

**Capturing Opportunities & Winning Business
with Saudi Aramco and its Suppliers**

iktva

70 by 21

70% localization
by the year 2021

Key Points

- Immediate Opportunities for Materials
 - Materials with no or few local suppliers
 - Increasing capability – removing limitations
- Collaboration - Saudi Aramco and its supply chain will drive new business
- Doing Business - be competitive
- Over SAR 1 trillion in spend over the next 10 years will create opportunity



1

Immediate Opportunities

2

IK Participation Limitations

3

How to Win Business

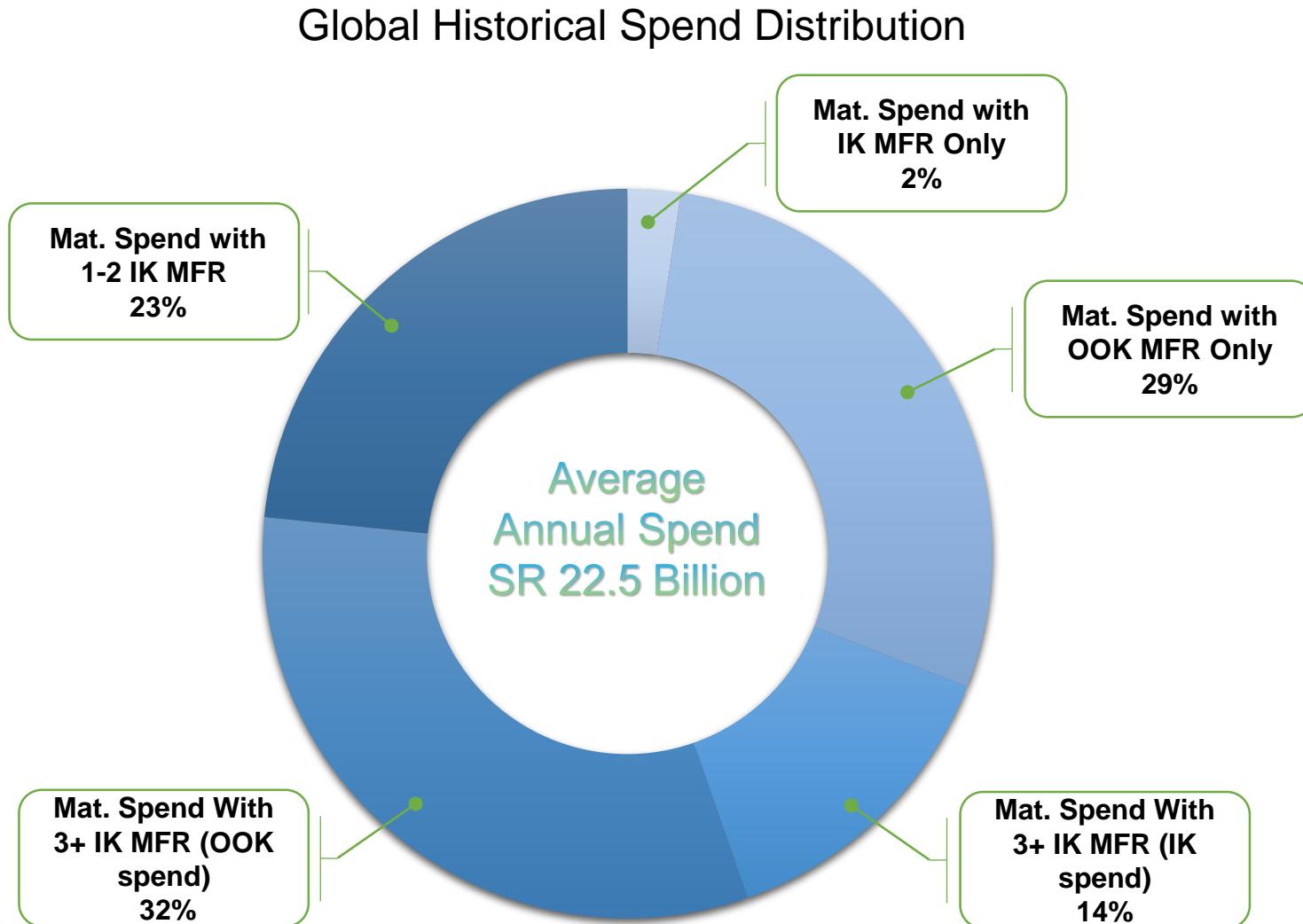
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Saudi Aramco 10-Year Demand Forecast

Suppliers Classification

- ▶ **Manufacturer**
 - An entity that owns and produces materials
- ▶ **Service Provider (Contractor)**
 - An entity that provides any type of service (engineering, landscaping, construction, training ..)
- ▶ **Agent**
 - A representative of an entity (or more) that owns and produces materials

SR 22.5 B Historical Spend Sample



Areas of Immediate Opportunity:

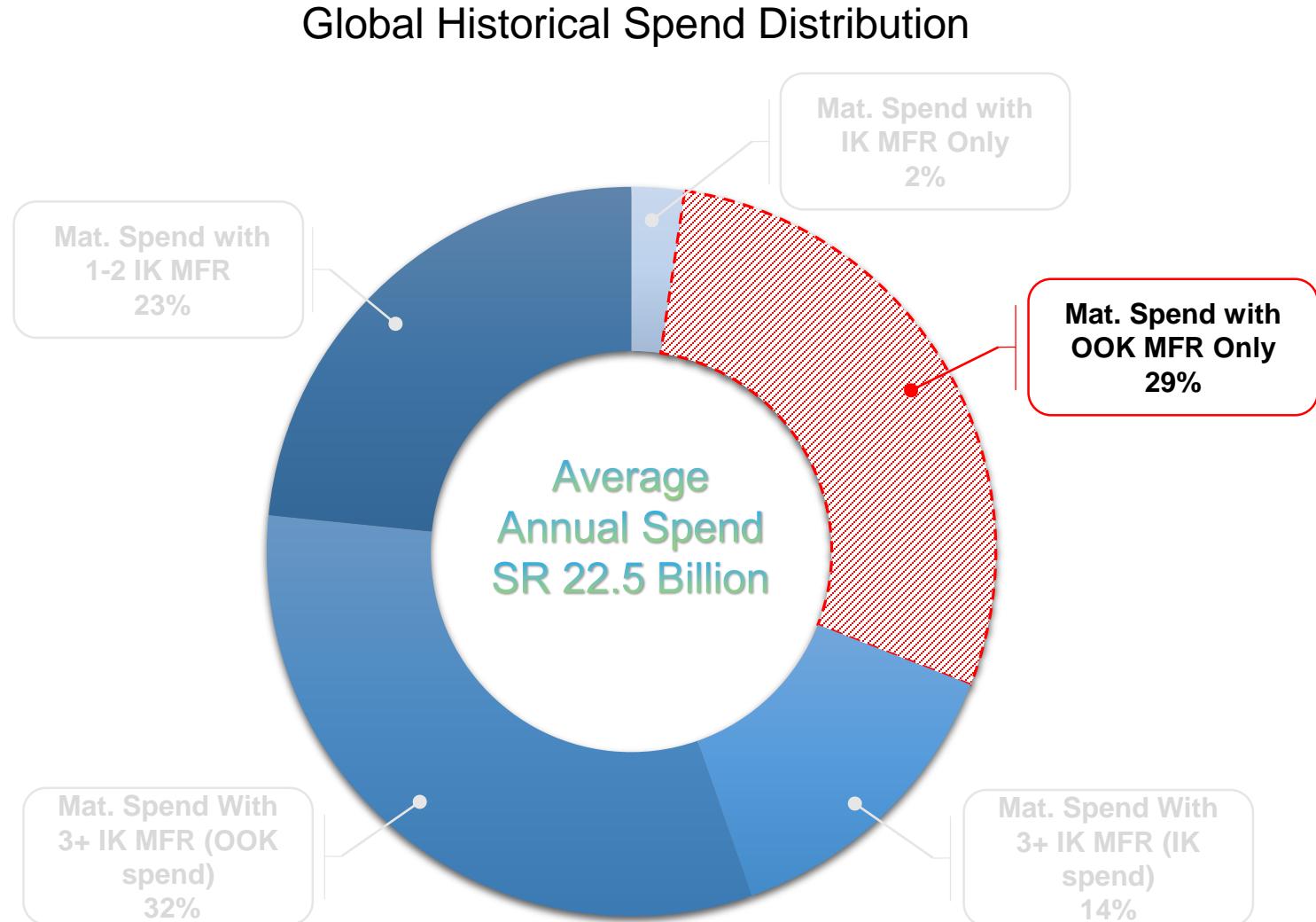
- ▶ Materials sourced OOK only
- ▶ Materials with 1-2 IK MFRs

For further development:

- ▶ Materials with 3+ IK MFRs but limited in capacity and capability

Note: Sample of historical spend: Average of 6 years

Material Spend with No Local Manufacturers

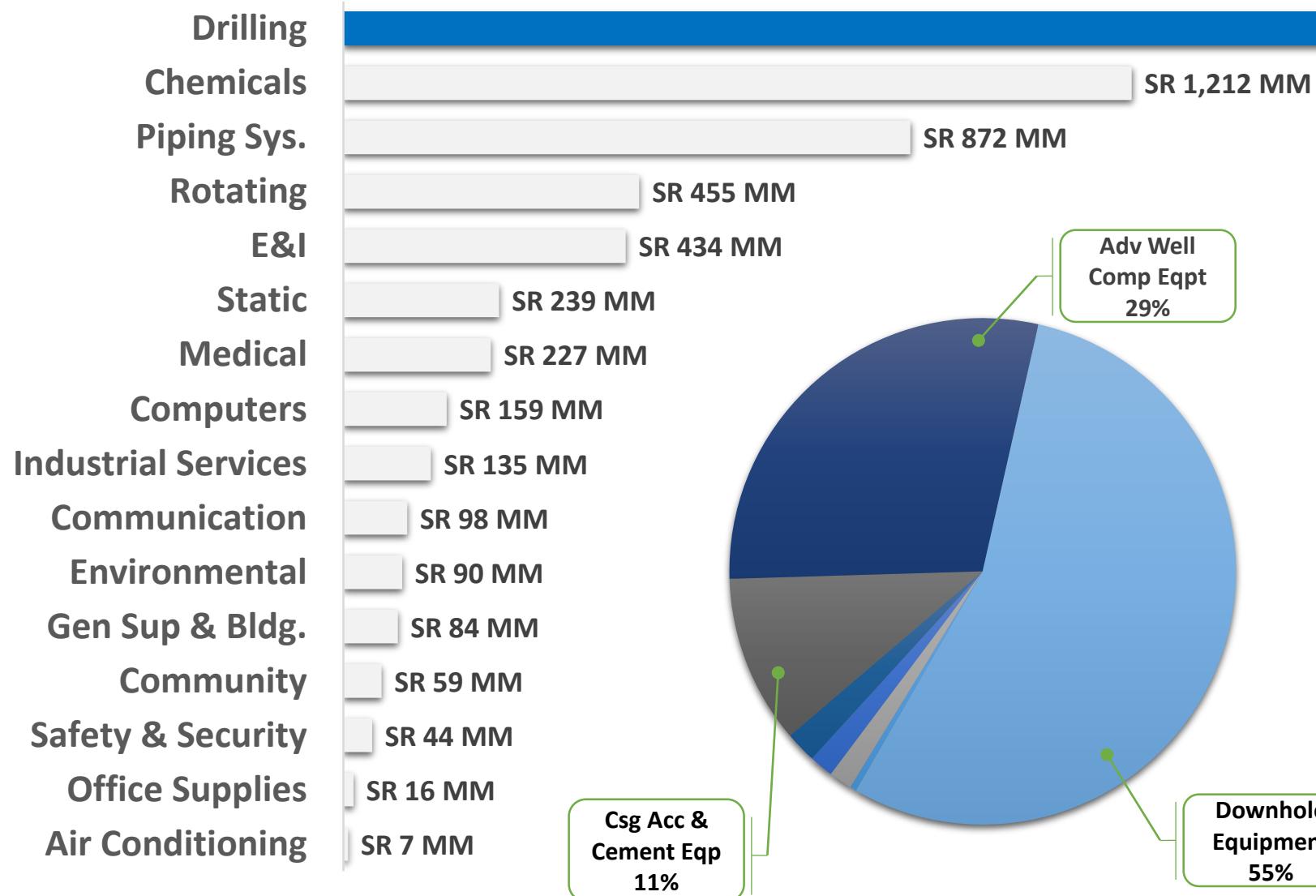


Areas of Immediate Opportunity:

