

SILICON SMELTER

INVESTMENT OPPORTUNITY SCORECARD

MINING & METALS

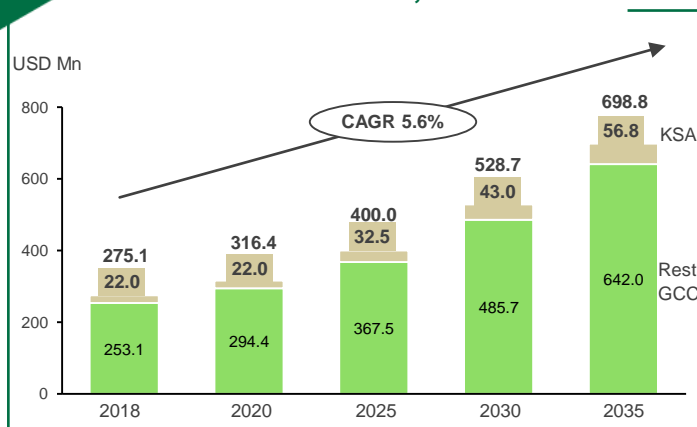
SEPTEMBER 2020



MINING & METALS SILICON SMELTER

OPPORTUNITY DESCRIPTION: Opportunity to setup a silicon metal smelter of 45 KT capacity in KSA to cater local demand and serve regional markets

DEMAND MARKET SIZE, USD



INVESTMENT OVERVIEW

INVESTMENT HIGHLIGHTS

- Expected Investment size of USD 140 Mn
- Plant capacity: 45 ktpa
- Expected IRR: 14.1%
- Payback period: 9.2 years

VALUE PROPOSITION

- First mover advantage given non-existent local production of silicon metals and lack of competition from any major global/local player
- KSA is a geologically rich and diverse country and is considered the largest in the GCC market in terms of mineral resources availability
- USD 1.3 Trillion reserve of untapped mining potential
- KSA's geographical advantage and trade agreements with neighboring countries make exporting favorable

KEY DEMAND DRIVERS

- KSA silicon demand for the aluminum sector could reach 16 ktpa by 2035, mainly driven by FRP, extrusion, casting and wire production
- Increasing production of paints & coatings, surfactants, lubricants, sealants, adhesives, rubber, glass, ceramic and foundry to drive demand for chemical silicones
- Saudi Arabia has set a target of 58.7 GW of renewable energy by 2030 which will further fuel demand for silicon metal as it is a primary material used in composition of solar cells
- Solar/electronics industries demand for silicon is expected to grow at CAGR 6% over next five years

MARKET OVERVIEW

GLOBAL TRENDS

- Global silicon metal market size is projected to reach USD 9.7 Bn by 2026, from USD 7.5 Bn in 2020, at a CAGR of 4.4% during the forecast period
- Downstream industries of silicon metal products such as aluminum industry, silicone compounds, photovoltaic solar cells and electronic semiconductors expected to witness an optimistic upward trend globally
- One of the major factors driving the silicon metal demand is the increasing market for aluminum-silicon alloys. Some highlights of silicon metal future:
 - Semiconductor application dominated the market, and is expected to grow over next decade
 - Rising demand for solar panel in Asia-Pacific is likely to act as an opportunity in the future
 - Asia-Pacific expected to dominate the overall silicon metal market, with the largest consumption from countries, such as China and India
 - Government commitment towards renewable energy to drive demand in the GCC



