



Nonmetallic Investment Opportunities

CAMX 2021 - Dallas, Texas
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iktva Program Overview

The IN-KINGDOM TOTAL VALUE ADD (iktva) Program



- Drives **domestic value creation** by working with **suppliers** for mutual benefits
- Envisions to **improve investment**, and **maximize long term economic growth** and **diversification**
- Focuses on delivering **quality jobs**, **advancing innovation** and enhancing **global competitiveness**

IKTVA is designed to reward Saudi Aramco's suppliers for the use and development of local labor and sub-suppliers



Glass Fiber Investment Opportunity Summary

The opportunity



- Great potential to establish state of the art manufacturing facility for glass fiber to meet growing demand in the kingdom
- Opportunity also exist to supply raw materials and finished products to various growing sectors including Oil and Gas, Building and Construction and others.

The business case



1. Global demand on glass fiber is growing at 5% CAGR and will reach 8 MM Tons by year 2030
2. Localization has the potential to significantly reduce KSA's imports while facilitating the opportunity to export glass fiber to Europe and middle East
3. Kingdom demand will reach 250 K Tons. 37% will be used in Pipes and tanks applications



Glass Fiber Applications



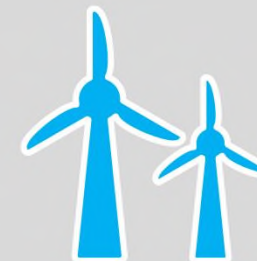
Oil & Gas

- RTP piping
- RTR piping
- FRP tanks



Civil & Construction

- Manholes
- Rebar
- Cladding
- Furniture



Renewables

- FRP blades for wind mill and other products

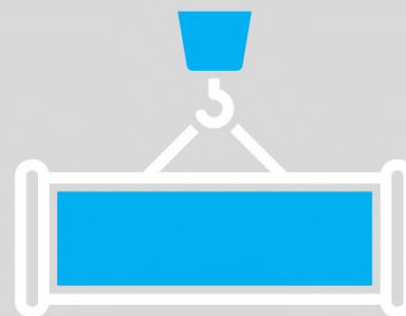


Glass Fiber Product Benefits



Cost

- Significant potential for cost saving
- Cost-effective manufacturing processes
- Low-to-moderate tooling costs



Light weighting

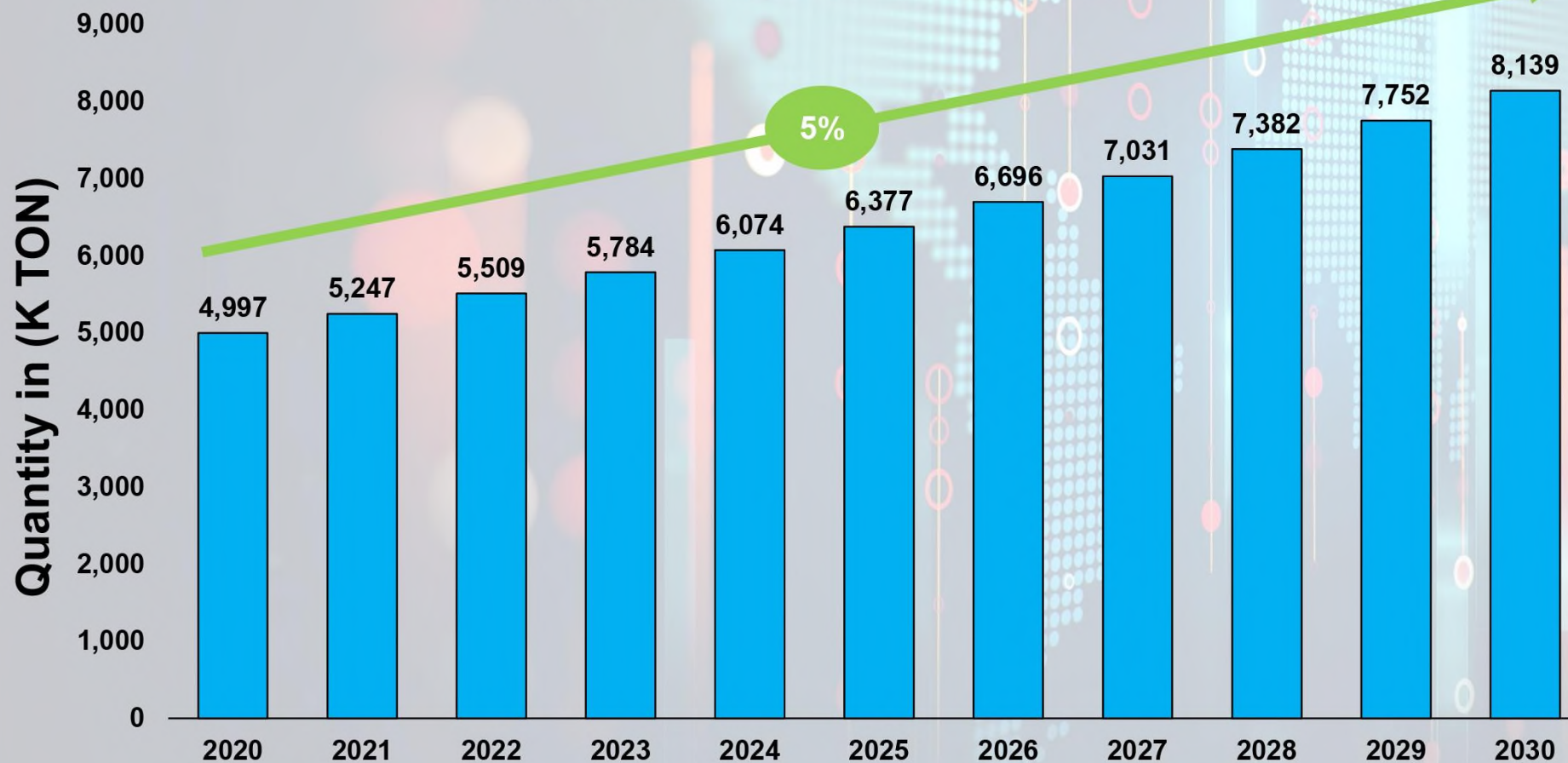
- Light weight
- Ability to build in, ex-mold, both color and texture



Durability

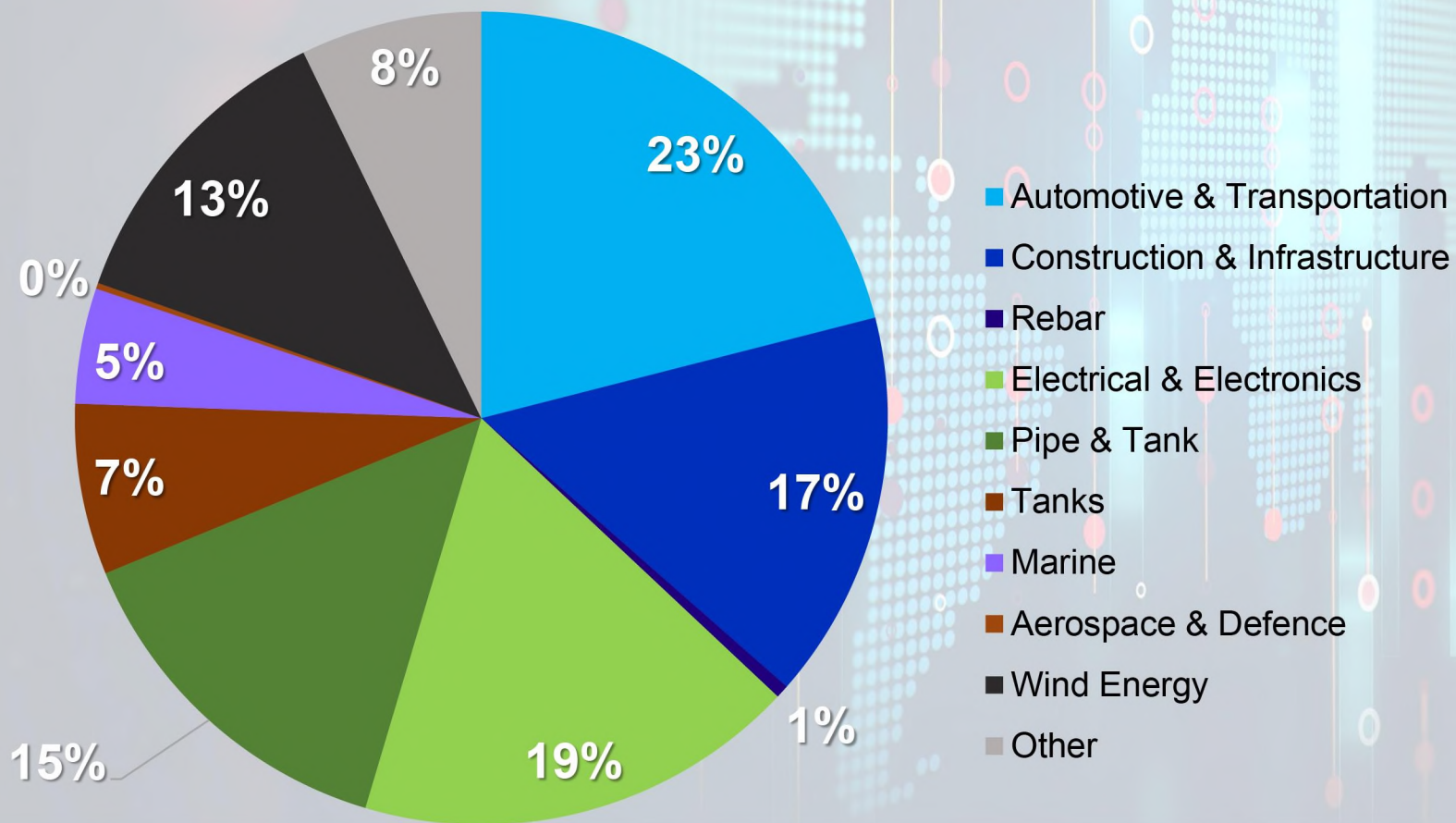
- High tensile strength at low weight
- Excellent environmental resistance
- Wide resin compatibility

