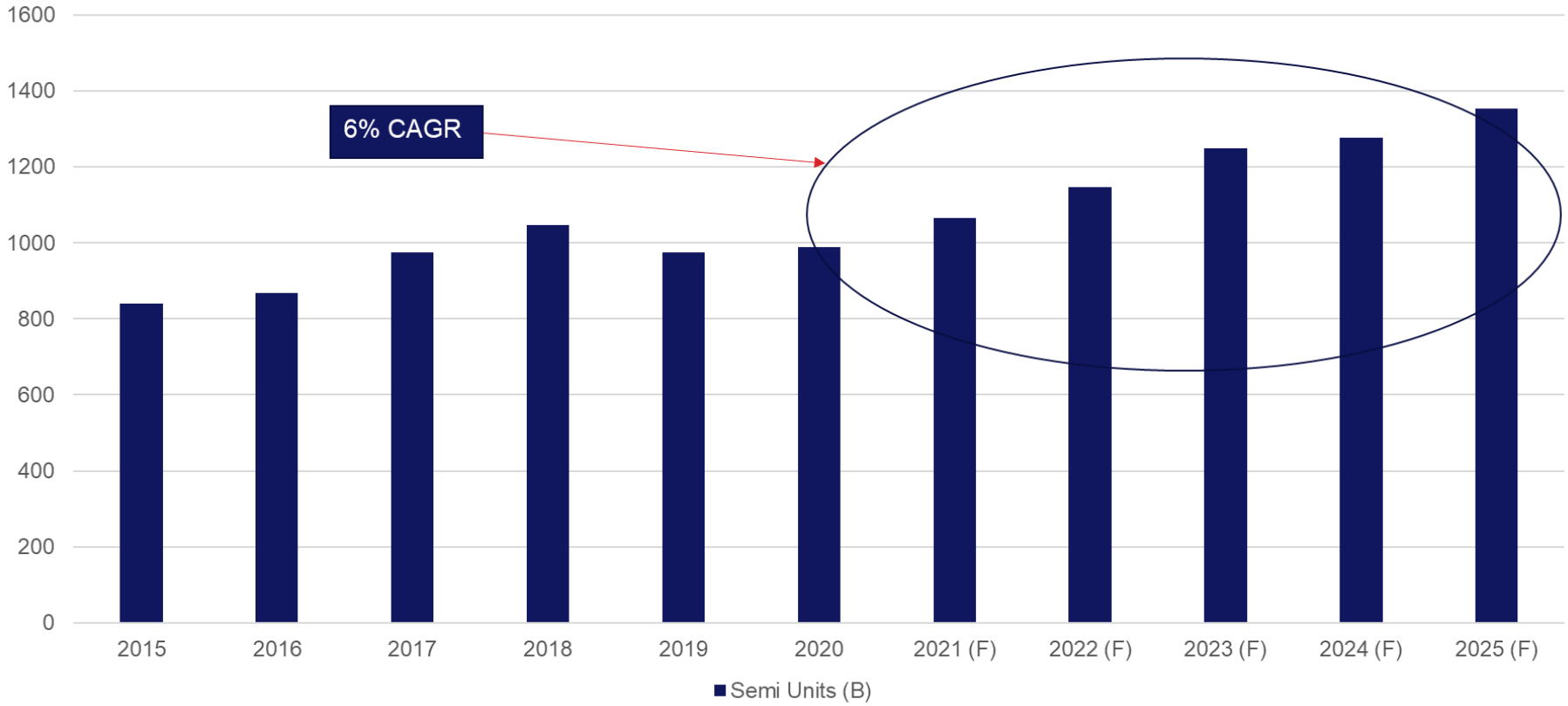