- Materials sourced OOK only

Note: Sample of historical Spend: Average of 6 years

Materials Currently Sourced OOK Only – Drilling Equipment

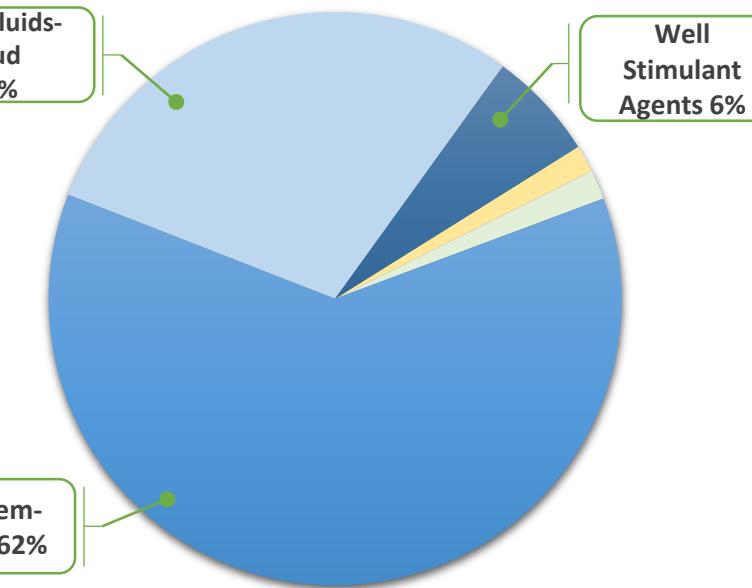
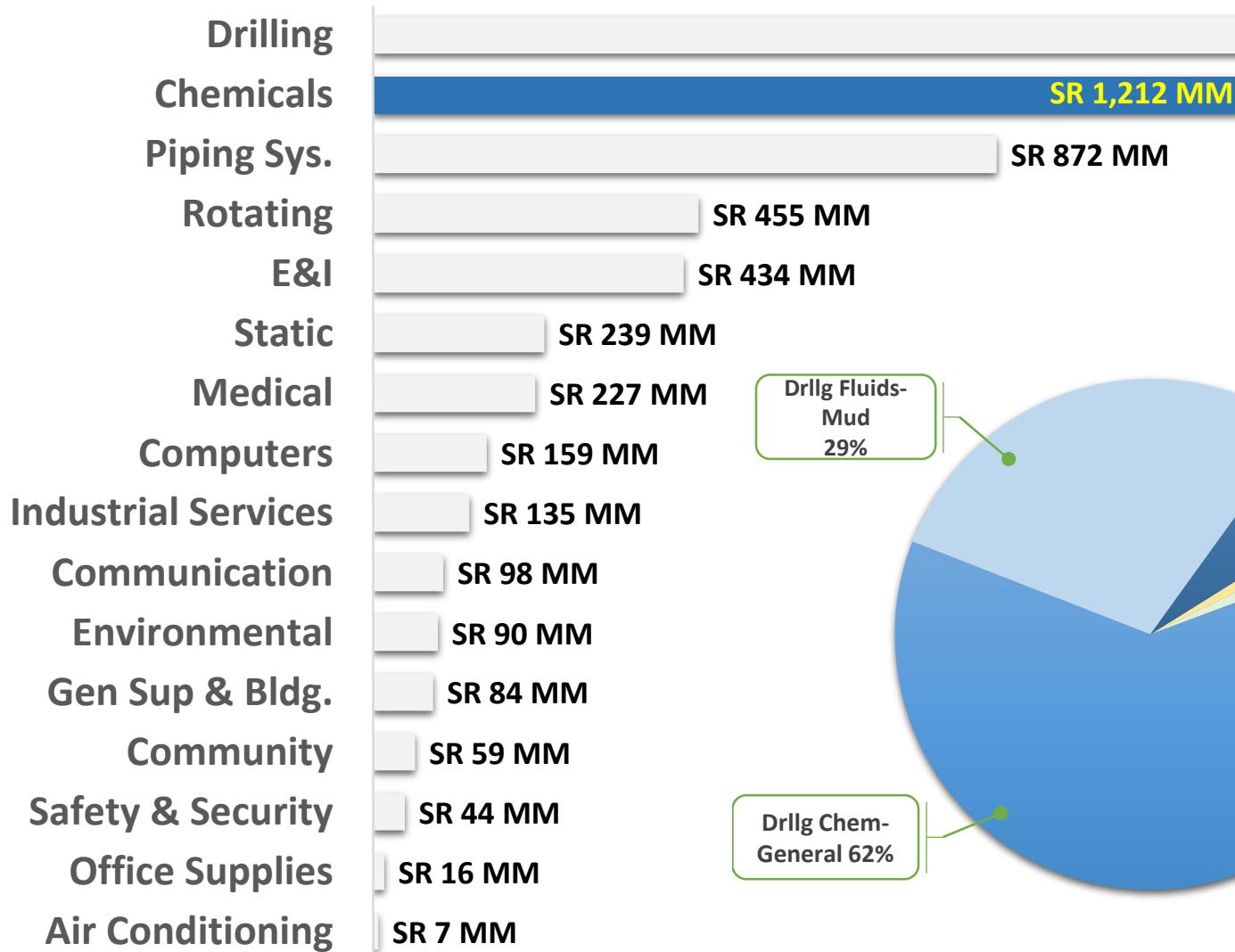


Note: Sample of historical spend: Average of 6 years

Downhole Equipment	
LINER HANGERS	SR 364 MM
PACKERS	SR 347 MM
INSTALLATION SERVICES	SR 181 MM
VALVE: SUB-SURFACE SAFETY	SR 80 MM
ISOLATION VALVES & ACCESSORIES	SR 75 MM
NIPPLE: LANDING	SR 33 MM
LATERALS & ACCESSORIES EQUIPMENT	SR 19 MM

Advanced Well Completion	
EQUALIZER/ SCREENS ACCESS	SR 270 MM
SMART, ACCESSORIES	SR 140 MM
GAUGES	SR 53 MM
EXPANDABLE, CASING & ACCESSORIES	SR 41 MM
DOWNHOLE WET CONNECT SYSTEM	SR 26 MM
CABLE, MONITORING SYSTEM,	SR 24 MM
PDHMS, ACCESSORIES	SR 13 MM
COUPLING PROTECTOR	SR 8 MM
EXPANDABLE, SCREEN	SR 7 MM

Materials Currently Sourced OOK Only – Chemicals



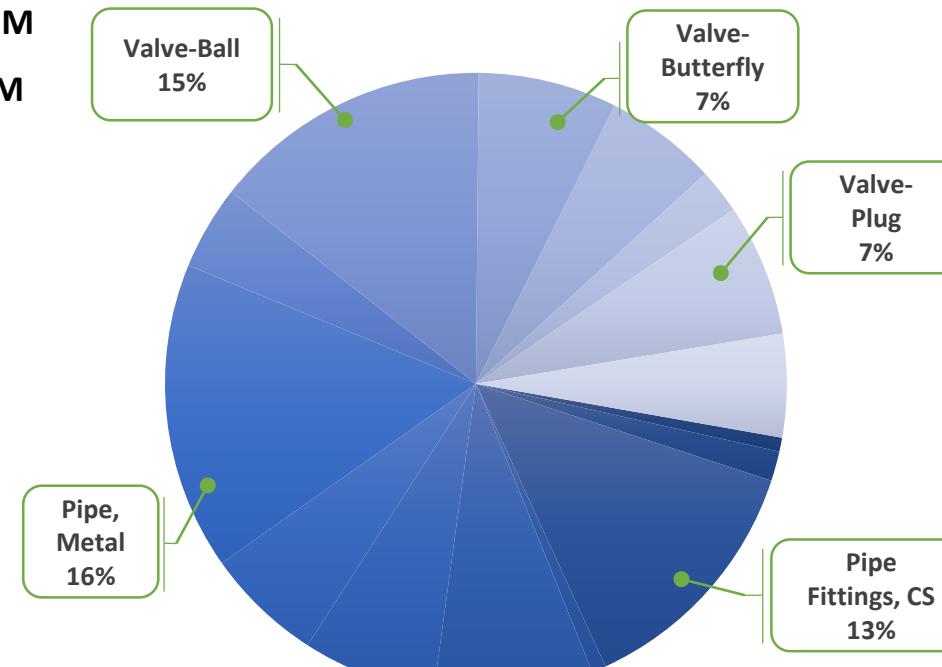
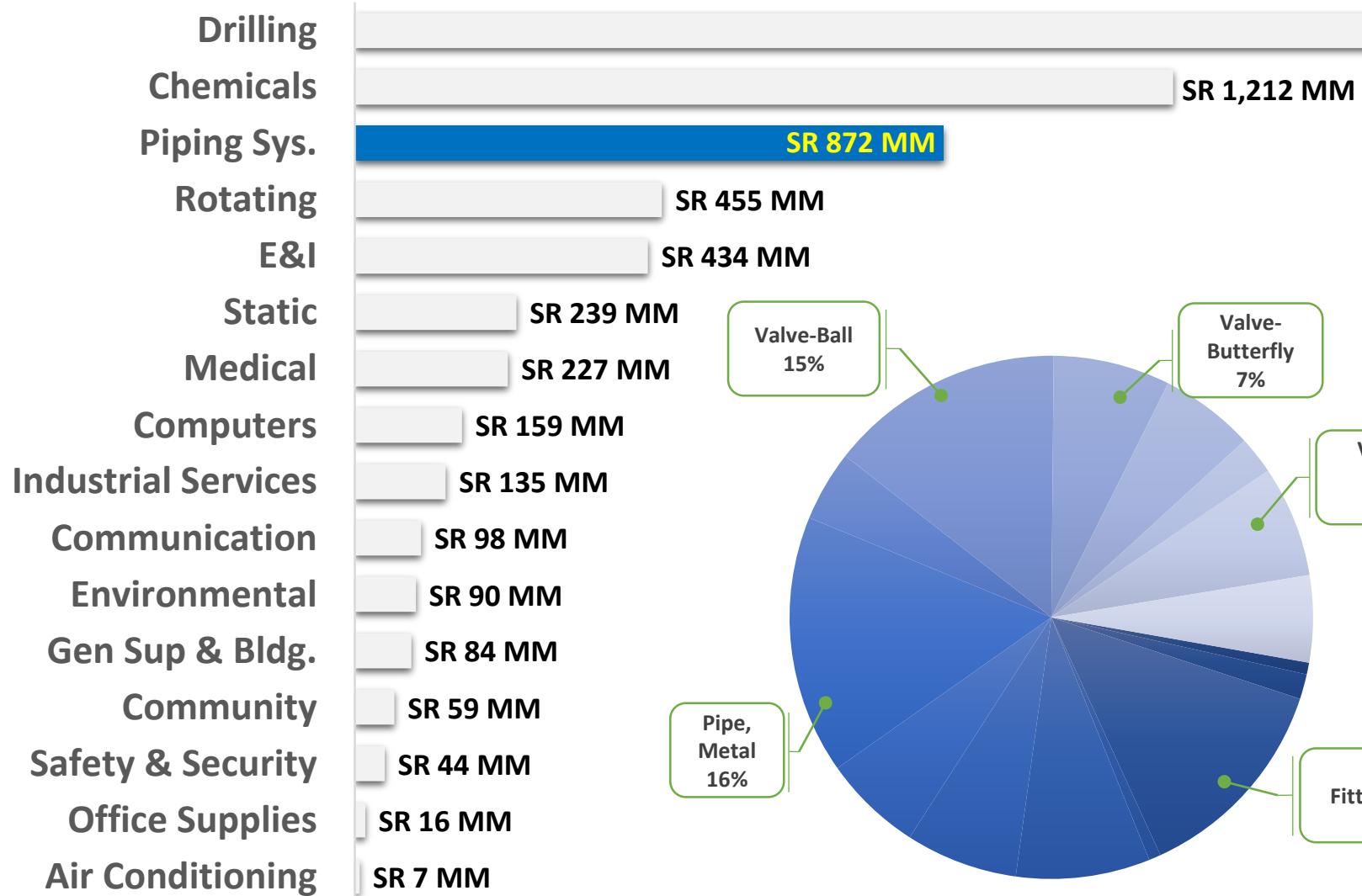
General Drilling Chem.	
SALTS	SR 426 MM
LUBRICANTS	SR 111 MM
H2S SCAVENGER	SR 98 MM
SHALE/BOREHOLE STABILIZER	SR 50 MM
SPOTTING FLUID	SR 22 MM
THINNER	SR 16 MM
EMULSIFIERS & SURFACTANTS	SR 9 MM
OXYGEN SCAVENGER	SR 8 MM
DEFOAMER	SR 6 MM