Global Demand of Glass Fiber



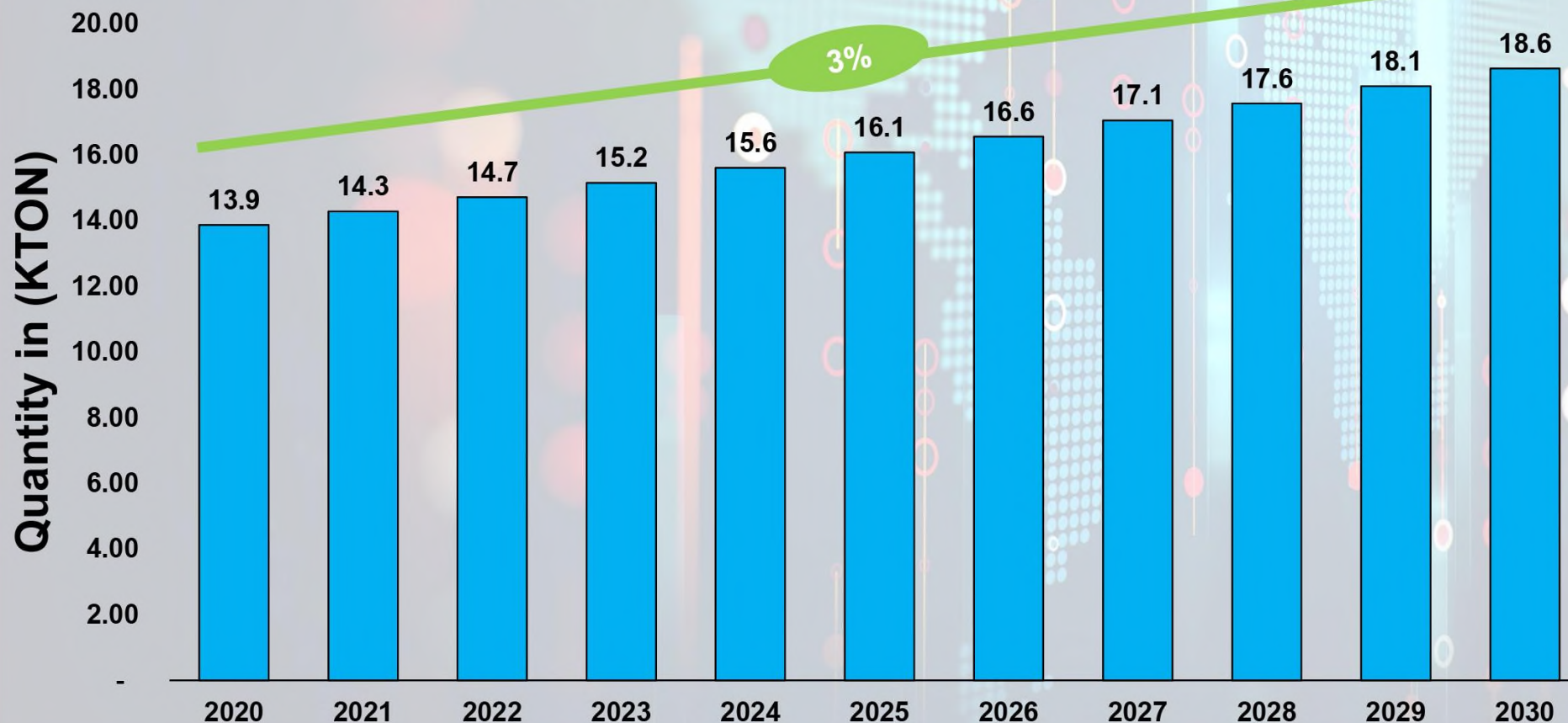
- The global demand on Glass Fiber is expected to grow at 5% from 4,997 K Tons in 2020 and will reach 8,139 K Tons year 2030

Global End-use Glass Fiber Roving by Application [K Tons]



- Automotive represents 23% of the total consumption of glass fiber among other applications.
- Rebar have the highest growth rate of 9.5%

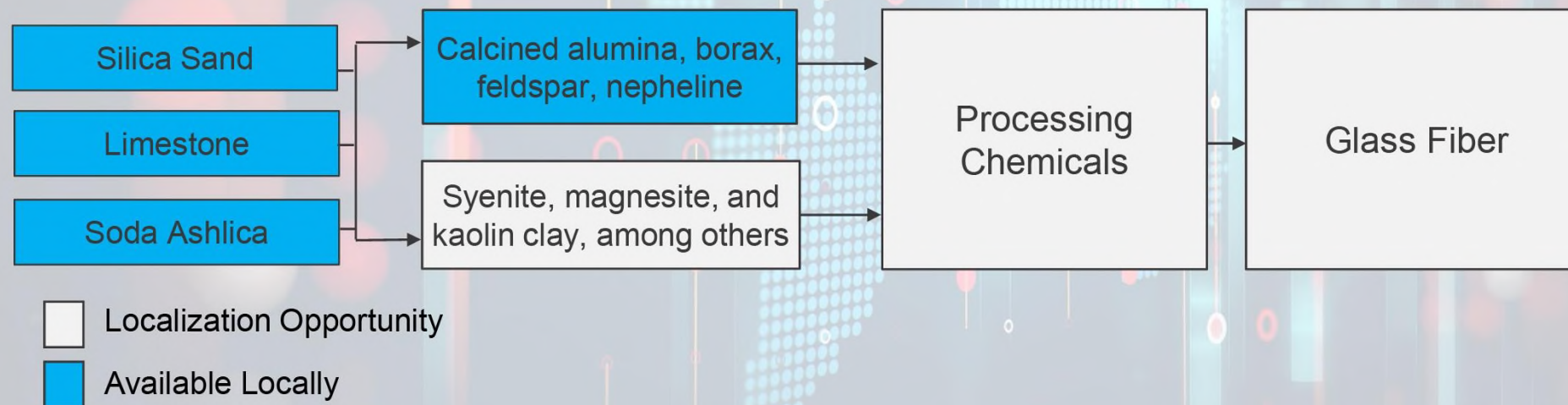
Saudi Aramco's Demand of Glass Fiber



- The Saudi Aramco demand on the end products is expected to grow at 3% from 13.9 K Tons to reach 18.6 K Ton in 2030.