MINING & METALS SILICON SMELTER

Public / متاح

SUPPLY

SCALABILITY AND LOCALIZATION

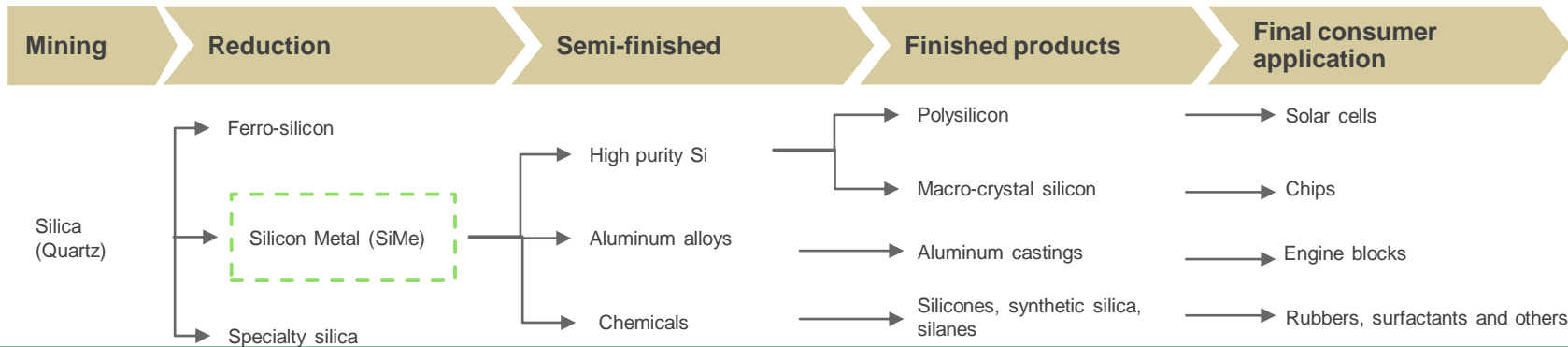
Grade: Low Medium High

- Abundant availability of raw material (silica ore) required for producing silicon metals
- Competitive energy prices (~45% of operating costs) in KSA
- Integration with polysilicon smelter to create cost competitiveness against China and other global suppliers

IMPORT DEPENDENCY

- In 2018, KSA imported 8 KT silicon metal representing 100% of its local demand

SILICON VALUE CHAIN



KEY STAKEHOLDERS



ENABLING FACTORS

ENABLERS

- Up to 75% of project financing by Saudi Industrial Development Fund (SIDF)
- 2-year grace period for the repayment of loans
- Human Resources Development Fund (HRDF) provides 30%, 20% and 10% of Saudi nationals' salaries for their 1st, 2nd & 3rd years of work, respectively

COST OF DOING BUSINESS IN KSA

| Factor | Ranking amongst regional peers |
|---|--------------------------------|
| Electricity tariffs for industrial players | \$48 /MWh |
| Productivity adjusted wages | \$3.3 /hour |
| Logistics Performance Index (1-5) | 3.2 |
| Construction Costs (Indexed to US, % 0 is cheapest) | 74 |
| Ease of getting credit (0-100) | 50 |

DEFINITIONS

| # | SCORECARD SECTION | DEFINITIONS |
|----|-------------------------------|---|
| 1 | Market size | Size of market in value/volume in KSA and/or Region (MENA/GCC) covering future projections based on available estimates from published /government sources |
| 2 | Demand drivers | A select number of factors that will influence future demand for the related product/service |
| 3 | Investment highlights | An overview of key financial metrics summarizing the investment opportunity along with the expected return based on the suggested investment size |
| 4 | Value proposition | Summary of key differentiators that position KSA as a strategic choice over other regional/global peers |
| 5 | Market readiness | An overview of KSA market structure, market maturity and level of participation by local and global players |
| 6 | Competitor analysis | List of the local & international players manufacturing the underlying product in Saudi Arabia and their market share |
| 7 | Global trends | Latest business developments within the sector/product category |
| 8 | Scalability and localization | Ease of scaling the business across the value chain or into new adjacent products or geographies that would maximize the opportunity's investment returns and the ability and potential to locally manufacture the product and its components |
| 9 | Import dependency | An overview of the countries from which Saudi Arabia is importing the product and their value/volume and share in total imports |
| 10 | Value chain analysis | The process or activities that would potentially need to be carried out to deliver the underlying product or service |
| 11 | Key stakeholders | Government institutions, organizations, and/or authorities that participate or influence the market for the underlying product/service |
| 12 | Enablers | Factors that enable investment in the underlying opportunity |
| 13 | Cost of doing business in KSA | Key factors that position KSA as a competitive destination for investment in the region |

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