Note: Sample of historical spend: Average of 6 years

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by the year 2021

Materials Currently Sourced OOK Only – Piping System

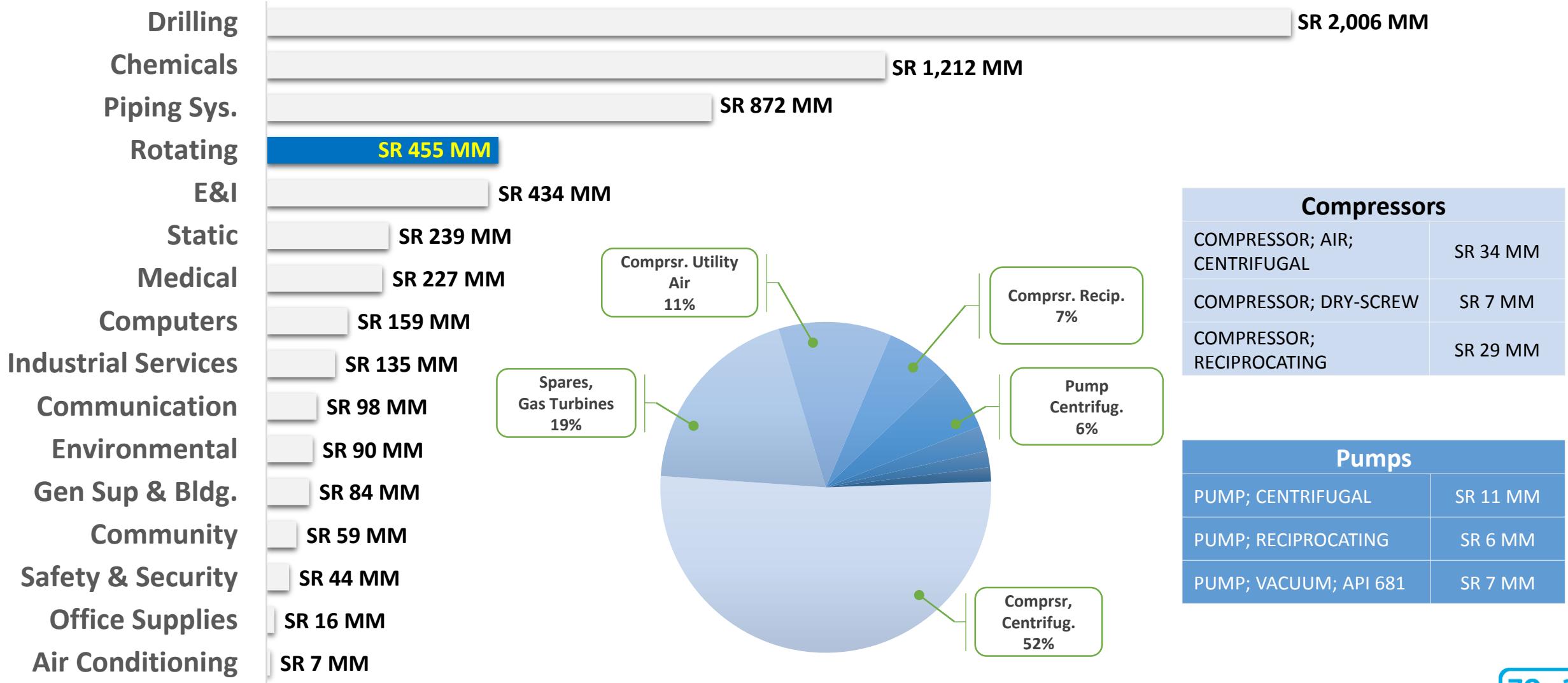


Pipe Fitting, CS	
CAP; PIPE; BW; ALLOY STEEL	SR 23 MM
CAP; PIPE; CARBON STEEL;	SR 23 MM
CAP; PIPE; SW OR THREADED,	SR 14 MM
SPOOL: CLAD PIPE SPOOL	SR 31 MM
TEE; PIPE, SPLIT TEE; HOT TAP	SR 7 MM
TEE; PIPE; BW; CARBON STEEL	SR 17 MM

Valve Butterfly	
VALVE; BUTTERFLY; HIGH PERFORMANCE	SR 42 MM
VALVE; BUTTERFLY; NPS 14 AND UP	SR 9 MM

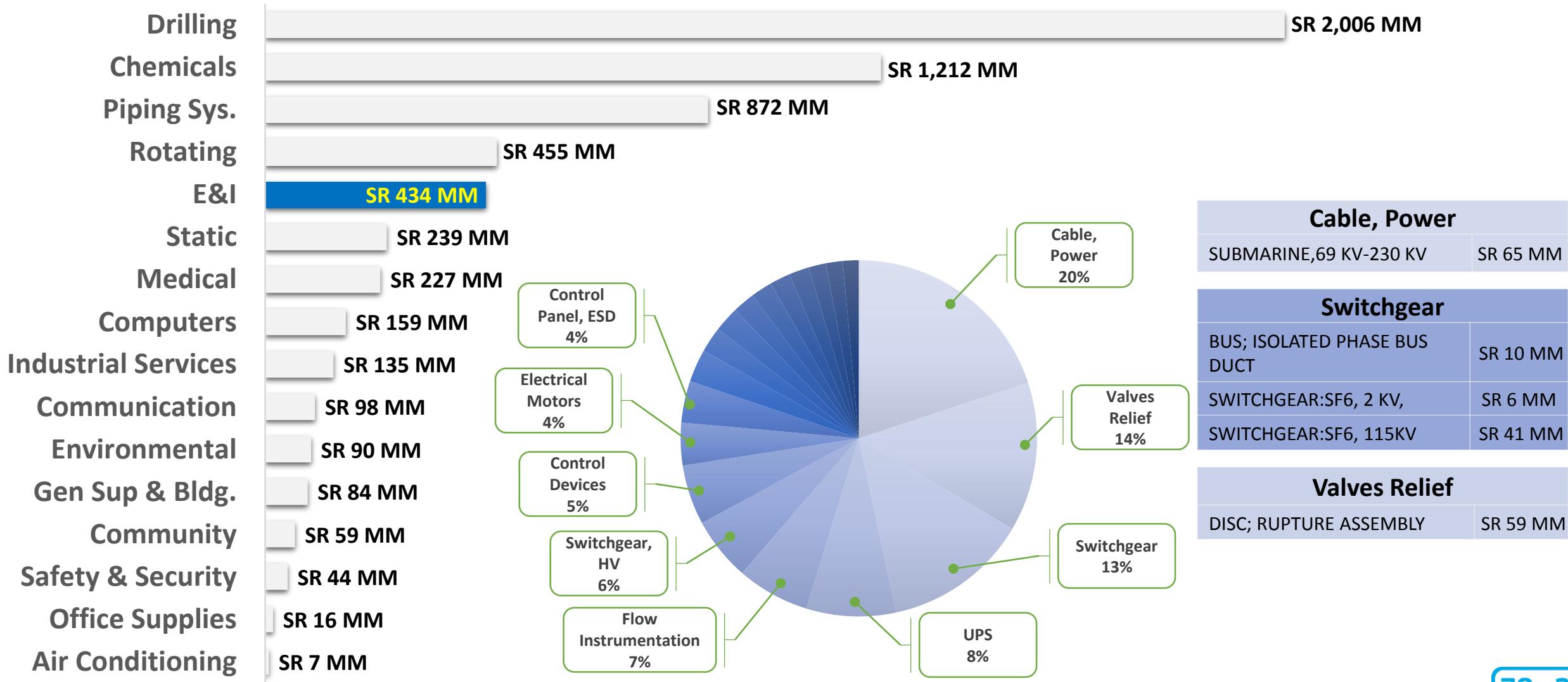
Note: Sample of historical spend: Average of 6 years

Materials Currently Sourced OOK Only – Rotating Equipment



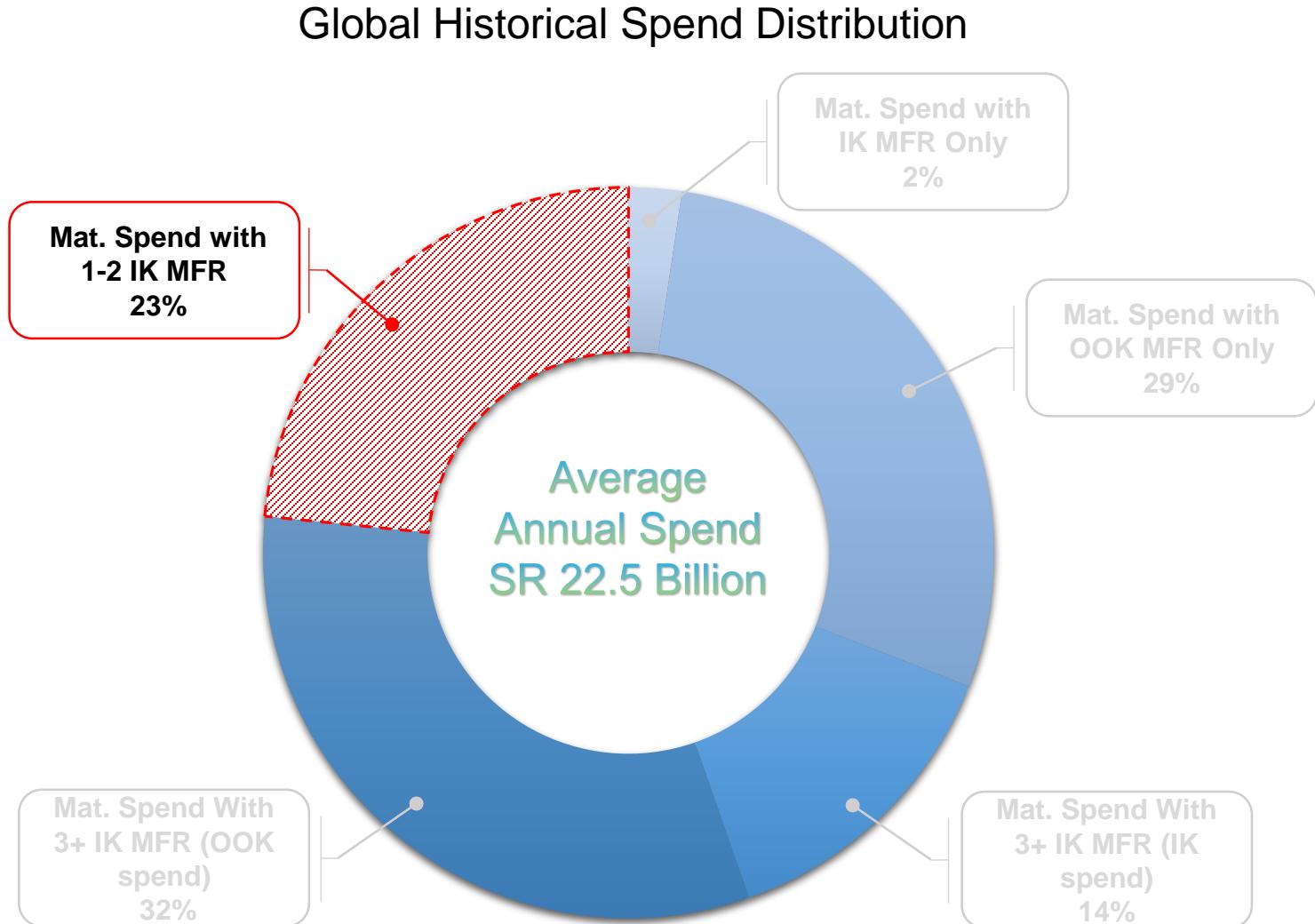
Note: Sample of historical spend: Average of 6 years

Materials Currently Sourced OOK Only – Electrical & Instrumentation



Note: Sample of historical spend: Average of 6 years

Material Spend with 1-2 Local Manufacturers

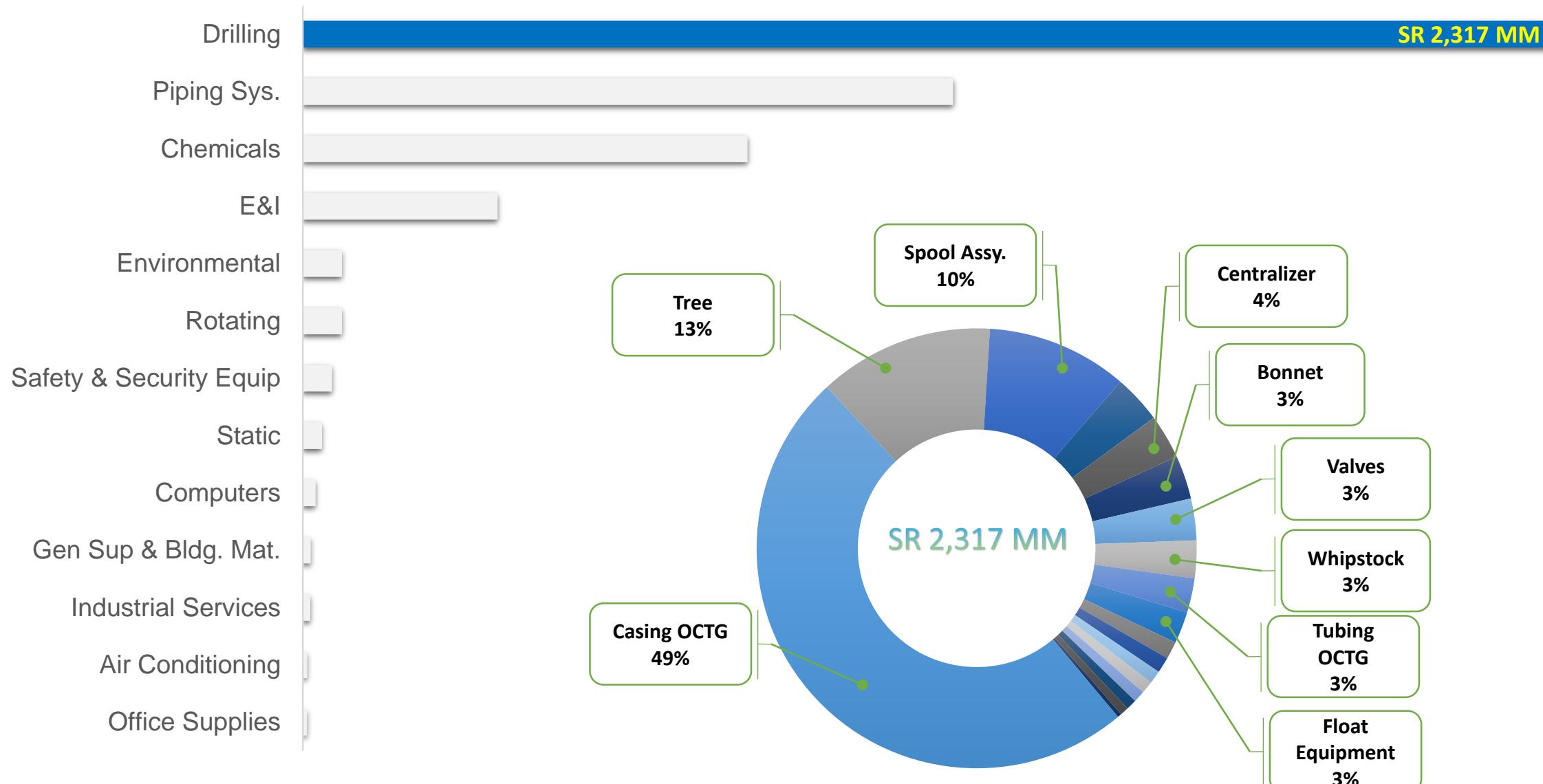


Note: Sample of historical spend: Average of 6 years

Areas of Immediate Opportunity:

- Materials with 1-2 IK MFRs

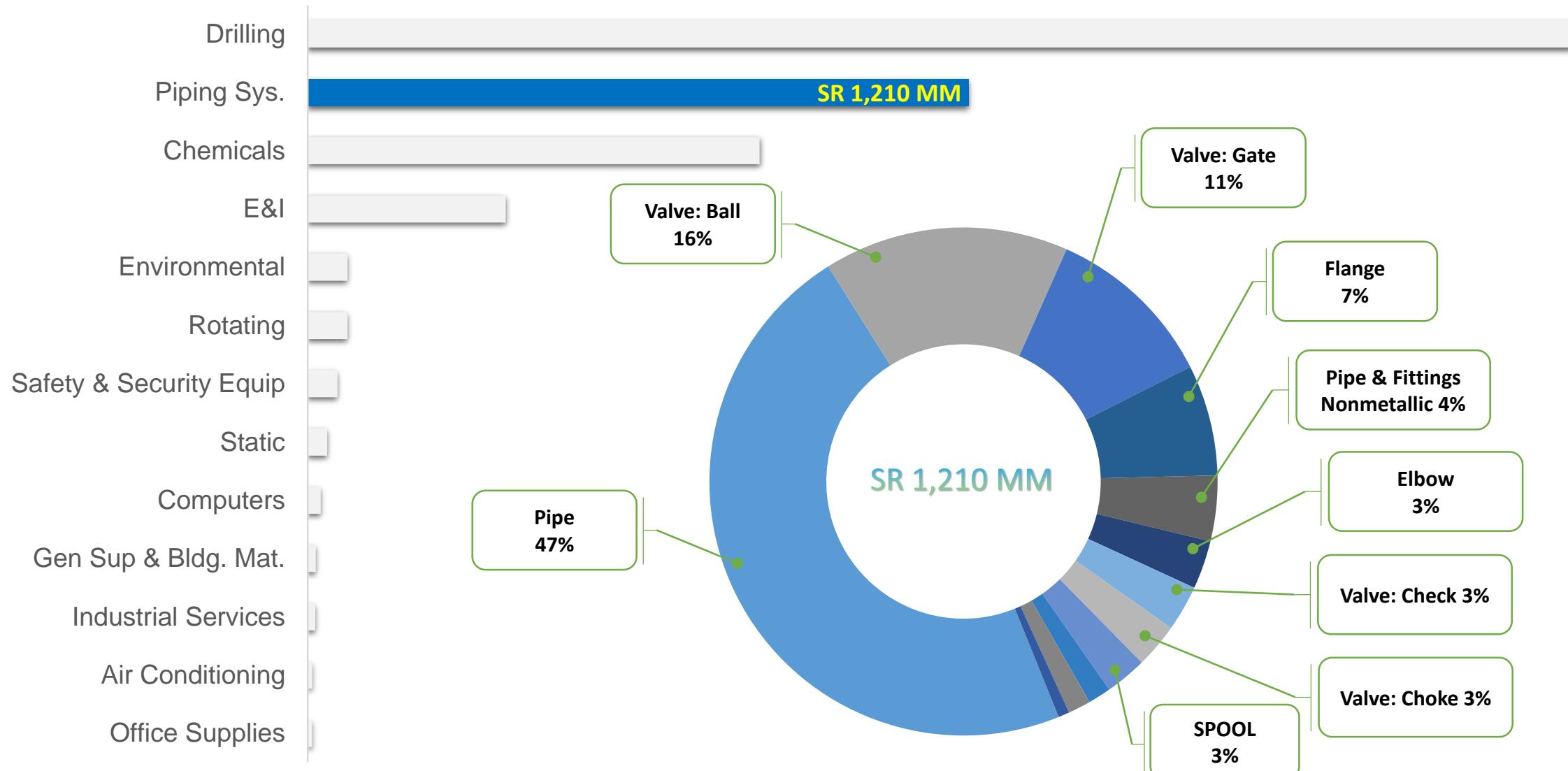
1-2 Local Manufacturer Historical Spend – Drilling Equipment



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1-2 Local Manufacturer Historical Spend – Piping System

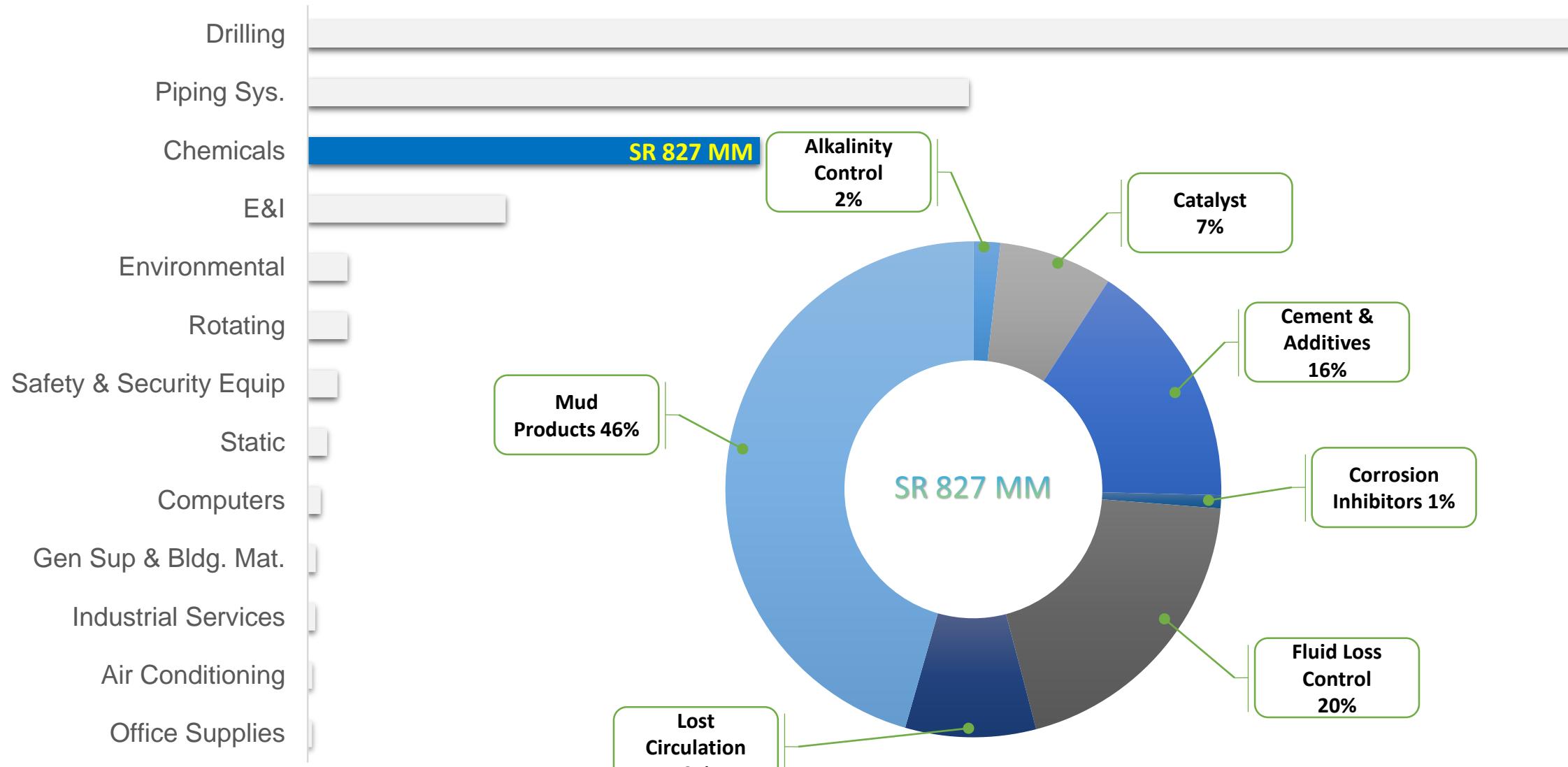


Note: Sample of historical spend: Average of 6 years

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by the year 2021

1-2 Local Manufacturer Historical Spend – Chemicals

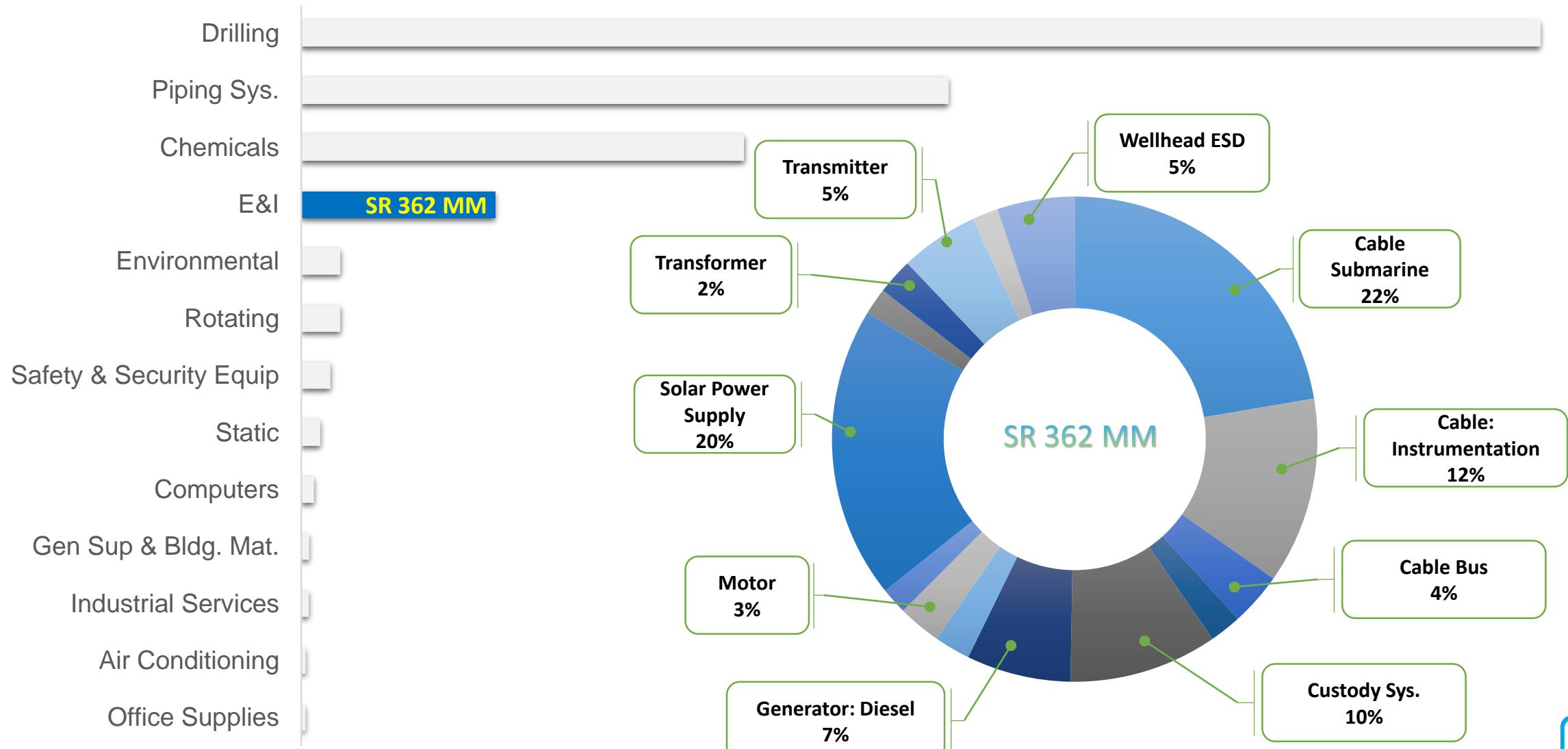


Note: Sample of historical spend: Average of 6 years

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1-2 Local Manufacturer Historical Spend – Electrical & Instrumentation Equipment