Glass Fiber Value Chain Mapping

Key ingredients are available locally and in GCC region.





Structural Components Investment Opportunity Summary

The opportunity



- Potential exist to establish world class manufacturing facility for structural component to meet the growing demand in the kingdom and GCC
- The Saudi structural component market will grow at the finished product step in the value chain through the diversification from other material to nonmetallic alternatives

The business case



1. Global demand is reaching 86 MM Ton global and forecasted to grow at 5.6% CAGR
2. Localization has the potential to significantly reduce KSA's imports, while facilitating the opportunity to export composite structure materials to the GCC
3. GCC market size on structural component will grow at 6.8 % and will reach 2.9 MM Ton in 2030

Structural Component Applications

Structural members



Offshore structure



Roof Framing





Structural Component Products Benefits

Corrosion Resistant

composite structures are an alternative to structural steel specially when corrosion resistance is a most for the structure

Strength

Composite structures has a very high tensile strength when compared to steel

Cost Effective

Reduce maintenance costs for structures exposed to the environment

Light Weight

Composite structure weighs only 25% of comparable steel sizes

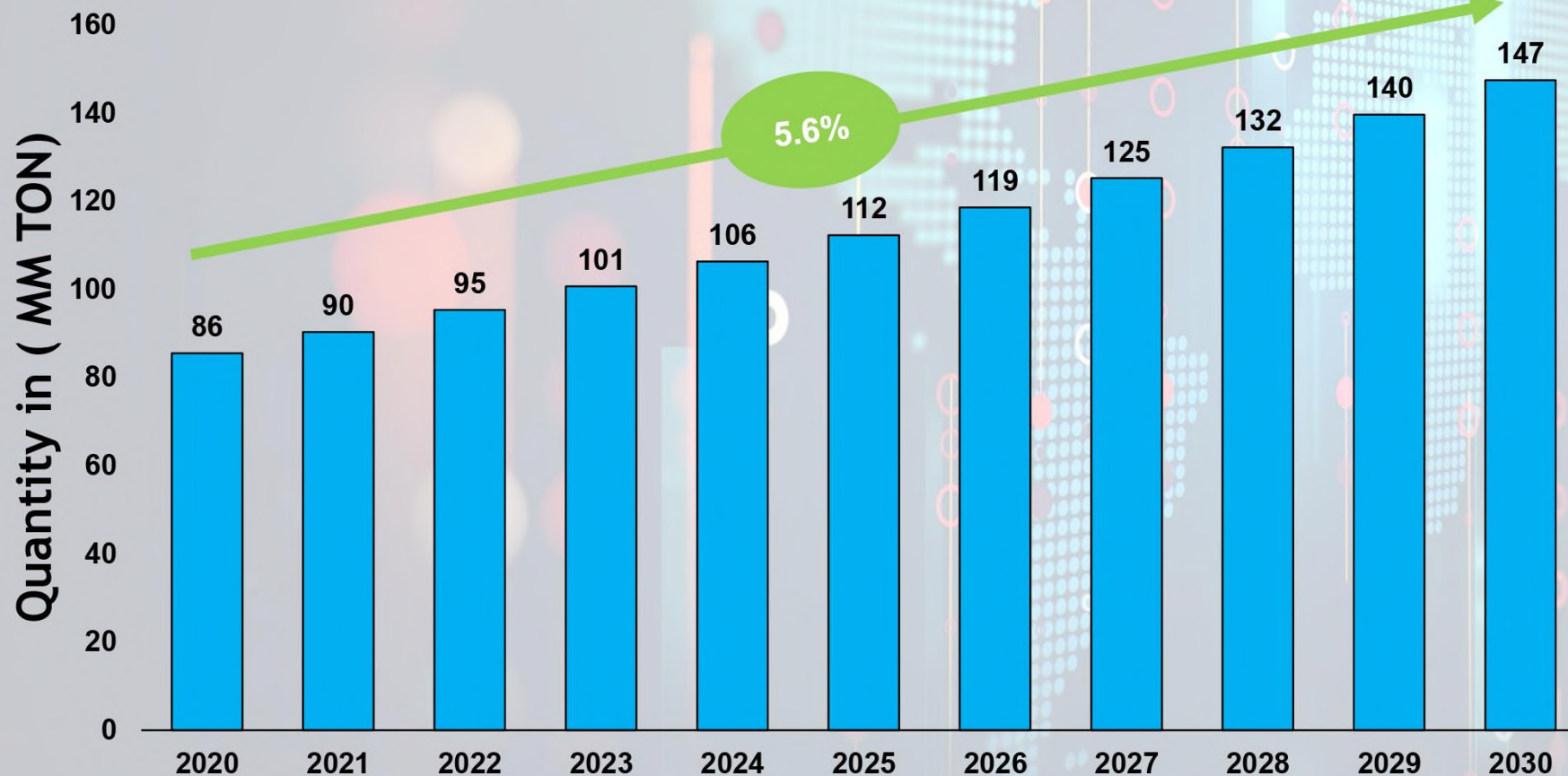
Variety of Shapes

Composite structure shapes are widely available around the world and can replace structural steel for many lightly loaded structural applications

Durable

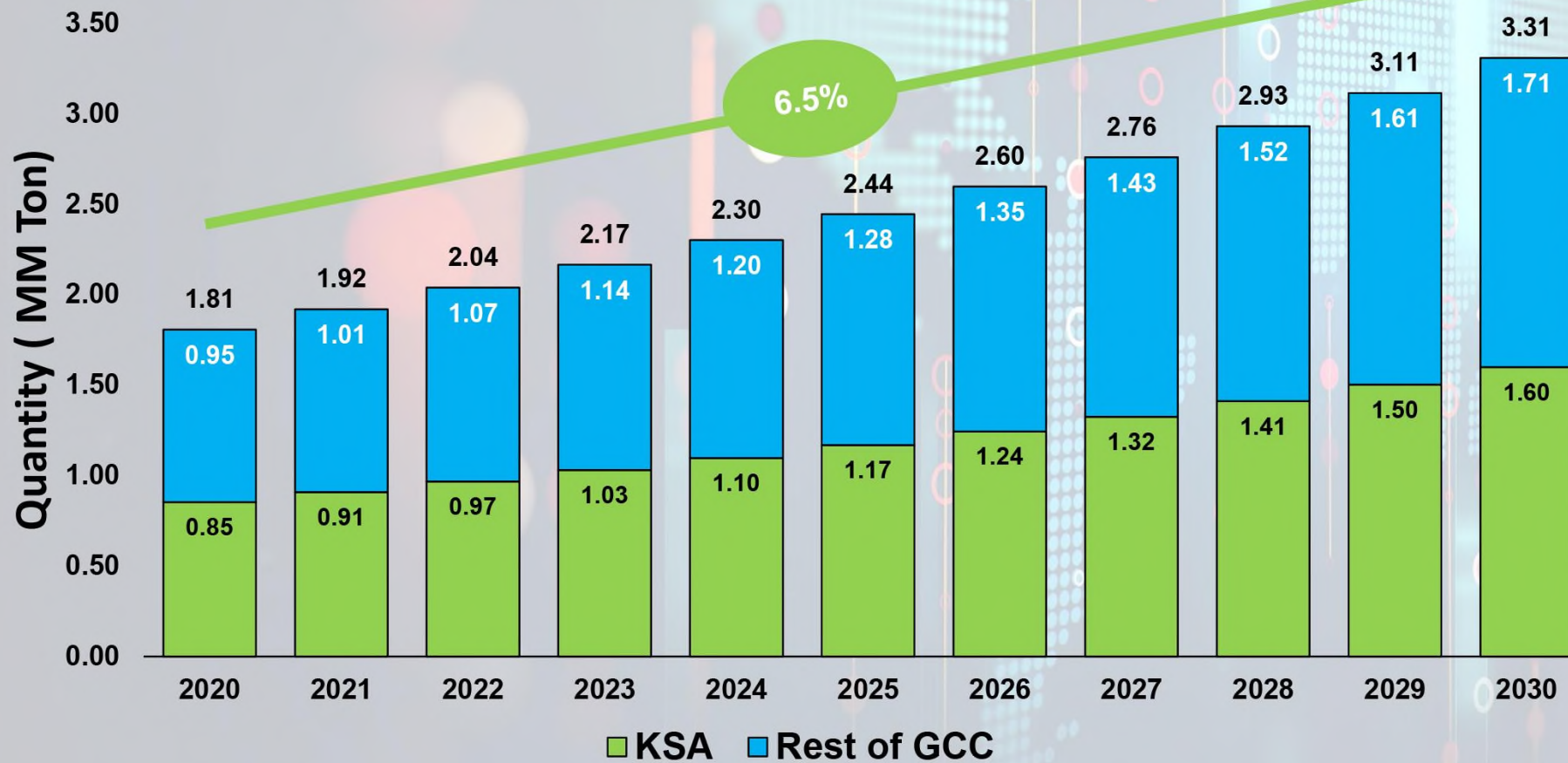
Eliminates the need for galvanizing or corrosion repair during the life cycle of most structures