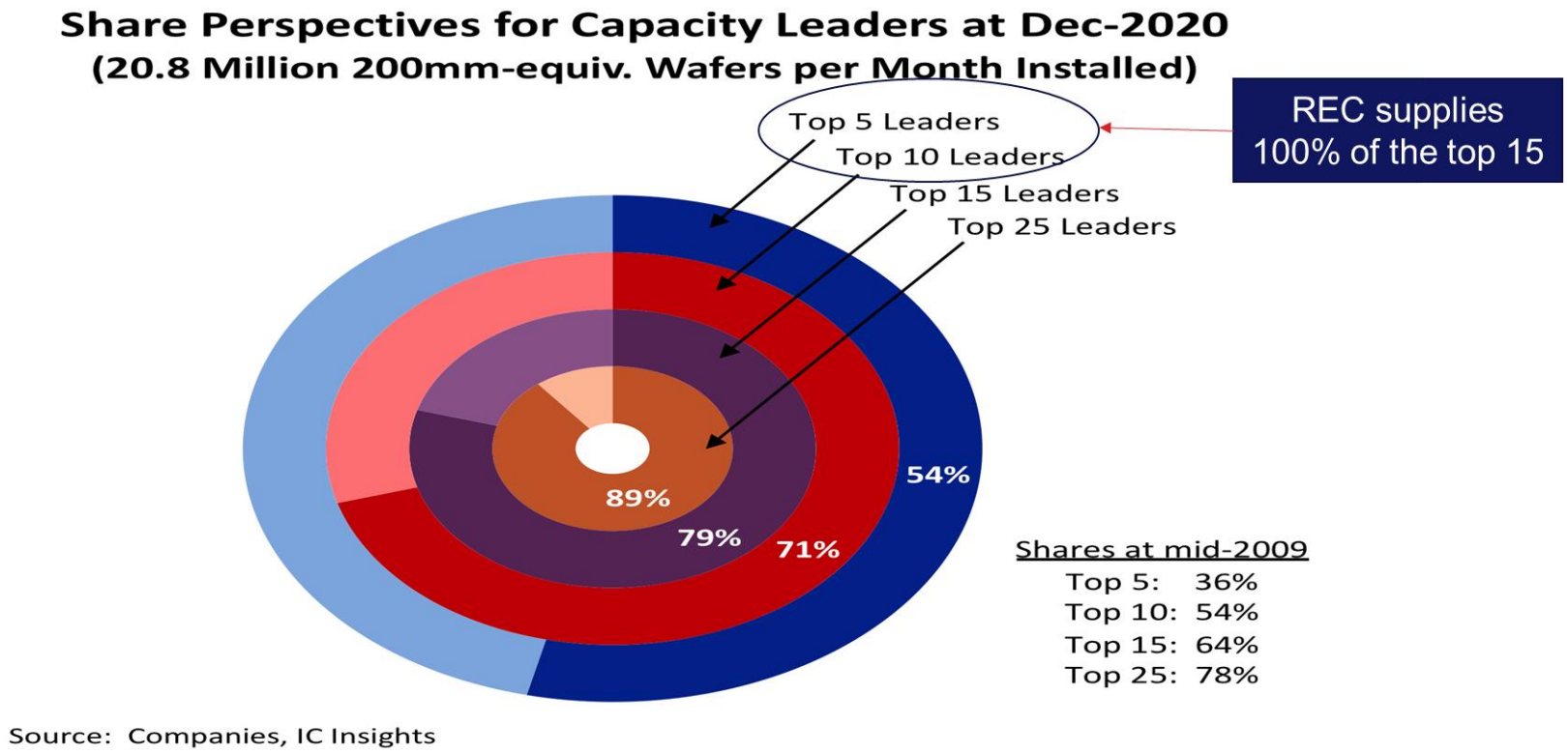
# Semiconductor Unit Growth Forecast