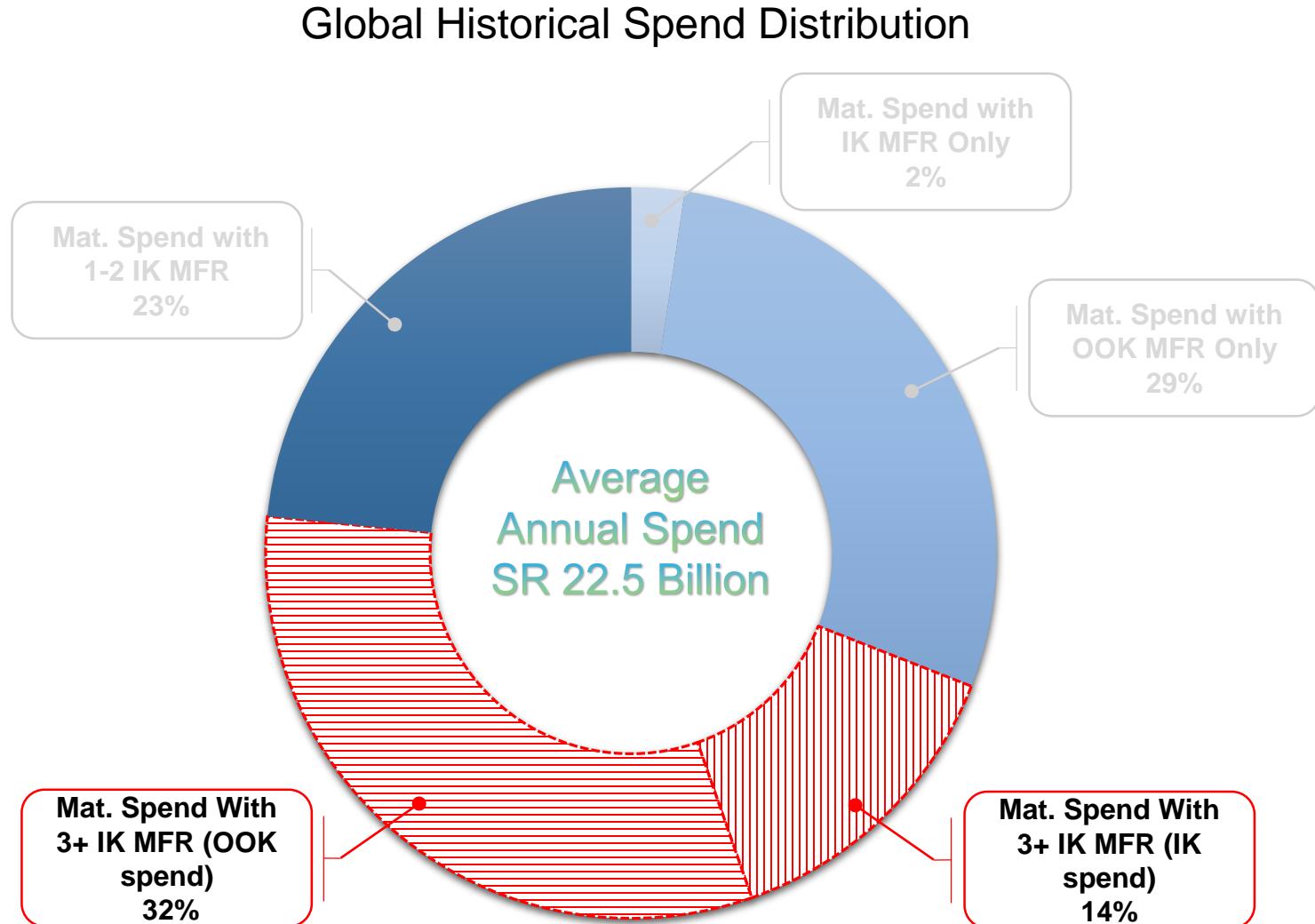


Note: Sample of historical spend: Average of 6 years

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by the year 2021

Material spend with 3+ Local Manufacturers



For further development:

- ▶ Materials with 3+ IK MFRs but limited in capacity and capability

Note: Sample of historical spend: Average of 6 years

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Immediate Opportunities

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IK Participation Limitations

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How to Win Business

4

Saudi Aramco 10-Year Demand Forecast

Material Limitations Definition

Limitations are specific restrictions that limits the level of approval for a supplier against a certain material.

The limitations are decided based upon the final result of the technical evaluation of each facility.

► Limitations could be on many aspects:

- Metallurgy
- Model type
- Size
- Thickness
- Engineering

Rotating Equipment Common Limitations

- Design capability
- Full machining capability
- Range of sizes
- Packaging
- Metallurgy
- Only assembly
- Lack of spare parts manufacturing
- Limited applications

Sample Workbook

Manufacturer Name	10 Years Forecast:	SR 8 B	Initiative Lead:	Local Business Development
Current Situation	Future Situation (2021)		Enablers	
Manufacturer Team	Aramco Team		Manufacturer Notes	
Unit	Representative	Unit	Representative	Discussion points and suggestions

Static Equipment Common Limitations

- Thermal design
- Mechanical design
- Assembly & Welding
- Wall thickness
- Engineering design
- Fabrication only
- Size
- Metallurgy
- Pressure ratings

Sample Workbook

Manufacturer Name	10 Years Forecast:	SR 87 B	Initiative Lead:	Local Business Development
Current Situation	Future Situation (2021)		Enablers	
<p>600000XXXX: TANK; SHOP FABRICATED.</p> <p>1) Only carbon steel</p> <p>2) Diameter up to 10 feet.</p> <p>3) Excluding dome roofs.</p> <p>4) Excluding external and internal floating roofs.</p> <p>600000XXXX: VESSEL; PRES.; MAX. WALL THK OF 19 MM. Tangent-to-Tangent length of pressure vessels is limited to 6 m maximum.</p>	<p>1. Different types of metallurgy.</p> <p>2. Flexible and dome roofs</p> <p>3. Various sizes and pressure</p>		<p>1. ES to work with supplier in developing capabilities to add 9COMs.</p> <p>2. Supplier must be willing to expand skillset, add 9COMs and ensure quality standards.</p> <p>3. Form a cooperative team between Saudi Aramco and the supplier to move forward.</p>	
Manufacturer Team	Aramco Team		Manufacturer Notes	
Unit	Representative	Unit	Representative	Discussion points and suggestions

Electrical & Instrumentation Common Limitations

- Size
- Design
- Type
- Pressure rating
- Assembly only
- Specific model
- Power limitations
- Spare parts

Sample Workbook

Manufacturer Name	10 Years Forecast:	SR 29 B	Initiative Lead:	Local Business Development
Current Situation	Future Situation (2021)		Enablers	
600000XXXX: TRANSMITTER; PRESSURE: limited to manufacture up to 4000 psi. 600000XXXX: CONTROL VALVE FOR SEVERE SERVICE: limited to manufacture up to 24". 600000XXXX: VALVE; GLOBE; CONTROL; INCLUDING ACTUATOR 1. Only allowed to manufacture control valves up to Class 600# in accordance with ASME B16.34 2. Not allowed to supply control valves in fire-hazardous zone services as defined in SAES-B-XXXX or specified as "fire-safe".	1. Different types of metallurgy. 2. Different sizes 3. Different pressure rating 4. Spare parts		1. ES to work with supplier in developing capabilities to add 9COMs. 2. Supplier must be willing to expand skillset, add 9COMs and ensure quality standards. 3. Form a cooperative team between Saudi Aramco and the supplier to move forward.	
Manufacturer Team	Aramco Team		Manufacturer Notes	
Unit	Representative	Unit	Representative	Discussion points and suggestions

Pipe & Fittings Common Limitations

- Length
- Diameter size
- Wall thickness
- Metallurgy
- Welding types
- Welding material
- Coating

Sample Workbook

Manufacturer Name	10 Years Forecast:	SR 73 B	Initiative Lead:	Local Business Development
Current Situation	Future Situation (2021)		Enablers	
Manufacturer Team		Aramco Team		Manufacturer Notes
Unit	Representative	Unit	Representative	Discussion points and suggestions

600000XXXX: ELBOW; PIPE; BW; CS; 02-SAMSS-005: Size: 1" to 12", Thickness: For 10" and below, maximum is Sch-XS, with the following exception: 4": up Sch-120 (11.13mm) & 6": up to 12.7 mm, For 12", maximum is sch-80. Radius: long radius only. Material: low alloy steel only

600000XXXX: PIPE; STEEL API 5L; SAW STRAIGHT; SOUR: 16 inch to 62 inch OD size and maximum of 1 inch wall thickness.

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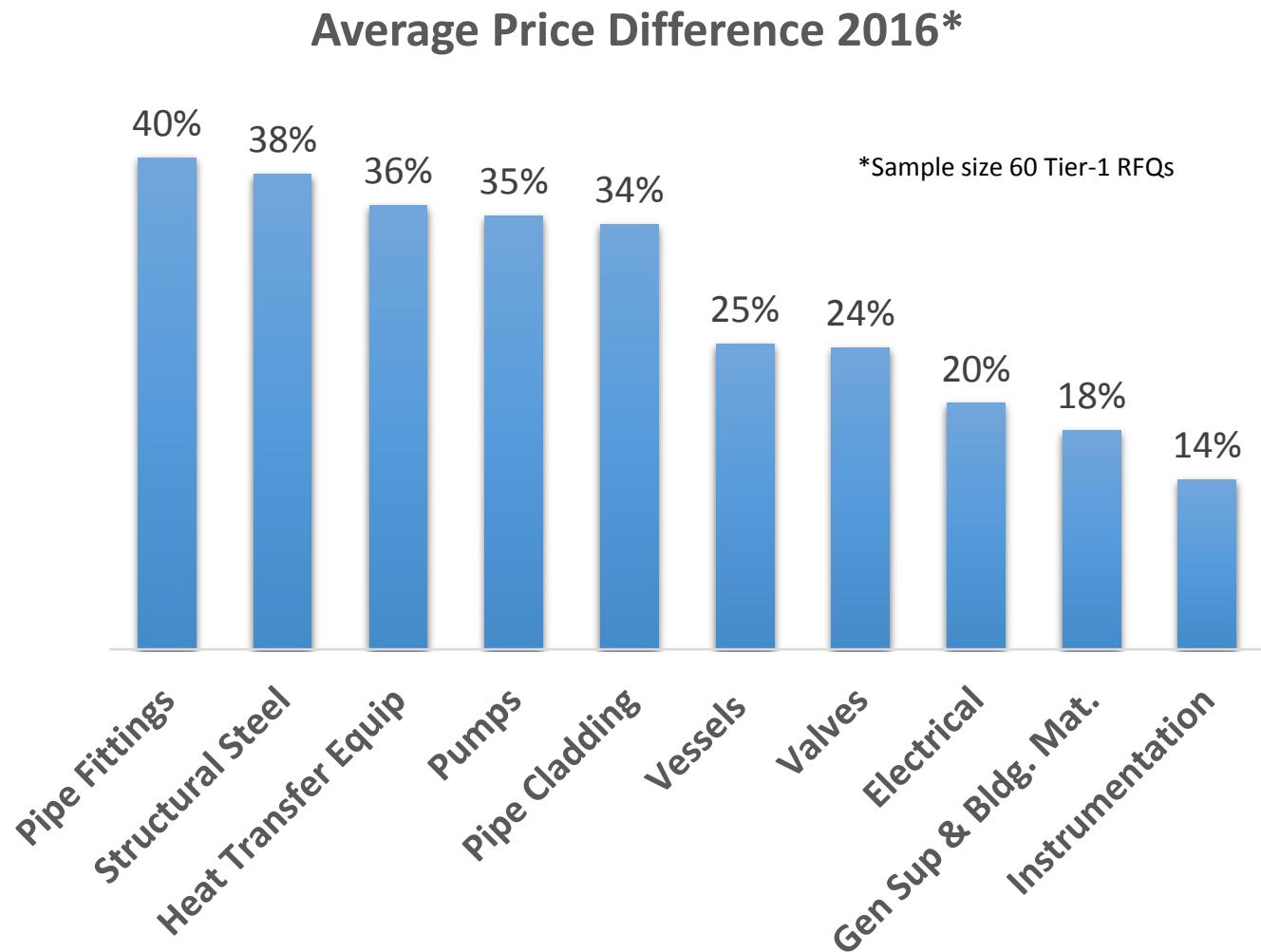
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Saudi Aramco 10-Year Demand Forecast

Doing Business with Suppliers



We Recently Determined a Number of Reasons Why Several IK Bidders Lost Opportunities



Key Findings

- ▶ Significant Pricing Difference with OOK MFRs
 - *Raw material*
 - *Specialist Labor*
 - *Order quantities were uneconomical*

- ▶ Tier 1 bidding practices
 - *Bid Invitation*
 - *Bundling of orders*
 - *Lack of Feedback*
 - *No Price Negotiation*

Doing Business with Suppliers





► Previous quality major issues discovered during manufacturing phases:

- Deviations from Technical Requirements and PO Requirements.
- Workmanship Issues.
- Design Deficiency and Integrity.
- Falsification of Records.
- Substandard Material Use.
- Improper Preservation.

Quality - Deviations from Technical and PO Requirements

Workmanship Issues

Falsification of Records.

Improper Preservation

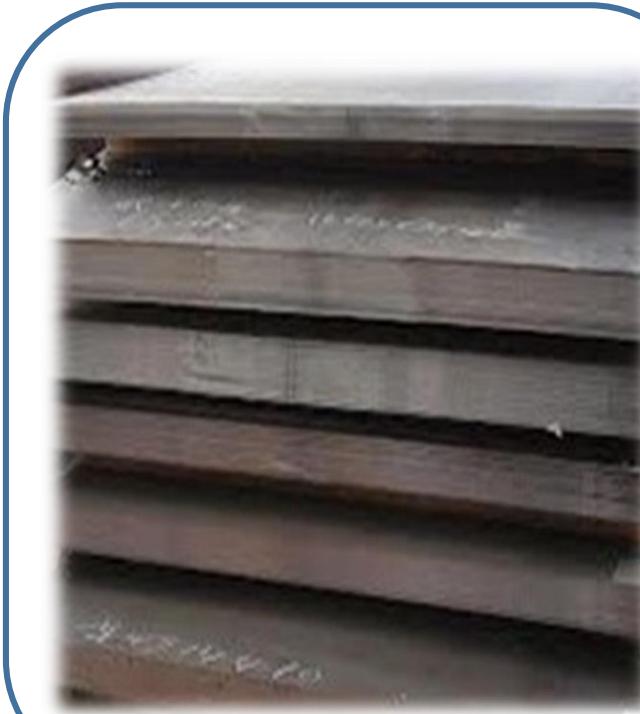
Deviations from Technical Requirements

Design Deficiency and Integrity

Substandard Material Use

CASE:

Plate HIC (Hydrogen-Induced Cracking) not conducted on the thinnest plate when two thickness plates produced from the same heat which is considered a deviation to Saudi Aramco technical requirements 01-SAMSS-016.