Global Demand of Structural Components



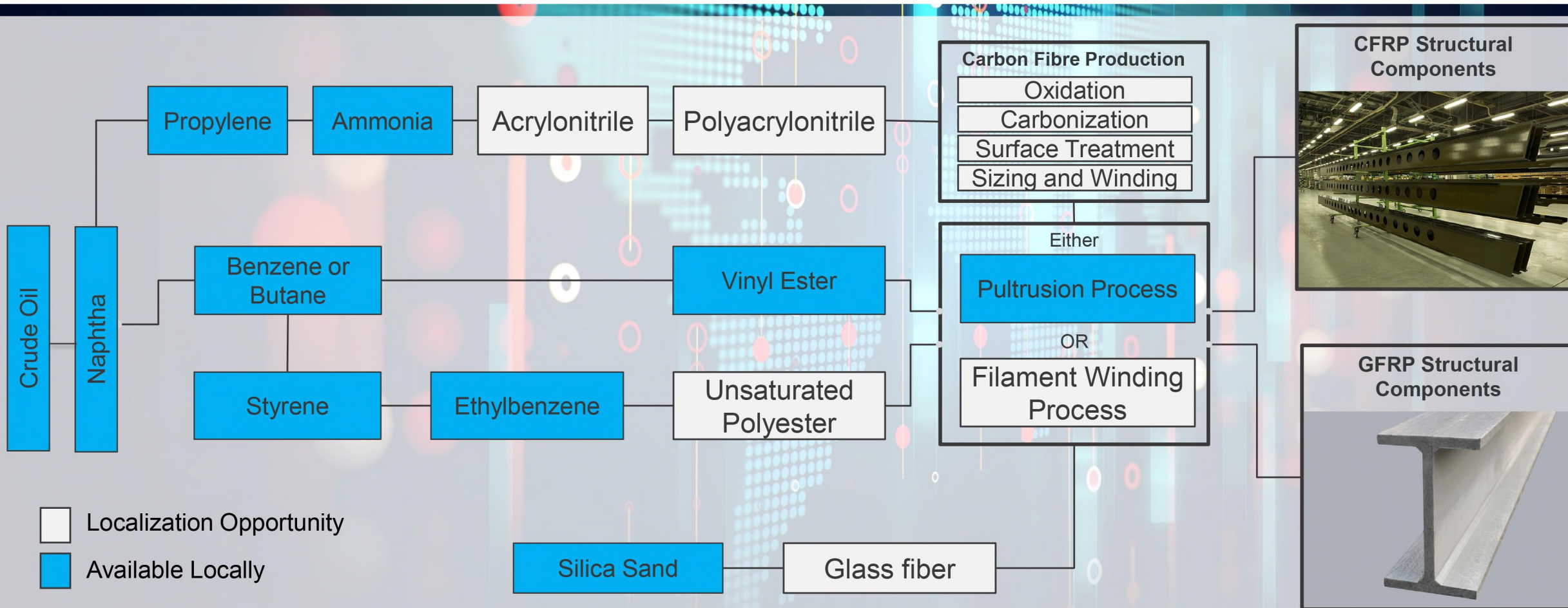
The global demand on Structural Components is expected to grow at 5.6% from 86 MM Ton in 2020 and will reach 147 MM Ton year 2030

KSA & GCC Demand of Structural Components Products



The KSA demand on Structural Components is expected to grow at 6.5% from 0.85 MM Ton in 2020 and will reach 1.6 MM Ton in 2030. Total GCC demand is expected to reach 3.31 MM Ton by year 2030

Structural Components Value Chain Mapping



Key: ■ Available locally ■ Localization/expansion opportunity



Construction Chemicals Investment Opportunity Summary

The opportunity



- Good potential for further localization to boost the existing production to serve the wider GCC market

The business case



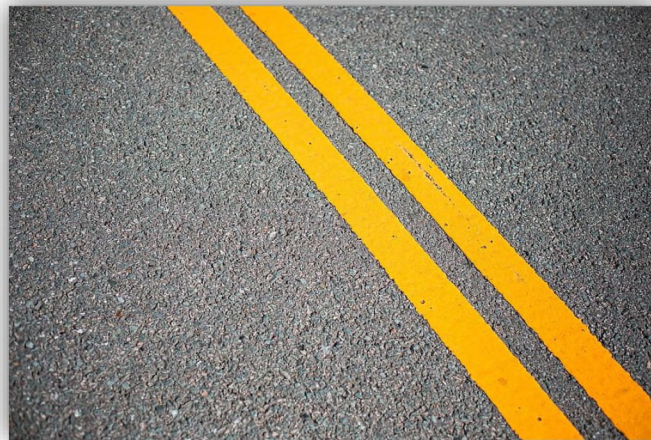
1. Global demand is estimated at 41 million ton global forecast to grow at 5.9% CAGR
2. Localization has the potential to significantly reduce KSA's imports, while facilitating the opportunity to export construction chemicals materials to the GCC
3. KSA demand 0.43 MM Tons and GCC demand will reach 1.6 MM Ton by 2030

Construction Chemicals Applications

Concrete Buildings



Roads



Soil Stabilization





Construction Chemical Products Benefits

Workability

Place the product with ease with minimum manpower effort

Strength

Achieve higher material strength while maintaining the same construction material quantities

Cost Effective

Overall it is cheaper in life cycle cost due to reducing material ingredients quantities for the design mix and provide low maintenance

Water Saving

Reduce the amount of water consumption to maintain the desired properties in construction material such as concrete