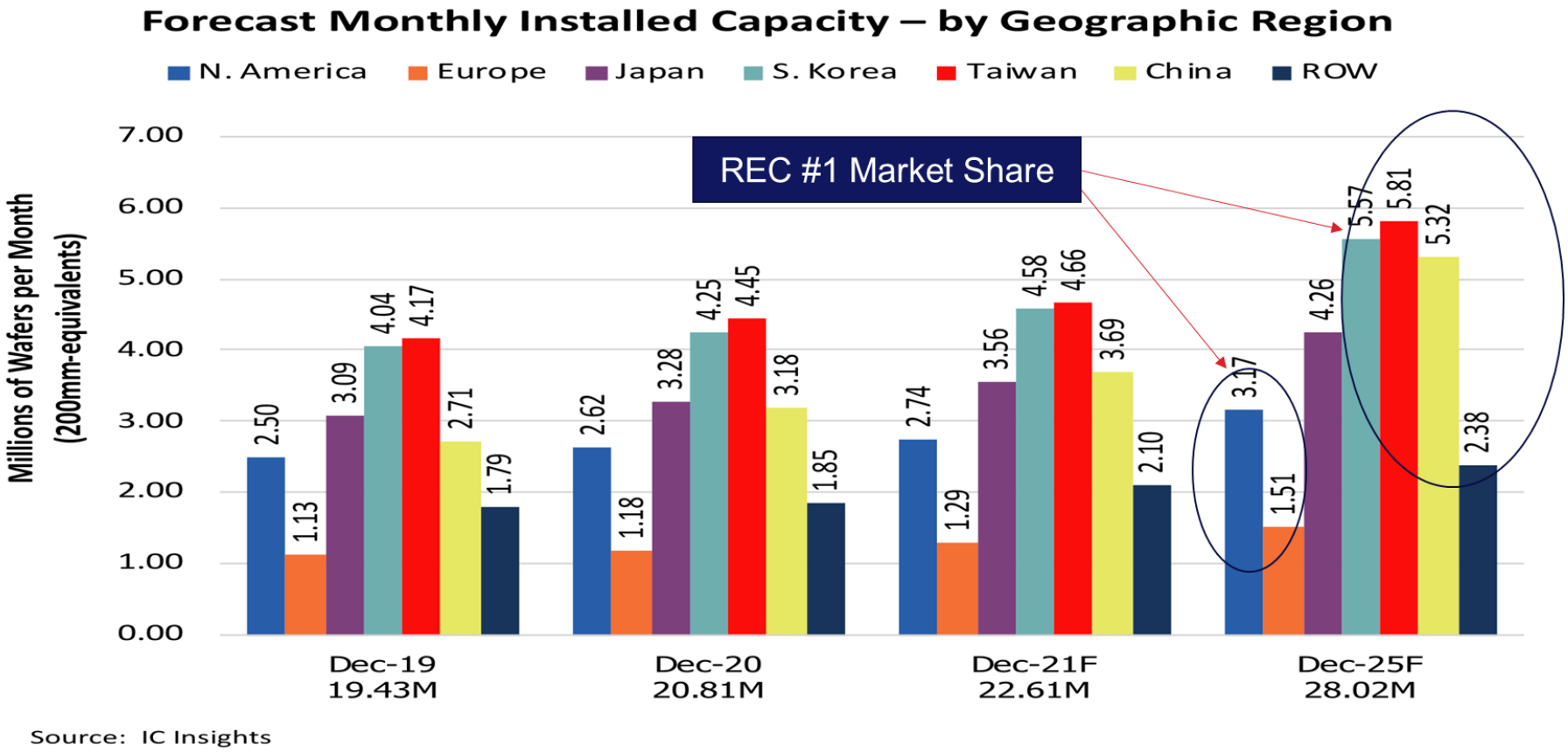



Source: IC Insights, Inc. – Global Wafer Capacity 2021-2025.