Quality - Workmanship issues

Workmanship Issues

Deviations from Technical Requirements

Design Deficiency and Integrity

Falsification of Records.

Substandard Material Use

Improper Preservation

CASE:

Manufacturer have shipped several valves with major quality defects, such as cracks, pin holes and paint issues. All these defects can be easily discovered through visual inspection conducted by qualified inspectors.



Workmanship Issues

Falsification of Records.

Improper Preservation



Deviations from Technical Requirements

Design Deficiency and Integrity

Substandard Material Use

CASE:

The vendor has supplied Saudi Aramco with 2" diameter stainless steel check valves that do not have enough clearance between the back side of the flange and the hinged section of the valve's body. This will not allow the installation/insertion of a standard nut of the corresponding stud bolt.



Quality - Falsification of Records

Workmanship Issues

Deviations from Technical Requirements

Design Deficiency and Integrity

Falsification of Records

Improper Preservation

CASE:

The vendor has falsified the WPS/PQR (Welding Qualification Procedures) to grant Saudi Aramco approval without conducting actual tests.

Substandard Material Use

TESTING CERTIFICATE

1. Client :
+ Name : [REDACTED]
+ Address : [REDACTED]
+ Date of Receipt : 2012. 08. 27

2. Use of Report : Quality Control

3. Test Sample : ASTM A240 [REDACTED] TYPE304L [REDACTED] (8T / GTSM / 3G)

4. Date of Test : 2012. 08. 30 ~ 2012. 08. 31

5. Testing Environment : Temperature (21 ± 1) °C , Humidity (61 ± 4) % R.H.

6. Test Results :

Test Name	Unit	Sample	Result	Test Method
Tensile Strength	MPa	1-T1	605	ASME IX QW-150-2010(Add.2011)
Tensile Strength	MPa	1-T2	629	ASME IX QW-150-2010(Add.2011)
Root Bend Test		1-RBT	Not Defected	ASME IX QW-150-2010(Add.2011)

2. Use of Report : Quality Control

3. Test Sample : ASTM A240 [REDACTED] TYPE316L [REDACTED] (8T / GTSM / 3G)

4. Date of Test : 2012. 08. 30 ~ 2012. 08. 31

5. Testing Environment : Temperature (21 ± 1) °C , Humidity (61 ± 4) % R.H.

6. Test Results :



CASE:

Several cases reported of utilization substandard material that resulted in material failures and fractures.





CASE:

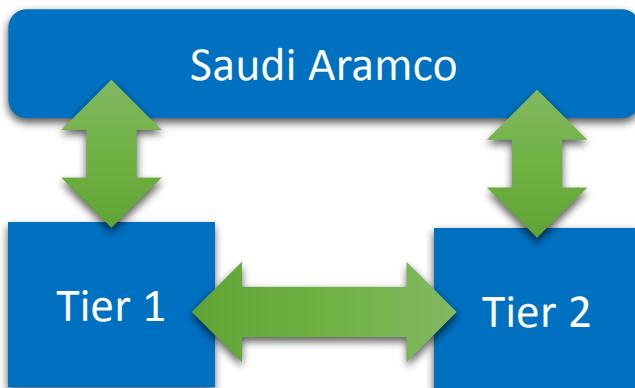
During receiving inspection, it was found that several boiler parts were severely corroded as they were shipped without compliance with preservation requirements.



How to Win Business with Saudi Aramco and its Tier 1 Suppliers Summary

IKTVA Program

- Saudi Aramco is committed to driving local industrial development with the IKTVA program
- Tier 1 companies have agreed to IKTVA targets over the next 5 years that will drive their procurement favoring IK suppliers



- Start working on your IKTVA baseline and 5-year IKTVA action plan.
- Develop training for cost estimators and engineers on how to deliver globally competitive value.
- Remove/improve limitations on your currently approved materials.
- Consider new sourcing strategies (buying consortium for key materials that can be bought in bulk).
- Minimize rework due to quality issues.
- Work on improving production scheduling.
- Safety Zero Tolerance Policy - violations will result in banning individuals/vehicles/delivery trucks from entering Saudi Aramco facilities.
- Adhere to the Saudi Aramco Code of Conduct.

1

Immediate Opportunities

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IK Participation Limitations

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How to Win Business

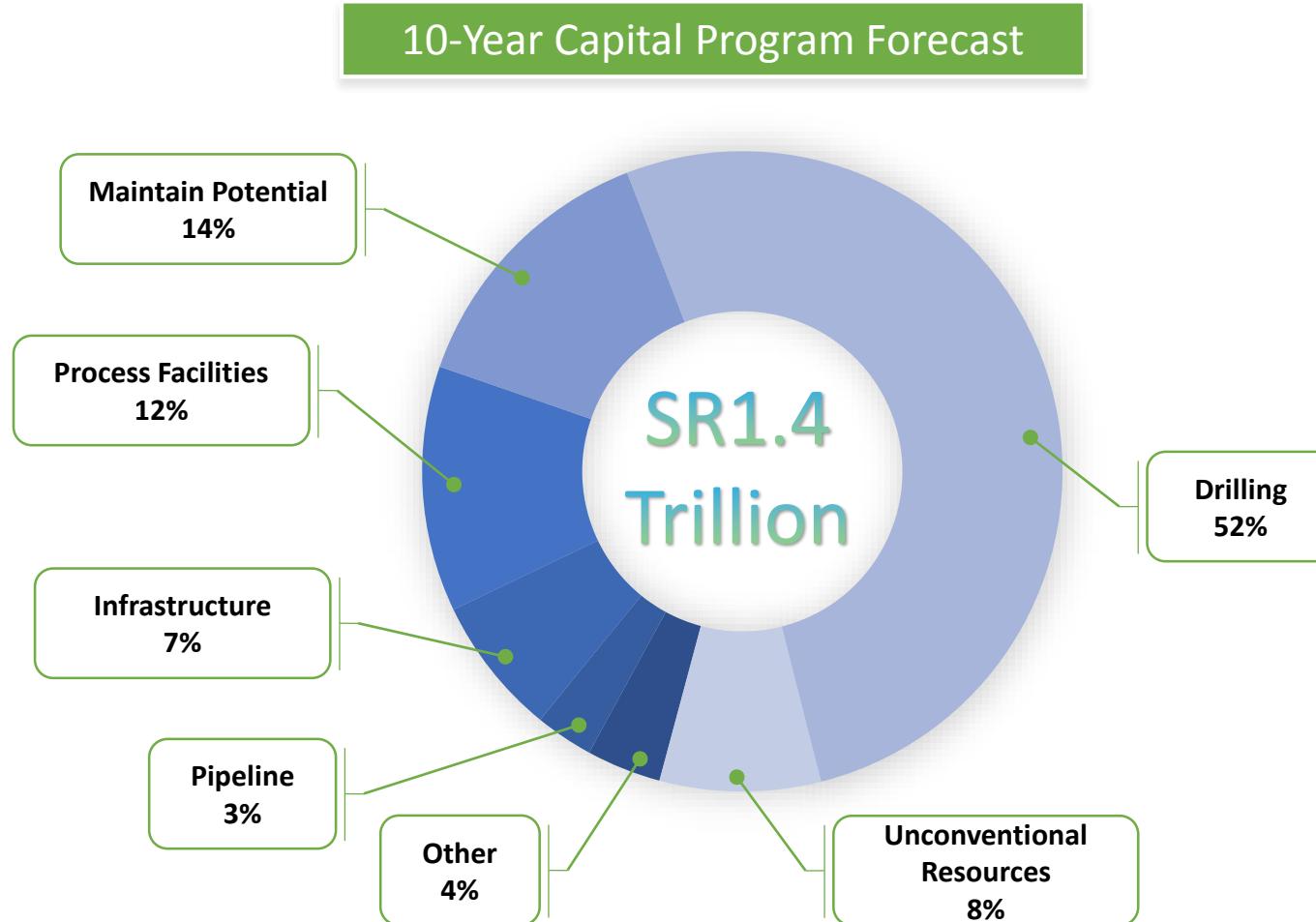
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Saudi Aramco 10-Year Demand Forecast

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Capital Program 10-Year Forecast = SR140 Billion / Year

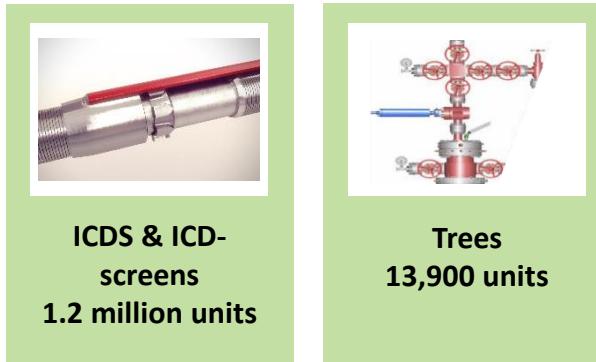


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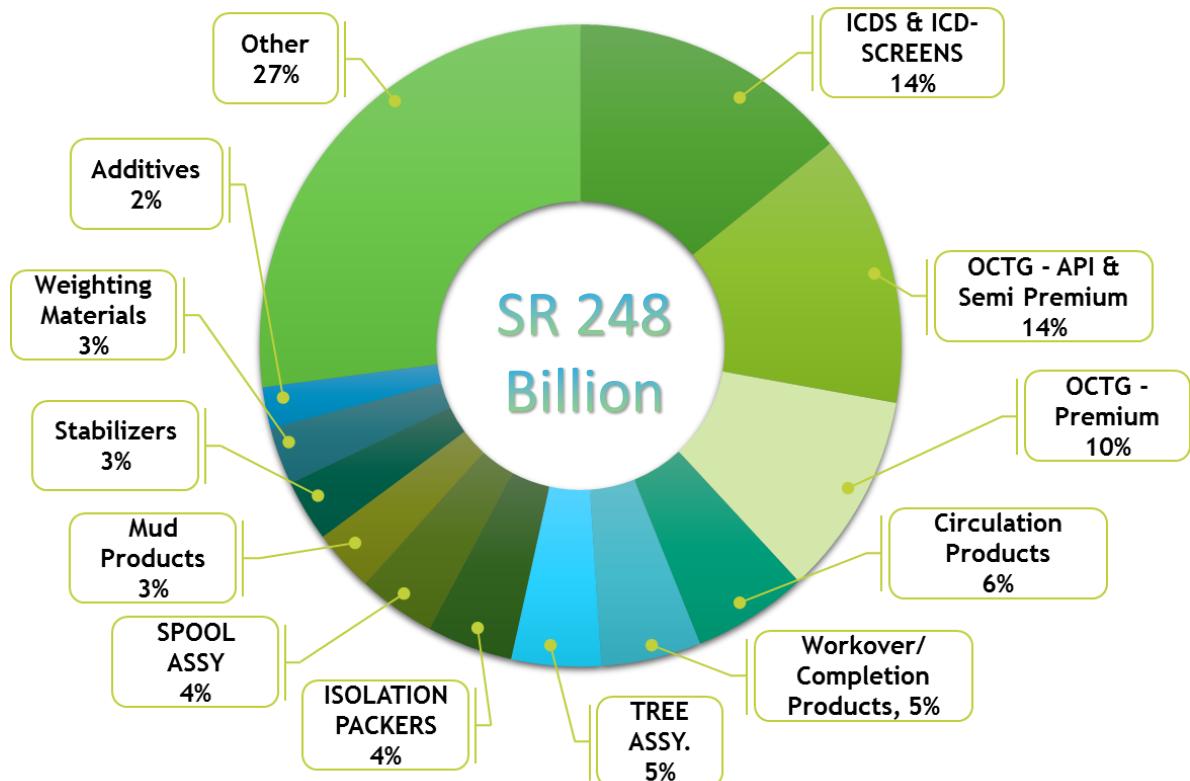
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Drilling Materials Spend Forecast 2017-2026