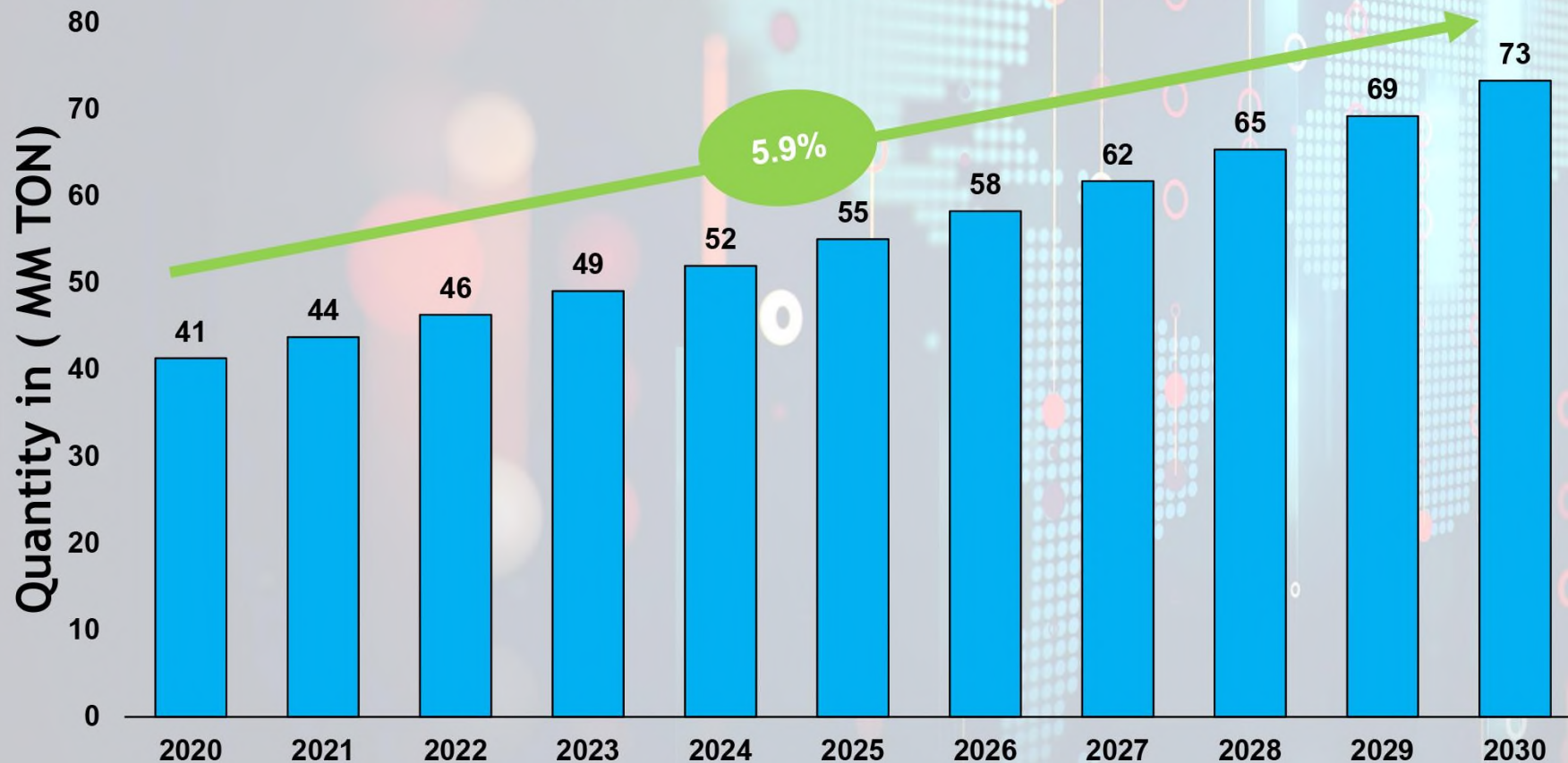
Reachability

Reach out further distance while maintaining desired properties

Durable

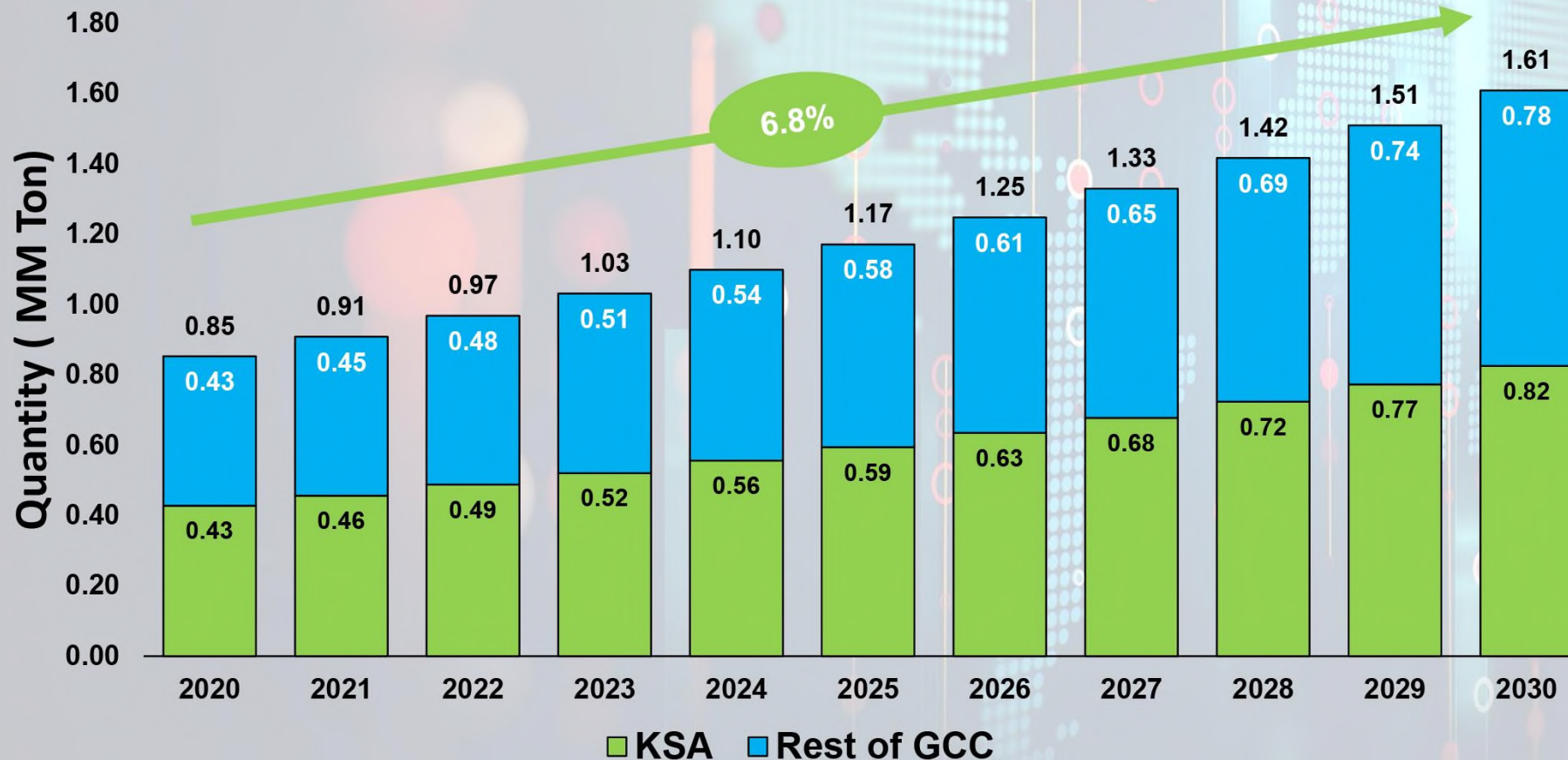
Produce durable less permeable construction product therefore increasing the lifespan of the material

Global Demand of Construction Chemical



The global demand of Construction Chemicals is expected to grow at 5.9% from 41 MM Ton in 2020 and will reach 73 MM Ton year 2030