# REC Silicon Aligned with present & future market leaders

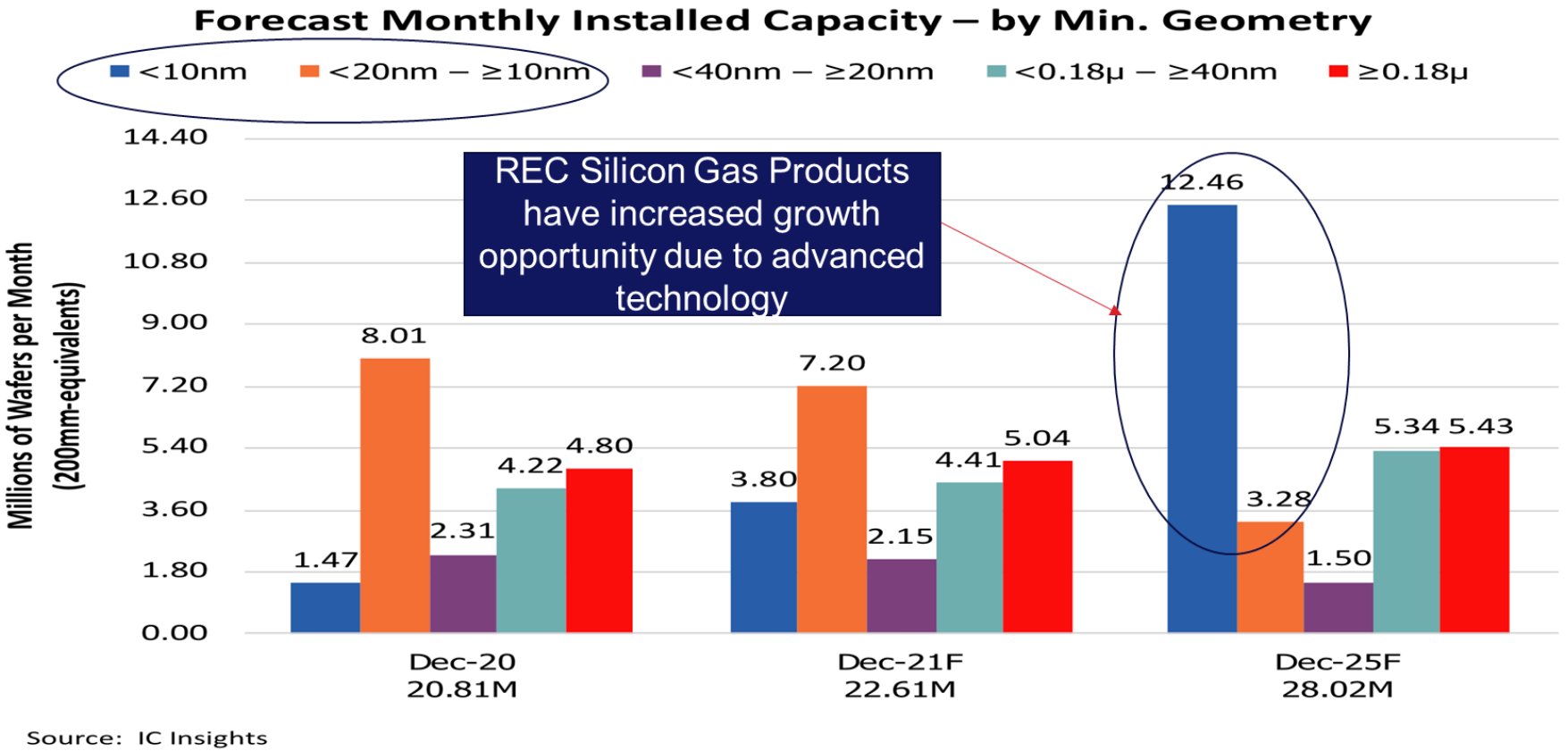


# Strong Growth favors REC Global presence & position for Silane 2020




Source: IC Insights

# Advanced Semiconductor Processes drive Silicon Gas Portfolio




Source: IC Insights

# PV Market Outlook

Francine Sullivan, Chuck Sutton

# Outside China Solar Value Chain

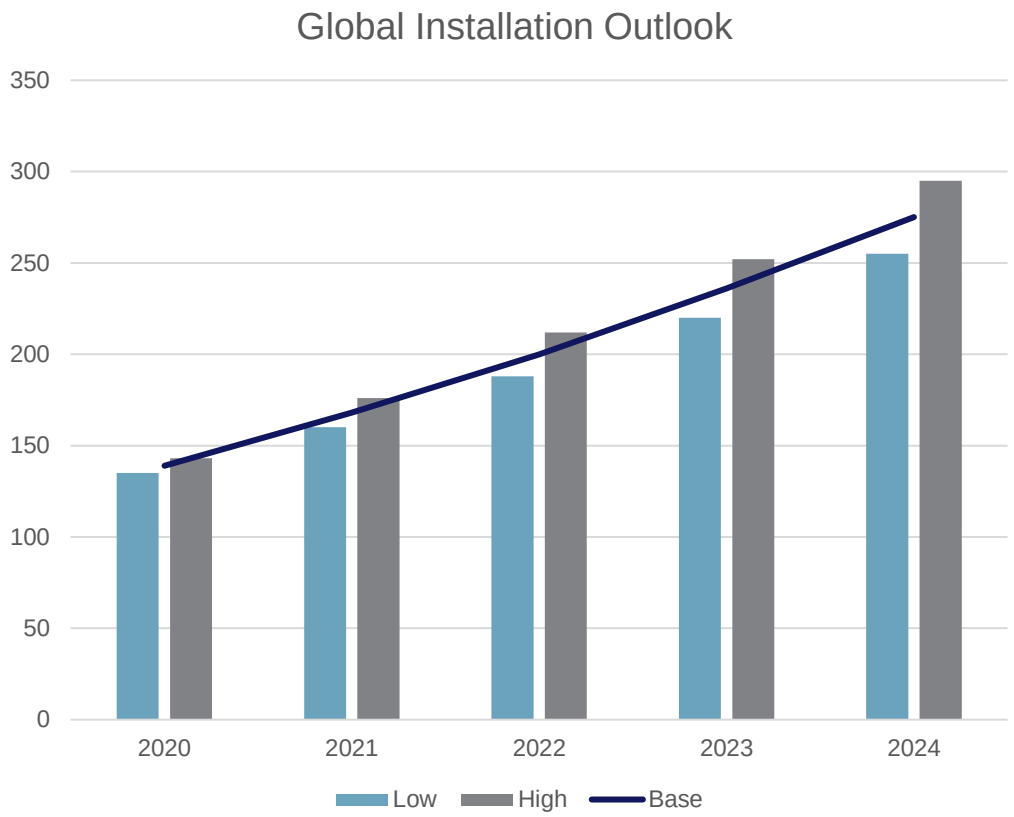
- Biden Administration elected on green energy transformation platform
  - Decarbonization & deployment of renewable energy
  - Buy American & create high paying manufacturing jobs
  - Specific policies under development, likely to form part of future stimulus
- Both US & Europe set up to take actions to support renewables
- A sustainable solar supply chain a growing global focus
  - Need to reduce the carbon footprint of solar panels

ULTRA LOW-CARBON SOLAR ALLIANCE™ Pending

"Not all solar panels are created equal"