Quantity Examples



Percentage of Total Material Spend

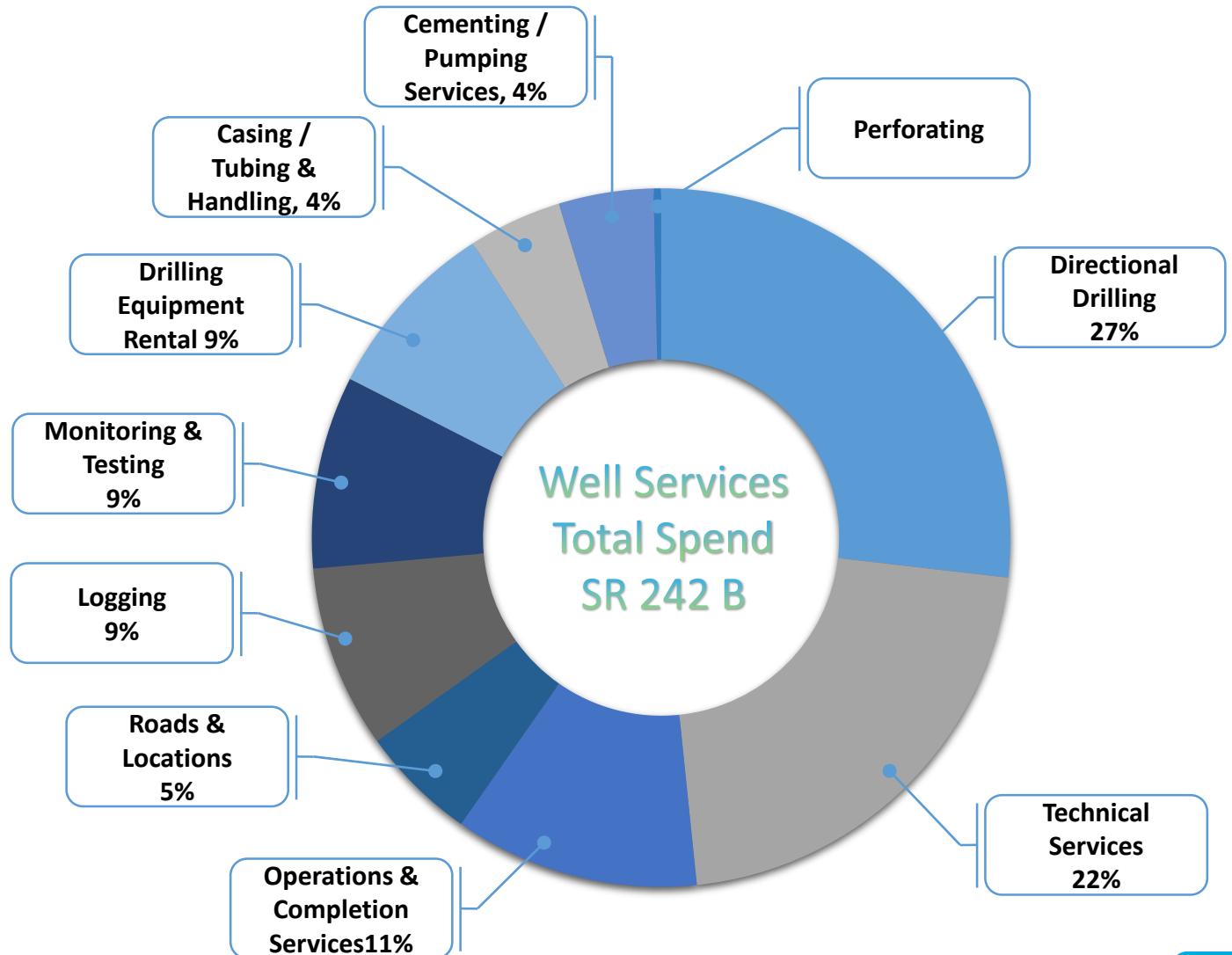
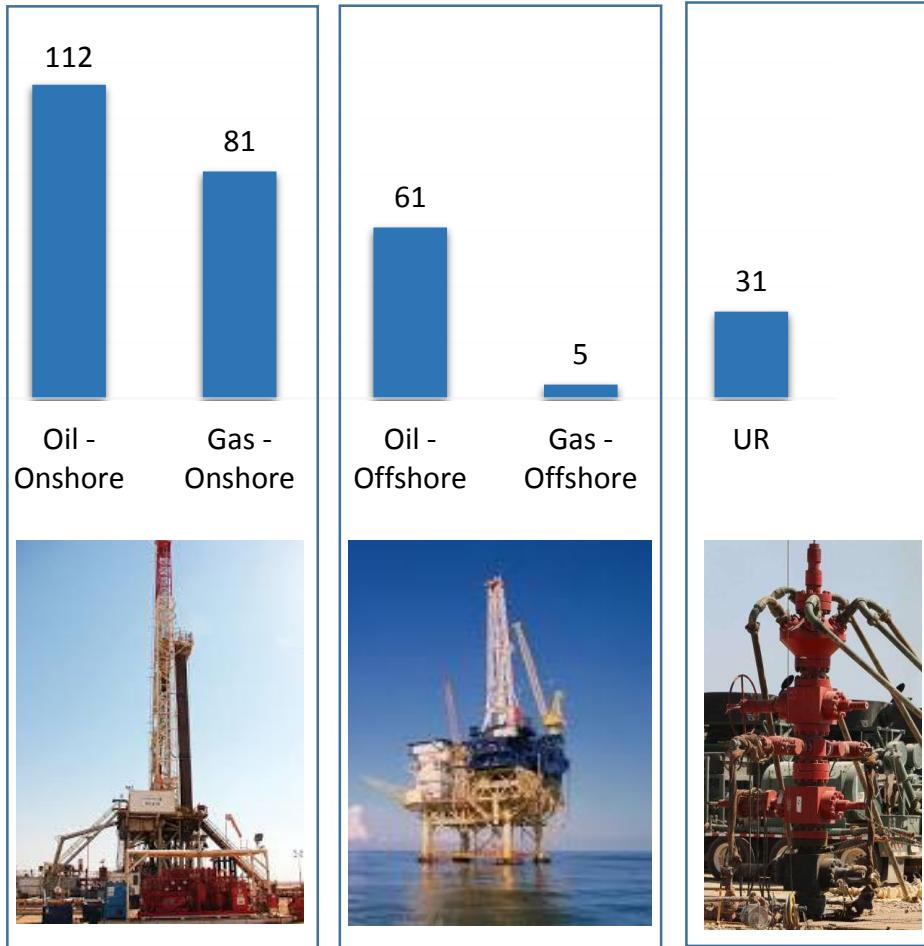


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Rigs Oper. and Well Services Forecast (2017 – 2026)

Total = SR 439 B

Rig Drilling Ops Services = SR 197 B

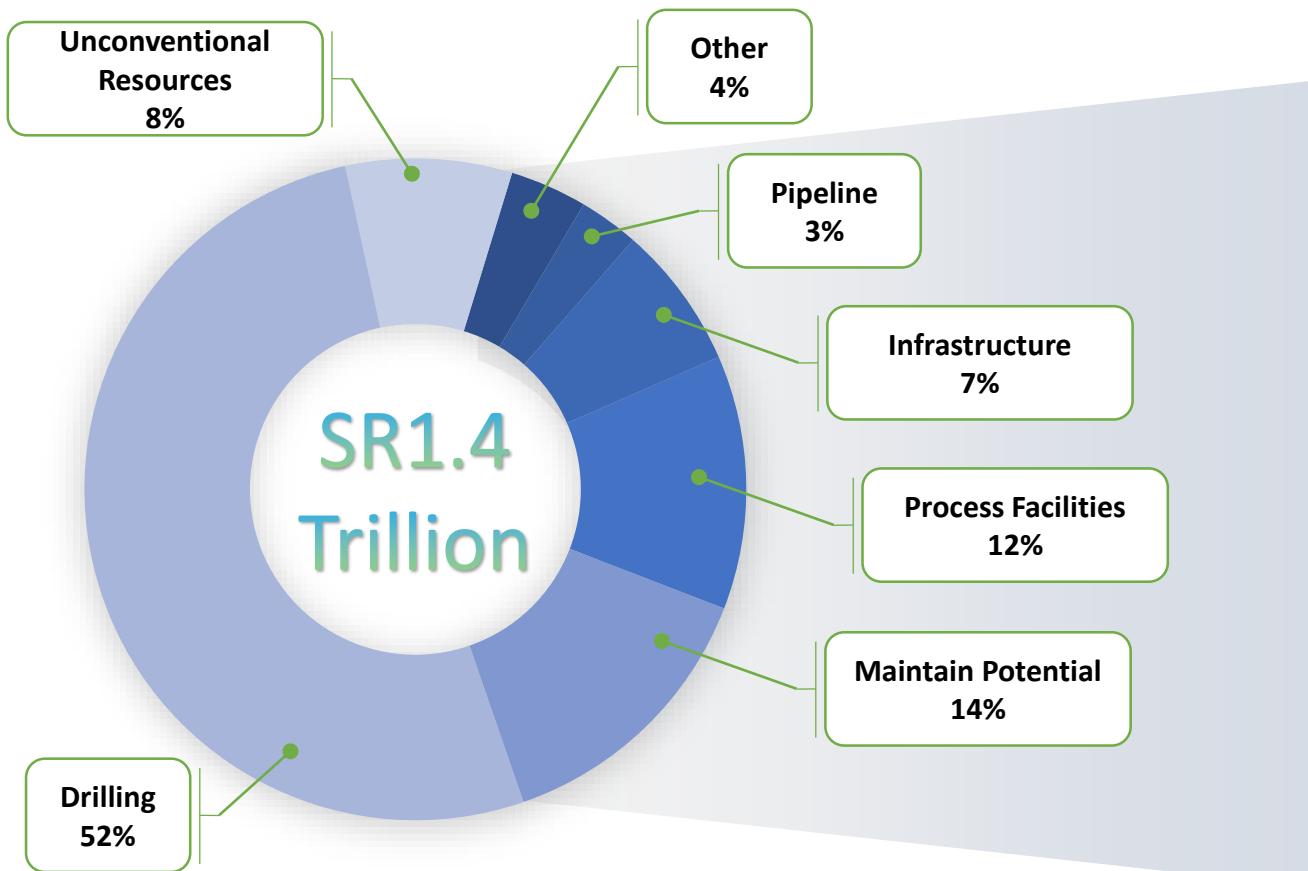


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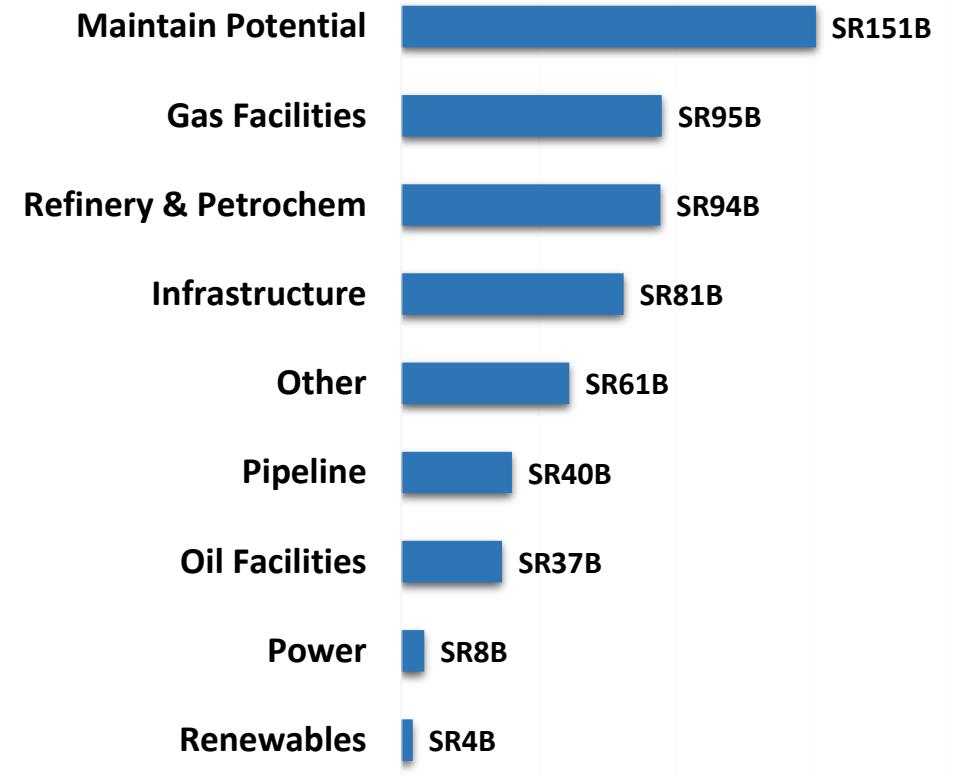
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Surface Facilities Forecast (2017 – 2026)

10-Year Capital Program Forecast



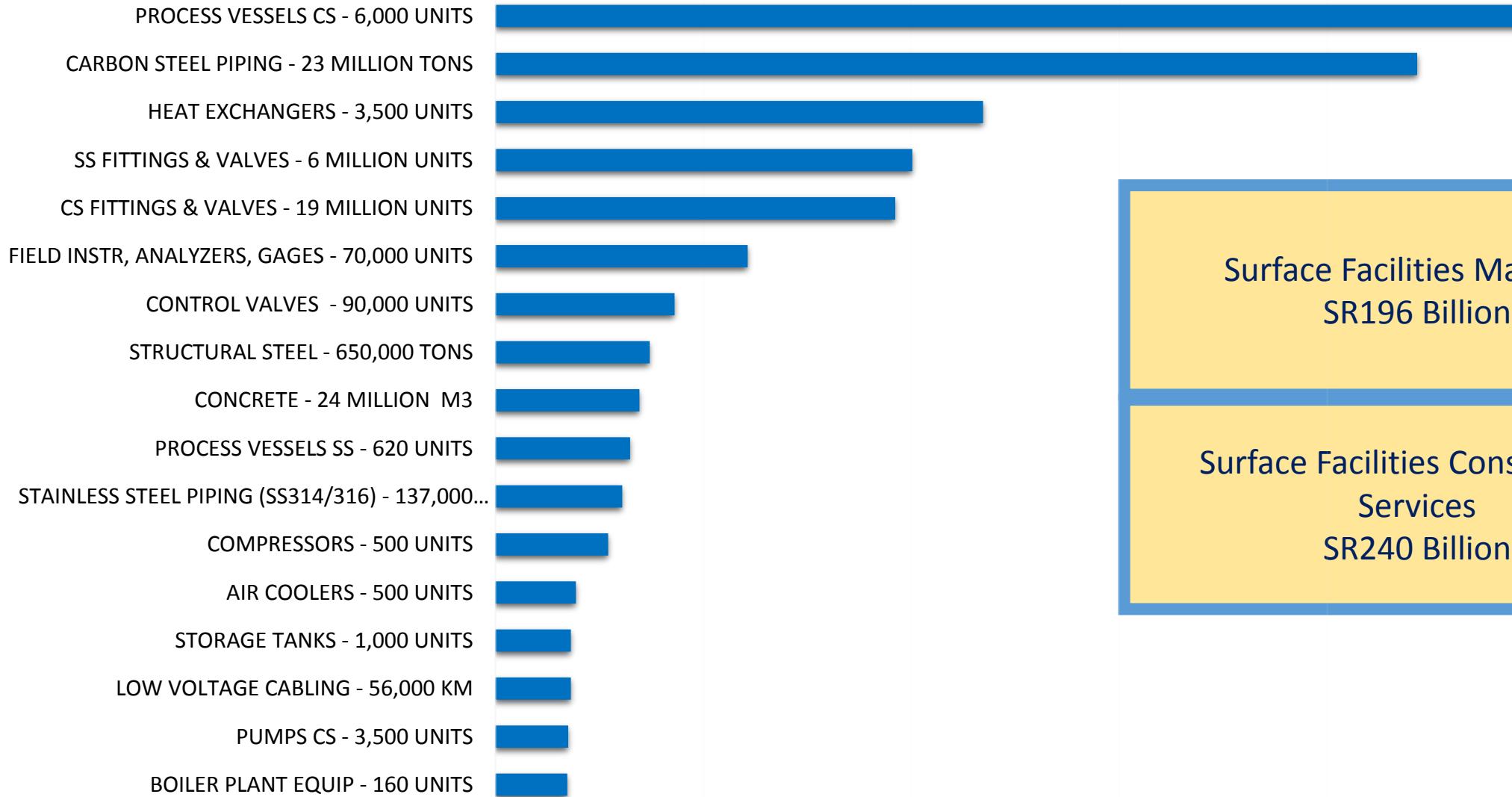
Surface Facilities (SR~500 Billion)