KSA & GCC Demand of Construction Chemical Products

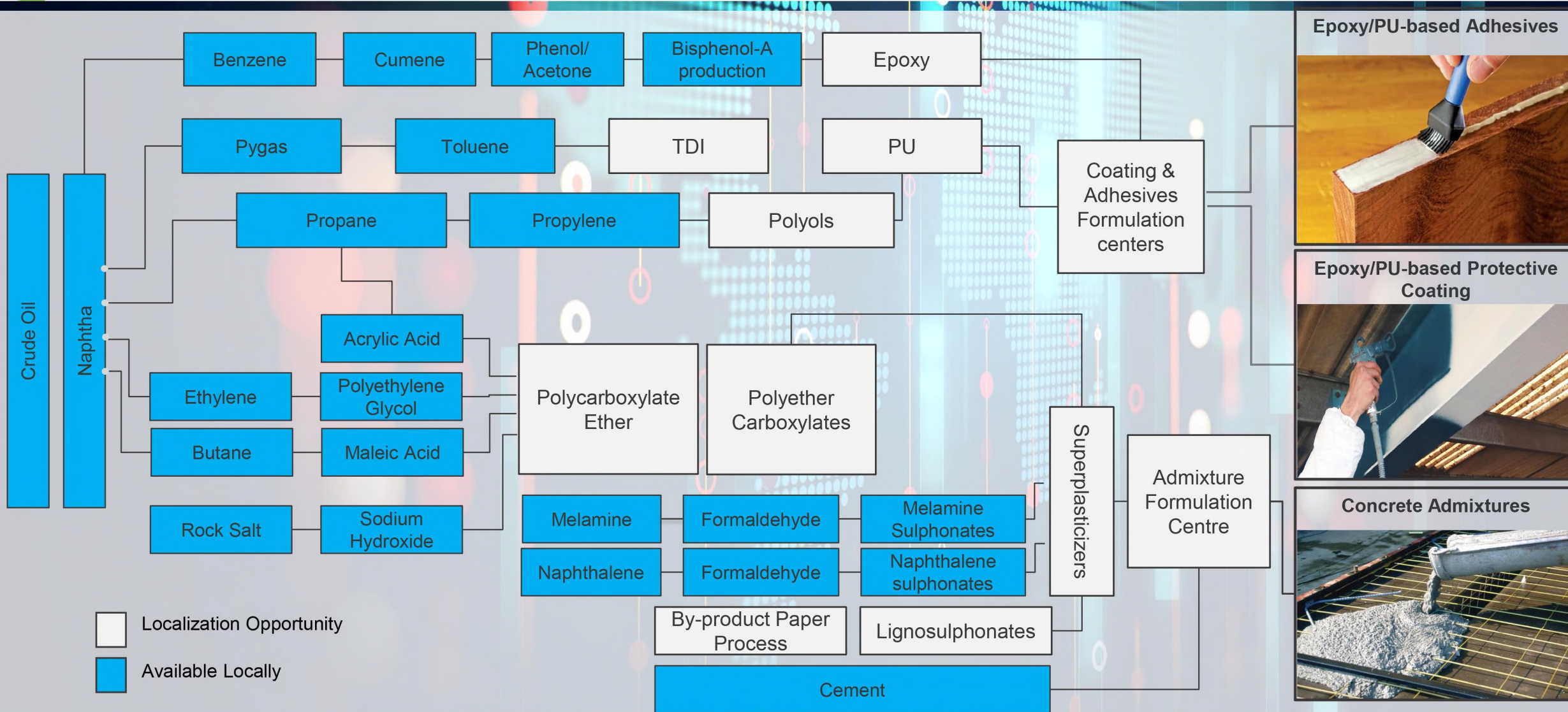


The KSA demand on Construction Chemicals is expected to grow at 6.8% from 0.43 MM Ton in 2020 and will reach 0.83 MM Ton in 2030. Total GCC demand is expected to reach 1.61 MM Ton by year 2030

Source: Future Materials Group

Saudi Aramco: Public

Construction Chemicals Value Chain Mapping





Insulation Investment Opportunity Summary

The opportunity



- Good potential for localization to boost current existing production to serve the wider GCC market
- Significant partnership opportunities with global players looking to establish a GCC-base and potential opportunity of technology transfer
- Opportunity to become global raw material supplier for key ingredients polystyrene and polyurethane

The business case



1. A large 25 million ton global and 0.6 million ton GCC market, growing at 7% CAGR
2. Significant energy conservation opportunity as HVAC accounts for approximately 70% of electricity consumption in KSA
3. Given insulation's low cost per volume, transport costs can make up a comparatively large portion of the cost, thereby reducing the ability for foreign competitors to export competitive products versus locally sourced alternatives

Insulation Applications

Walls & foundations



Roofs



Structural insulated panels



Insulated concrete forms





Insulation Products Benefits

Energy savings & environmental protection

Prevents the transmission of heat from exterior building walls and increases energy efficiency while reducing CO2 emission by keeping energy consumption and costs down

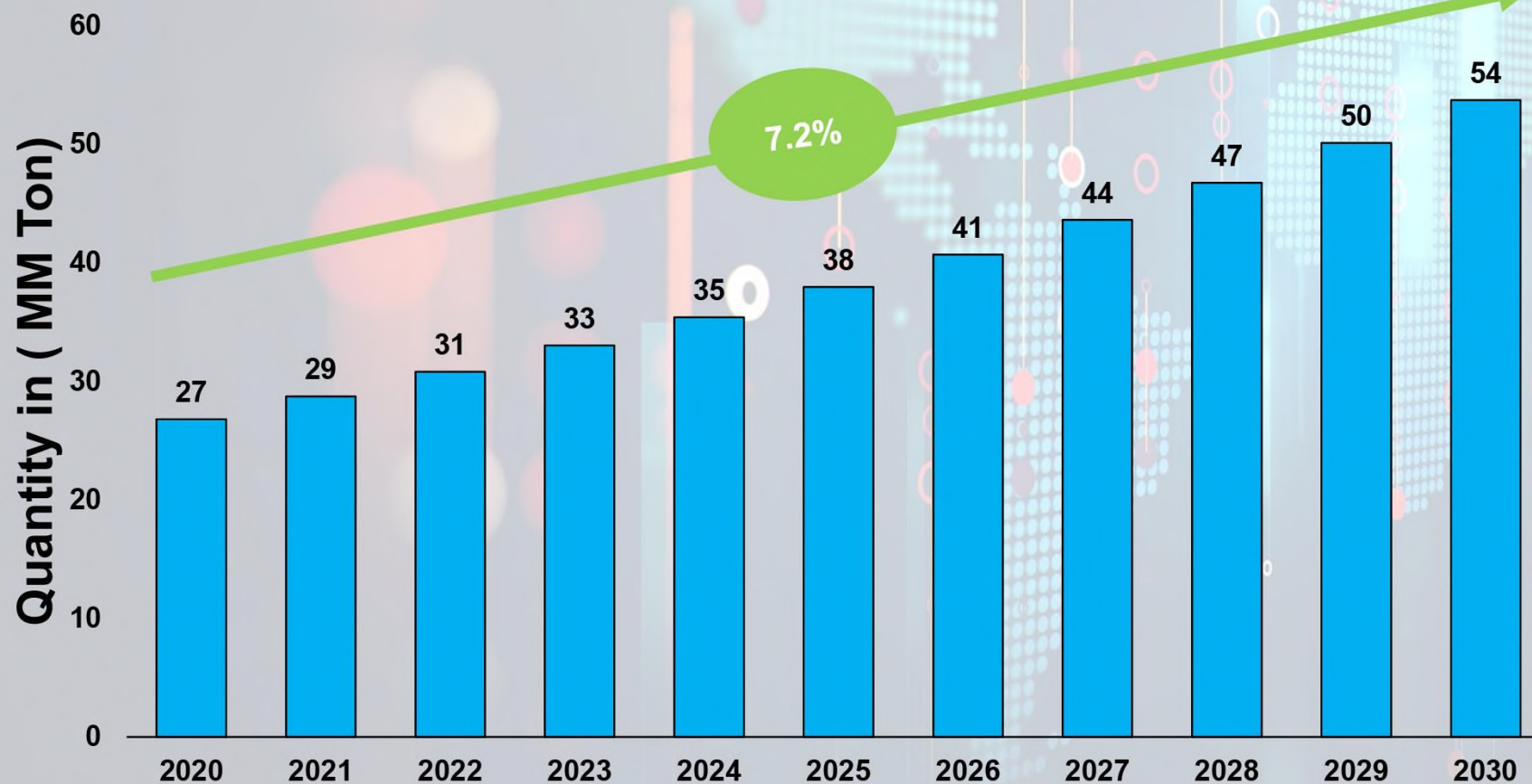
Control condensation and moisture

Reduces condensation while improving comfort and preventing costly moisture damage to building materials and mould growth