# PV Demand Forecast Increasing

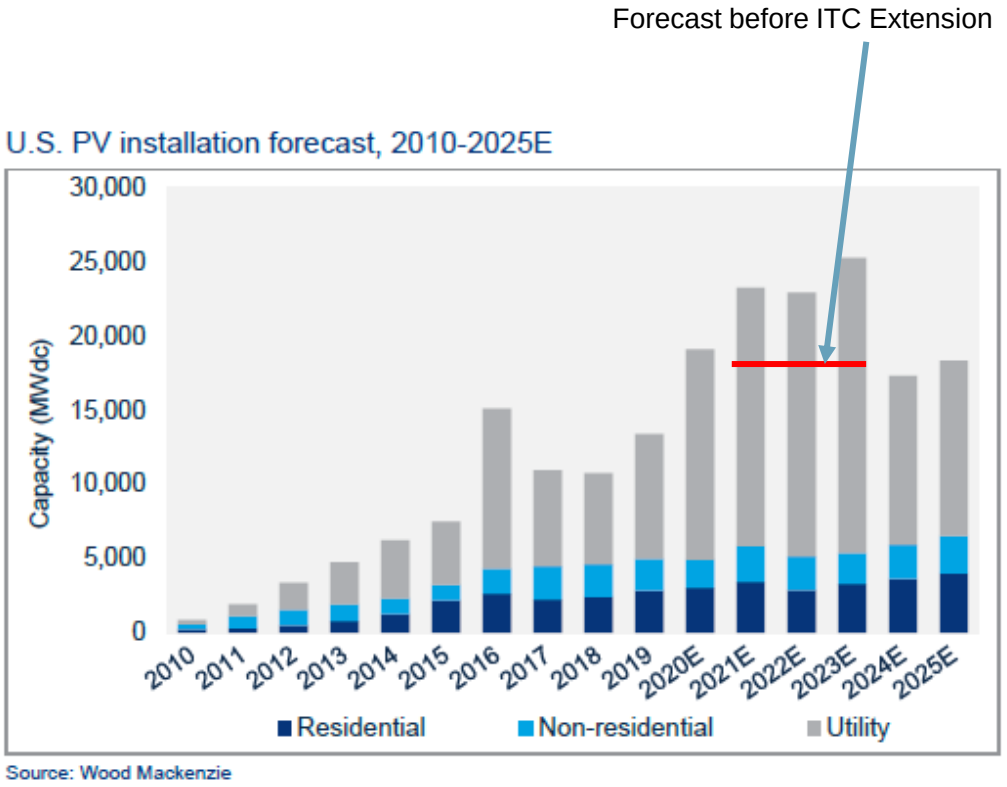
- China
  - 55-58 GW in 2021
  - Yearly growth
- US
  - Investment Tax Credit (ITC) Extension
  - 23-26 GW annually next 3 years
  - Expect further installation support
- EU
  - 25-30GW in 2021Low Carbon focus
  - Average 30GW yearly beyond 2021
- ROW
  - India recovery after COVID-19
  - GW level installation countries increasing
- Strong Demand Outside of China
  - 50GW annually in US and Europe
  - Supports outside China value chain




Source: Bernreuter Research, The Polysilicon Market Outlook 2024

# United States Market Increases

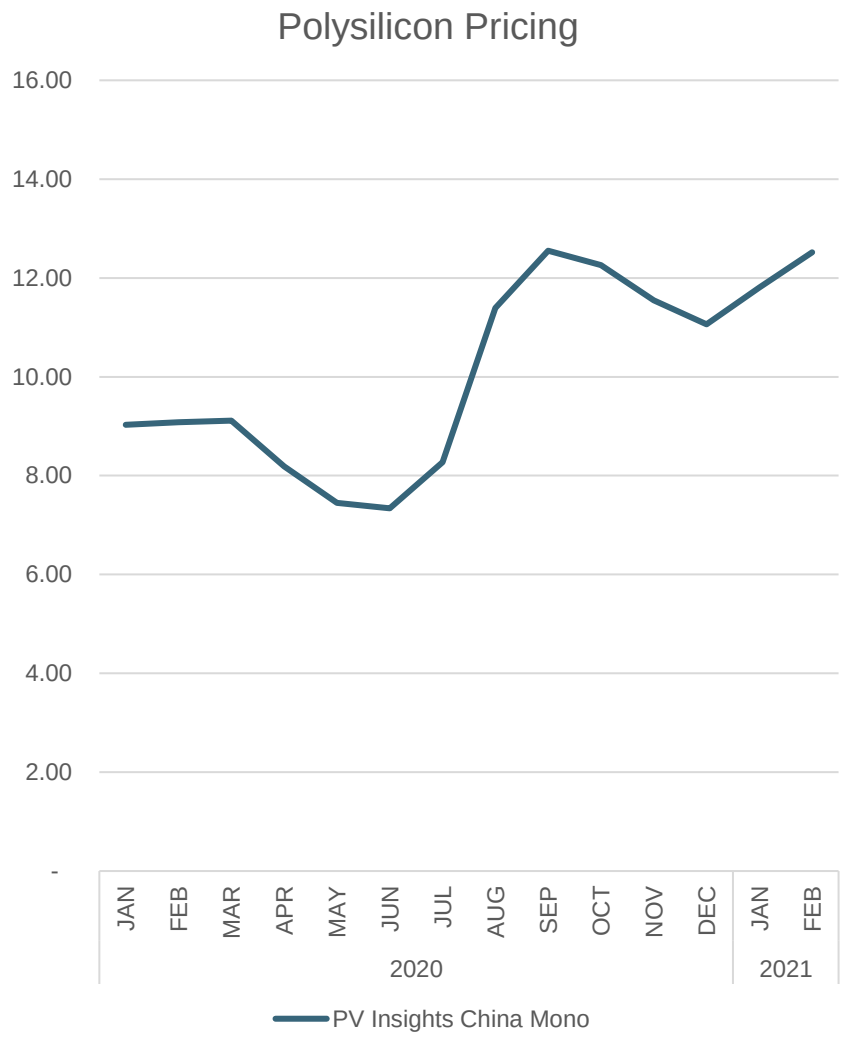
- ITC extension to support increased installations next 3 years
- Additional 15GW of installations due to ITC extension
- Presidential Executive Orders lead to positive directives on clean energy purchasing and support