Life cycle cost

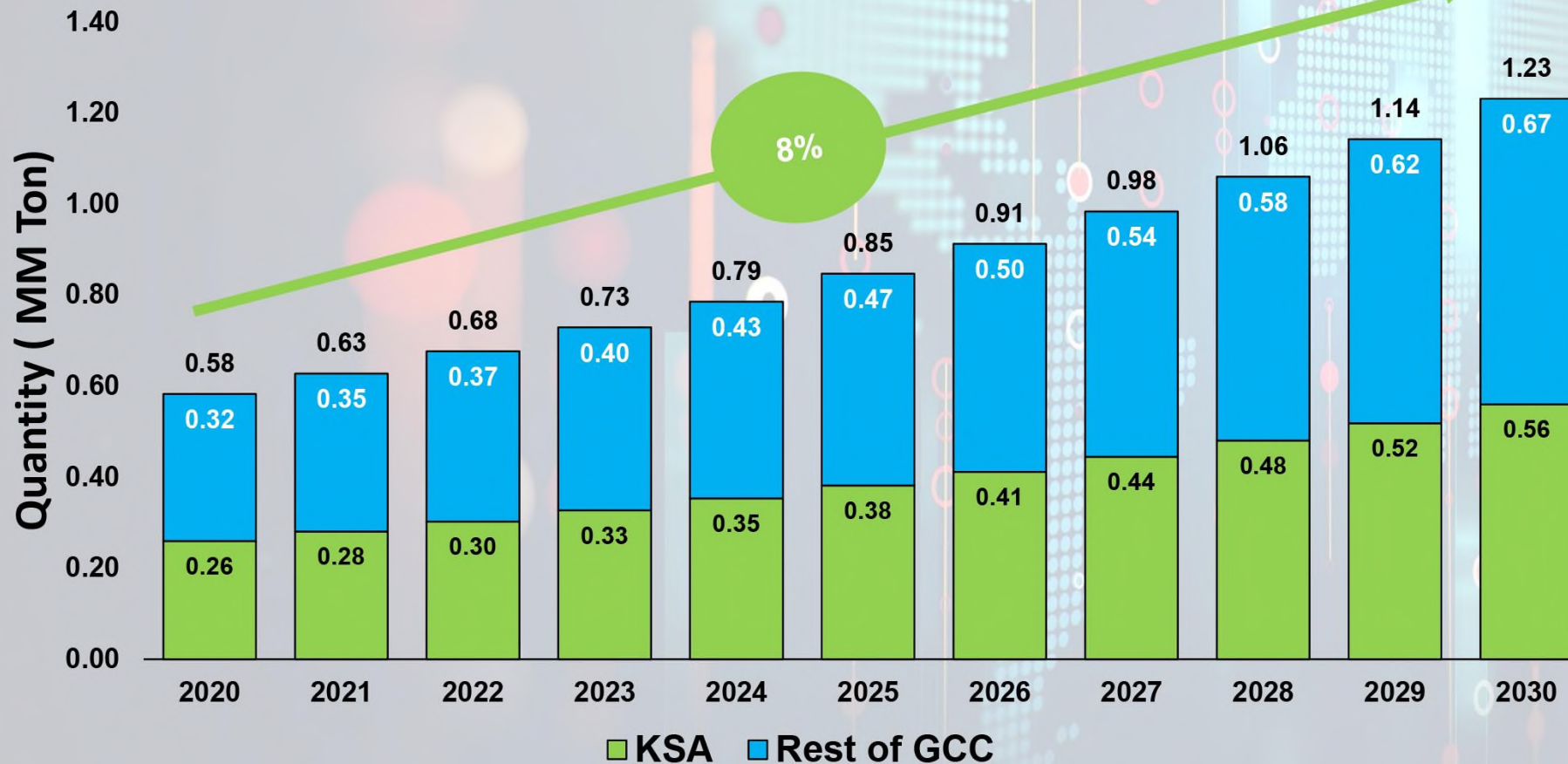
Significant potential for government and treasury cost savings through reduced public energy costs

Global Demand of Insulation Products



The global demand on Insulation products is expected to grow at 7.2% from 27 MM Ton in 2020 and will reach 54 MM Ton year 2030

KSA & GCC Demand of Insulation Products





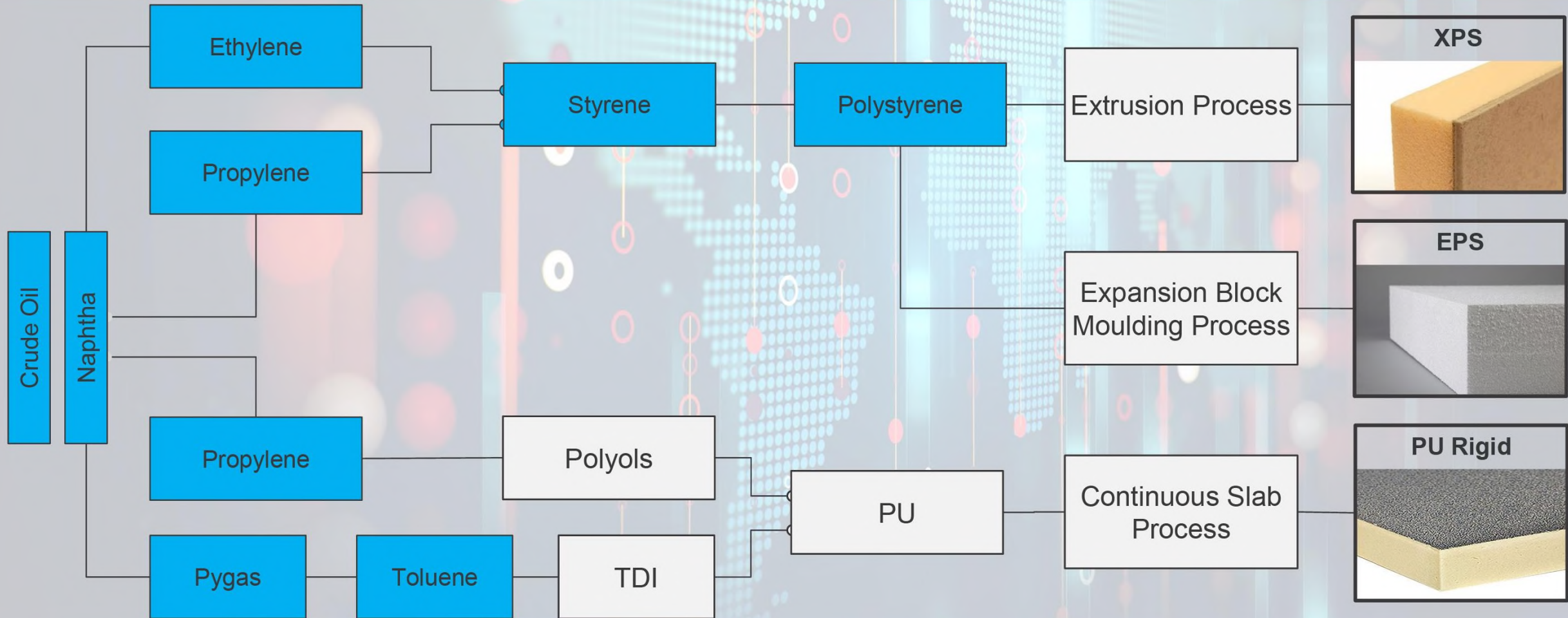
The KSA demand on Insulation products is expected to grow at 8% from 0.26 MM Ton in 2020 and will reach 0.56 MM Ton in 2030. Total GCC demand is expected to reach 1.23 MM Ton by year 2030

Source: Future Materials Group

Saudi Aramco: Public

Insulation Value Chain Mapping

-  Localization Opportunity
-  Available Locally





Unidirectional Tape Manufacturing Represent an Attractive Opportunity

The opportunity



Establish multiple state of the art manufacturing facilities of Unidirectional Tape to serve growing local and international demand

The business case



1. Global demand is expected to **grow at 40%** annually for the next **10 years**
2. New applications are going to utilize UD Tape including **Oil & Gas, Automotive and Marine** .
3. Attractive **cost base** including low logistics, land, utilities, and labor costs