Source: Wood Mackenzie

# Polysilicon Pricing

- Pricing volatility in 2020 due COVID-19 and factory incidents
- End of year pricing increased due to demand
- 2021 pricing may increase due to limited polysilicon capacity available
- Pricing supports investment for polysilicon




**Source**: PV Insights

# Yulin JV Update

# Yulin JV, China

## 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 Due to:
  - Outstanding invoices from REC
  - Disagreements on performance testing
- Write-down of investment in Yulin
  - Continuing delays to reach full capacity
  - Less REC support due in part to Covid-19 restrictions
  - Accumulation of long-term debt

## 4th Quarter and 2020 Production

- Q4 Production
  - 68 MT of Loaded Silane
  - 2109 MT of FBR Granular
  - 14 MT of Siemens
- 2020 Production
  - 169 MT of Loaded Silane
  - 5855 MT of FBR Granular
  - 74 MT of Siemens


# Battery Opportunities

Francine Sullivan

# Electrification Transition

## Silicon Increases Battery Performance

FOURTH QUARTER 2020

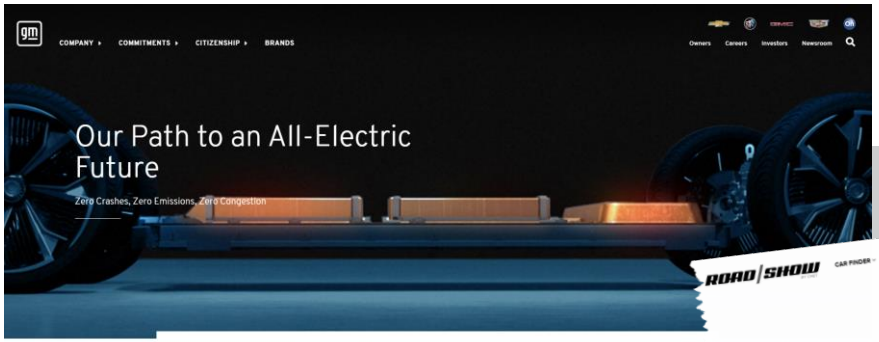
### EV Market Investments and Expansion

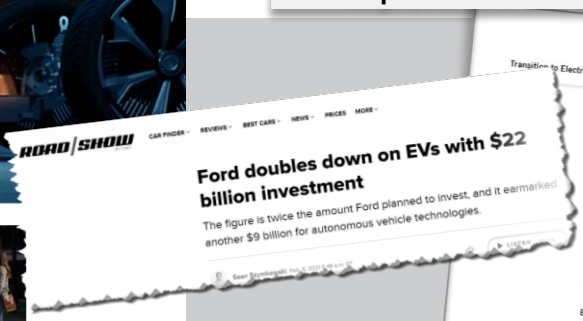
- Battery/EV industry experiencing significant tailwind
- Numerous new EV players, major incumbent automakers make moves into the industry
  - Ford significant EV investments
  - GM all electric by 2035
- Biden administration/global policy makers focus on the importance of domestic battery supply chain and deployment of EVs to combat climate change
- Significant investor interest in the sector

### Silane $SiH_4$ in Next Generation Advanced Anode Material

- Next generation silicon anode materials using silane achieving 20-30% increased performance
  - ~50% performance increase within time
  - Better value that graphite
- Silane preferred silicon source for next generation silicon anode technologies
- Advantages: Improves energy density, reduces battery weight and costs, unlocks cathode capacity, increases the power acceptance allowing **faster charging** and **longer range**