UD Tape Applications



Oil & Gas



Marine



Aerospace



Automotive



Sports Gears

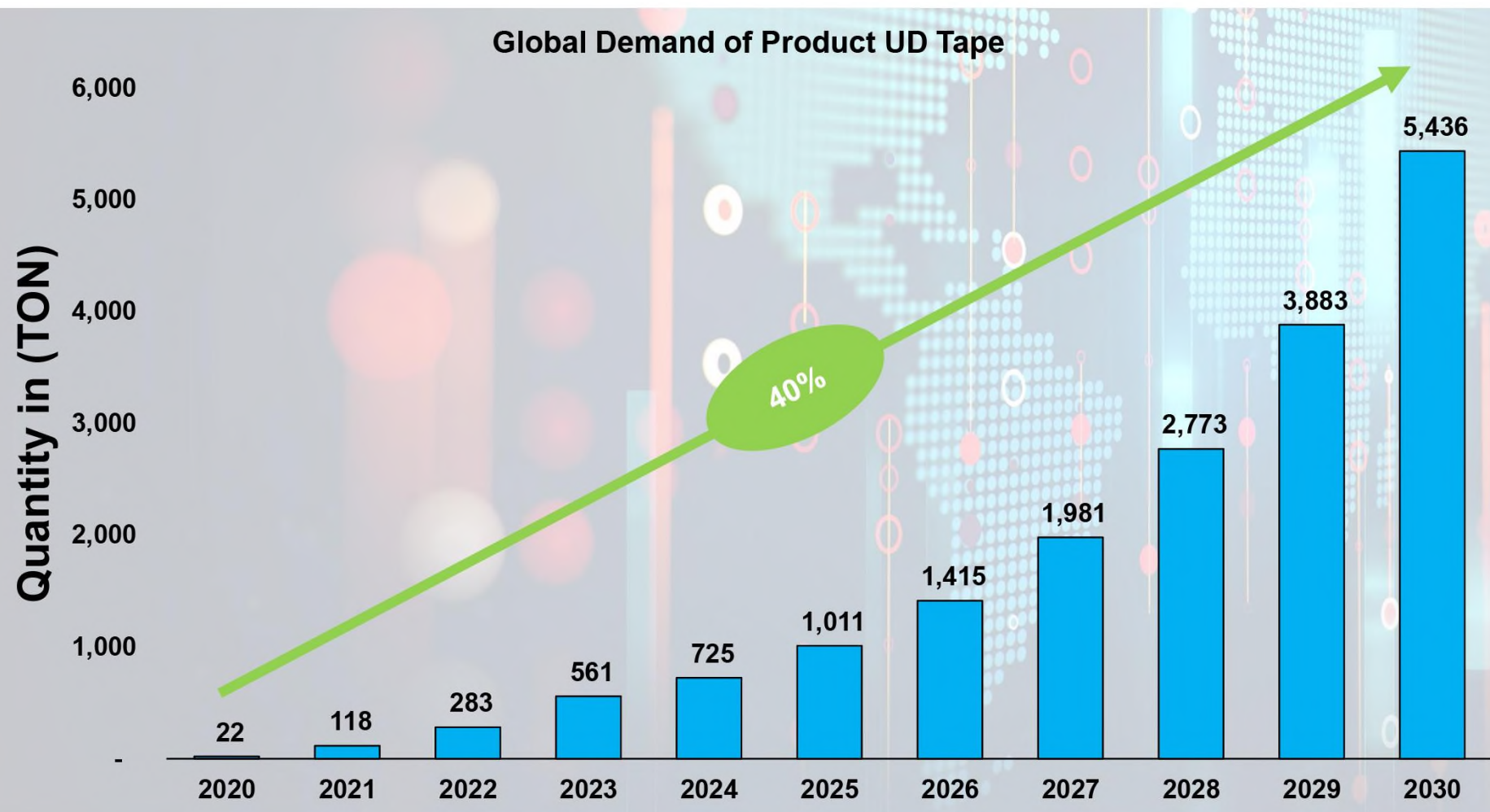


Wind Turbines



Building & Construction

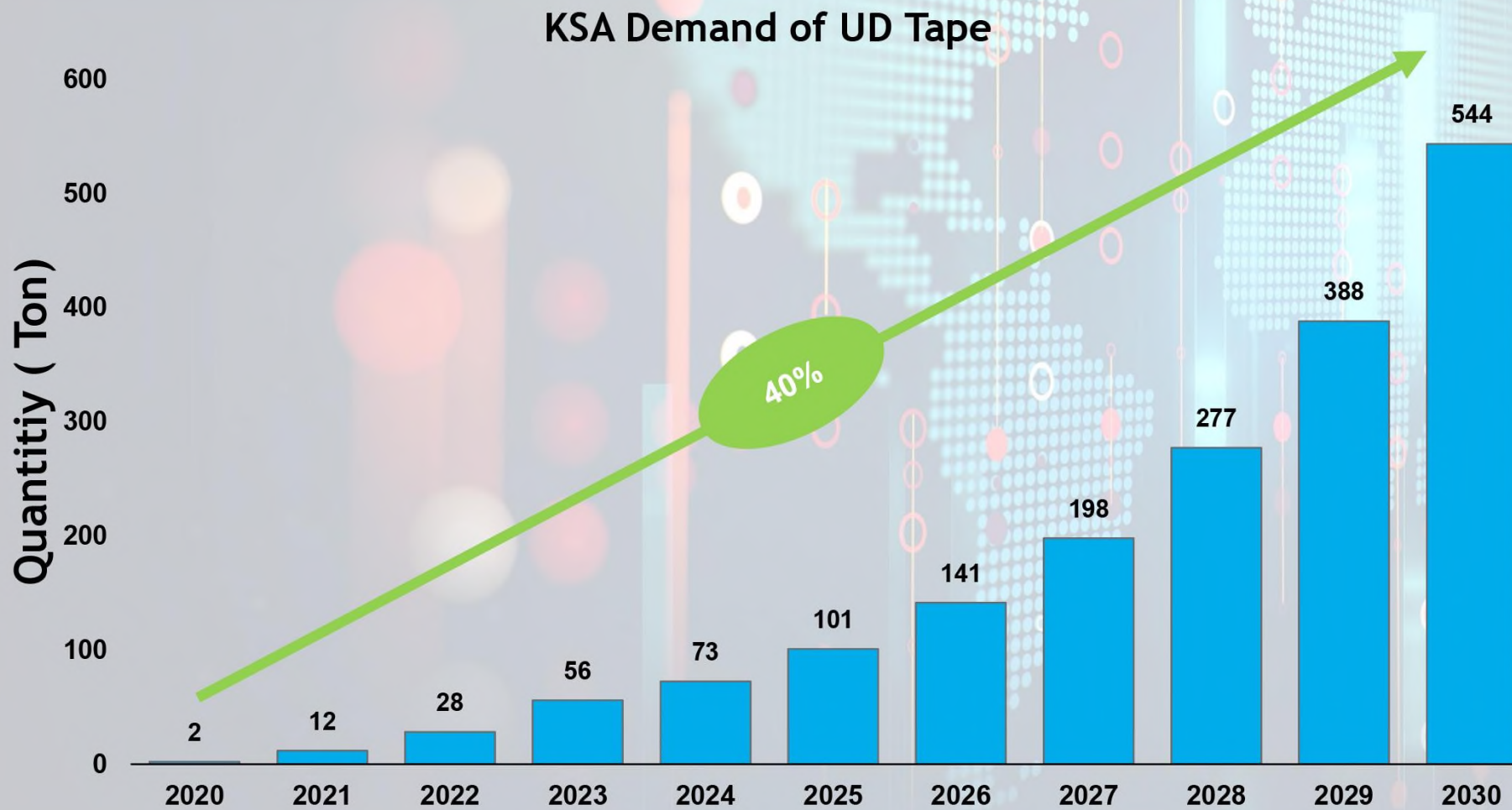
UD Tape Global Demand in O&G



The global demand on UD Tape is expected to grow at 40% from 21 Tons in 2020 and will reach 5,500 Tons year 2030

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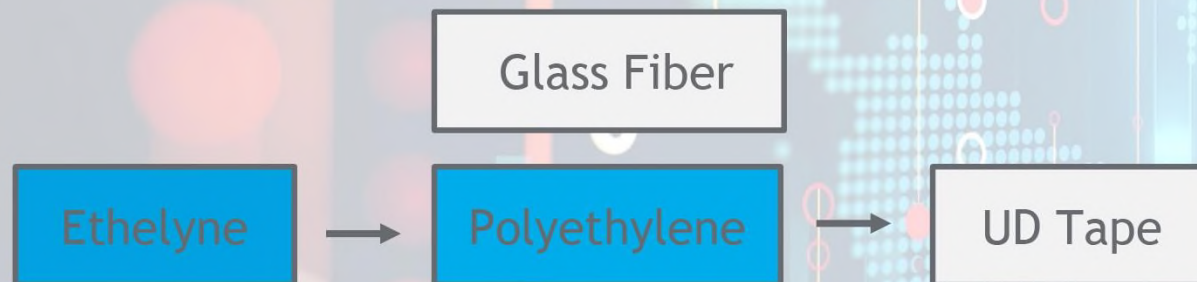
KSA Demand on UD Tape





The KSA demand on UD Tape is expected to grow at 40% from 2 Tons in 2020 and will reach 550 Tons year 2030

Value Chain Mapping

Key ingredients are available locally and in GCC region.



-  Localization Opportunity
-  Available Locally

The resins required to make UD tape are available locally.

Please Direct All Inquiries To:

In case you are interested in discussing these opportunities further, please contact

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