**Advanced silicon anode material utilizing silane is "drop in" solution to replace graphite = 20% - 50% performance improvement and commensurate cost reduction levels**




# Cooperation with Group14 – a Silicon Anode Leader

## Group14 Partnership

- **First commercial scale silicon anode manufacturing plant globally**
  - Group14 Technologies (Group 14) plans to build 12,000MT nameplate capacity advanced silicon anode manufacturing plant co-located at REC's facility in Moses Lake
    - Expected to break ground in 2021
    - REC Silicon to supply silane via pipeline
    - REC Silicon and Group14 to develop pipeline infrastructure
- Group14 pilot plant installation activities underway in Moses Lake

Group14 anticipates entry to the EV market in 2023, overtaking less advanced silicon anodes by 2024
High performance silicon anode batteries facilitate cost competitiveness of EVs with ICEs

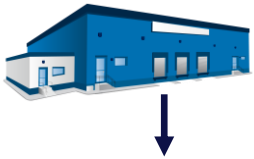
# REC well positioned to supply global market

## REC Silicon Moses Lake

**REC Silicon**
Moses Lake, WA

**Next Generation Silicon Anode Manufacturing**
Moses Lake, WA

$SiH_4$



Silicon Anode Materials → Cell/ Battery manufacturing

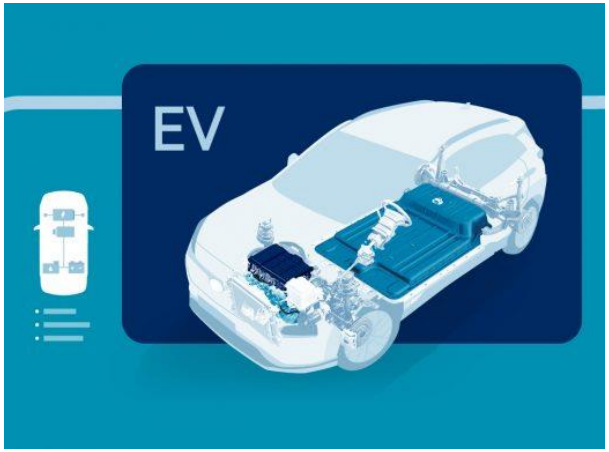
**Silane production capacity:**
~25,000 tons per year
Highest purity & lowest cost
Hydroelectricity = low carbon footprint

## Co-location is Necessary

- Current silane distribution network +/-7,000 MT/yr.
- Distribution capacity expansion capex ~$30M per 1,000MT
- Requires additional Opex
  - Loading of modules and maintenance
  - Freight and logistics

## Market Leading Si Anode Makers

- REC Silicon supplying silane to several silane anode industry leaders, including those partnering with leading car companies
- Large quantities of silane forecasted for battery and EV demands



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# Short Term Business Plan

Tore Torvund

# Silane: Feedstock for the Energy Transition

## SILANE

### SEMICONDUCTOR

**Proven Global Leader**

**Butte**

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

EBITDA **~$35M**

### SOLAR VALUE CHAIN

**Established Footprint to Capture Solar Market Upside**

**Moses Lake**

- Moses Lake FBR Poly: ~18,000MT

**Technology**

- Yulin JV Technology Transfer Agreement of USD 200M

Market Inflection

### BATTERY VALUE CHAIN

**Silicon Anodes to Drive Silane Market Expansion**

**Moses Lake**

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

Growth Driver

# First quarter 2021 business plan for REC Silicon

- Stronger financial position creates business opportunities
  - Implement previously identified business opportunities with limited investment and high return
- Focus efforts on restart of the Moses Lake plant pursuing the following opportunities:
  - Development of a non-Chinese PV value chain
  - Agreement with silicon anode battery companies for industrial scale production of silicon anode materials
  - Compliance by China with Phase 1 Trade Agreement commitments

# Q1 2021 Reporting
May 11, 2021

recsilicon.com

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