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Examples of Surface Facilities Materials Forecast (2017-2026)

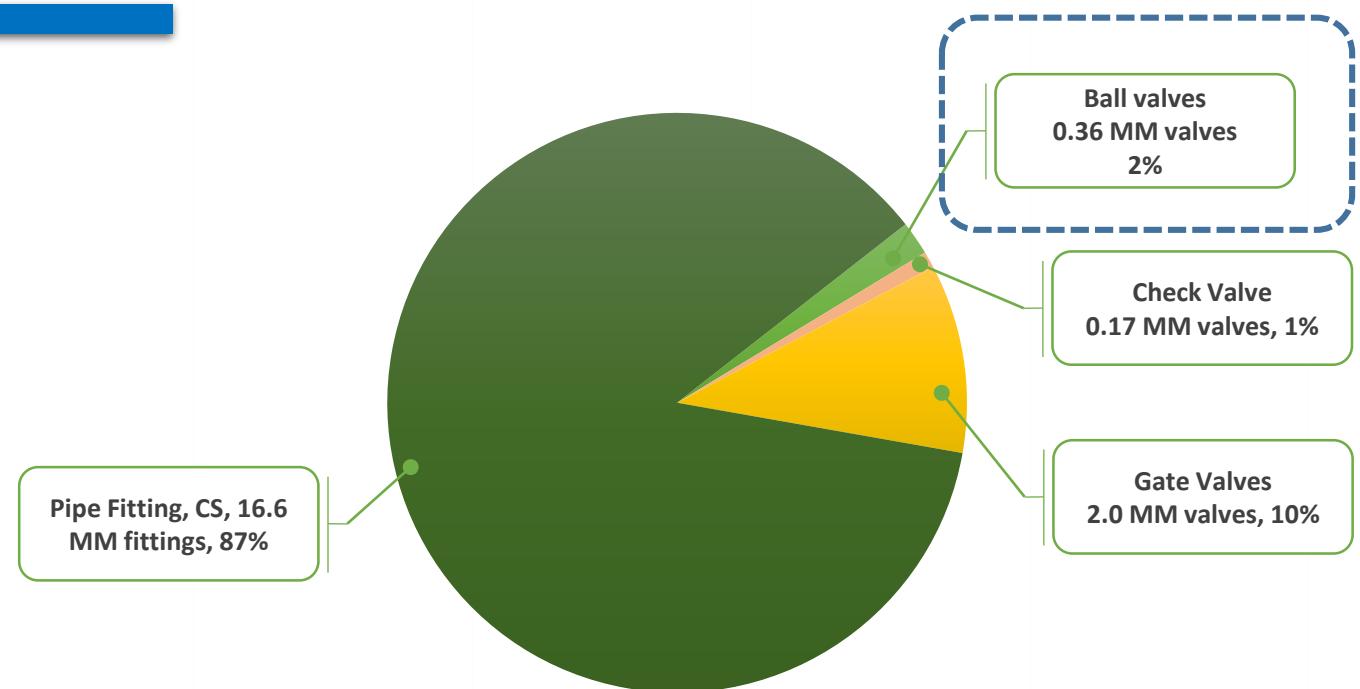


Surface Facilities Materials
SR196 Billion

Surface Facilities Construction
Services
SR240 Billion

Examples of Surface Facilities Materials Forecast (2017-2026) - CS Fittings & Valves

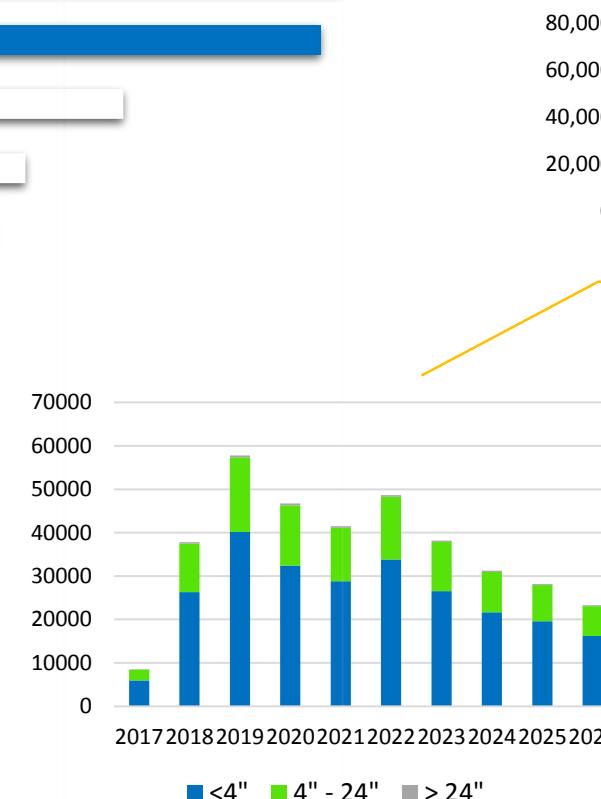
PROCESS VESSELS CS - 6,000 UNITS
CARBON STEEL PIPING - 23 MILLION TONS
HEAT EXCHANGERS - 3,500 UNITS
SS FITTINGS & VALVES - 6 MILLION UNITS
CS FITTINGS & VALVES - 19 MILLION UNITS
FIELD INSTR, ANALYZERS, GAGES - 70,000 UNITS
CONTROL VALVES - 90,000 UNITS
STRUCTURAL STEEL - 650,000 TONS
CONCRETE - 24 MILLION M3
PROCESS VESSELS SS - 620 UNITS
STAINLESS STEEL PIPING (SS314/316) - 137,000...
COMPRESSORS - 500 UNITS
AIR COOLERS - 500 UNITS
STORAGE TANKS - 1,000 UNITS
LOW VOLTAGE CABLING - 56,000 KM
PUMPS CS - 3,500 UNITS
BOILER PLANT EQUIP - 160 UNITS



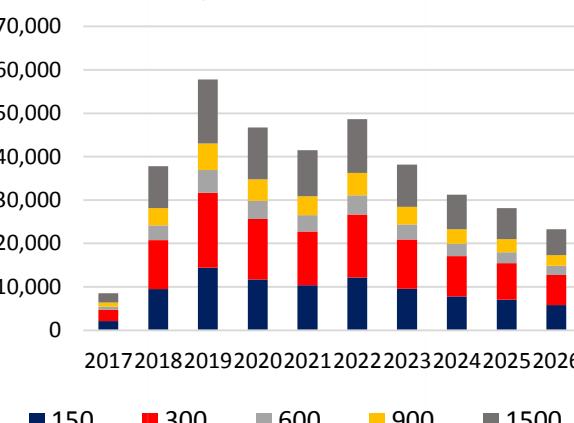
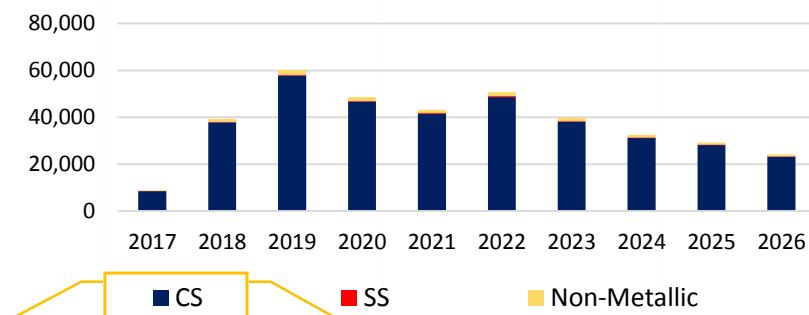
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Examples of Surface Facilities Materials Forecast (2017-2026) - Ball Valves

PROCESS VESSELS CS - 6,000 UNITS
CARBON STEEL PIPING - 23 MILLION TONS
HEAT EXCHANGERS - 3,500 UNITS
SS FITTINGS & VALVES - 6 MILLION UNITS
CS FITTINGS & VALVES - 19 MILLION UNITS
FIELD INSTR, ANALYZERS, GAGES - 70,000 UNITS
CONTROL VALVES - 90,000 UNITS
STRUCTURAL STEEL - 650,000 TONS
CONCRETE - 24 MILLION M3
PROCESS VESSELS SS - 620 UNITS
STAINLESS STEEL PIPING (SS314/316) - 137,000...
COMPRESSORS - 500 UNITS
AIR COOLERS - 500 UNITS
STORAGE TANKS - 1,000 UNITS
LOW VOLTAGE CABLING - 56,000 KM
PUMPS CS - 3,500 UNITS
BOILER PLANT EQUIP - 160 UNITS



Ball Valves – All Types

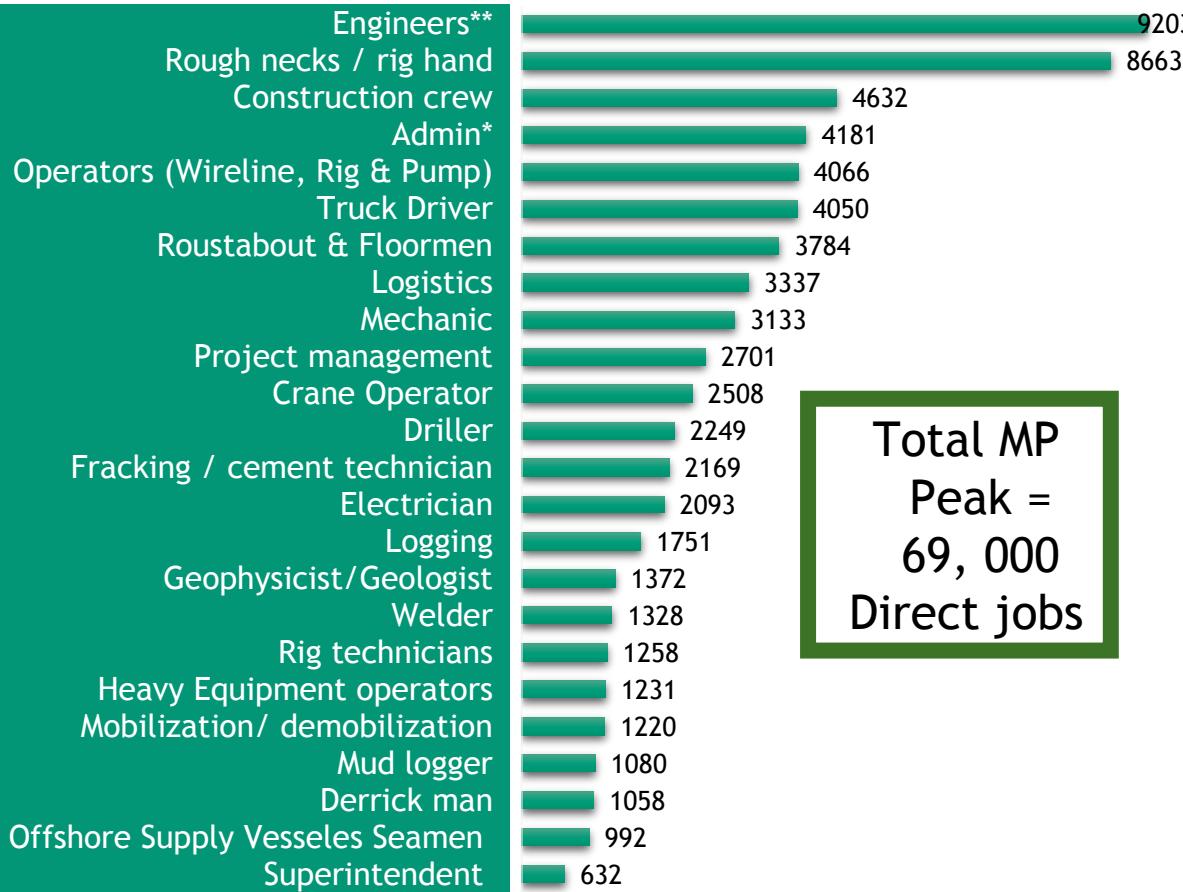


Disclaimer:

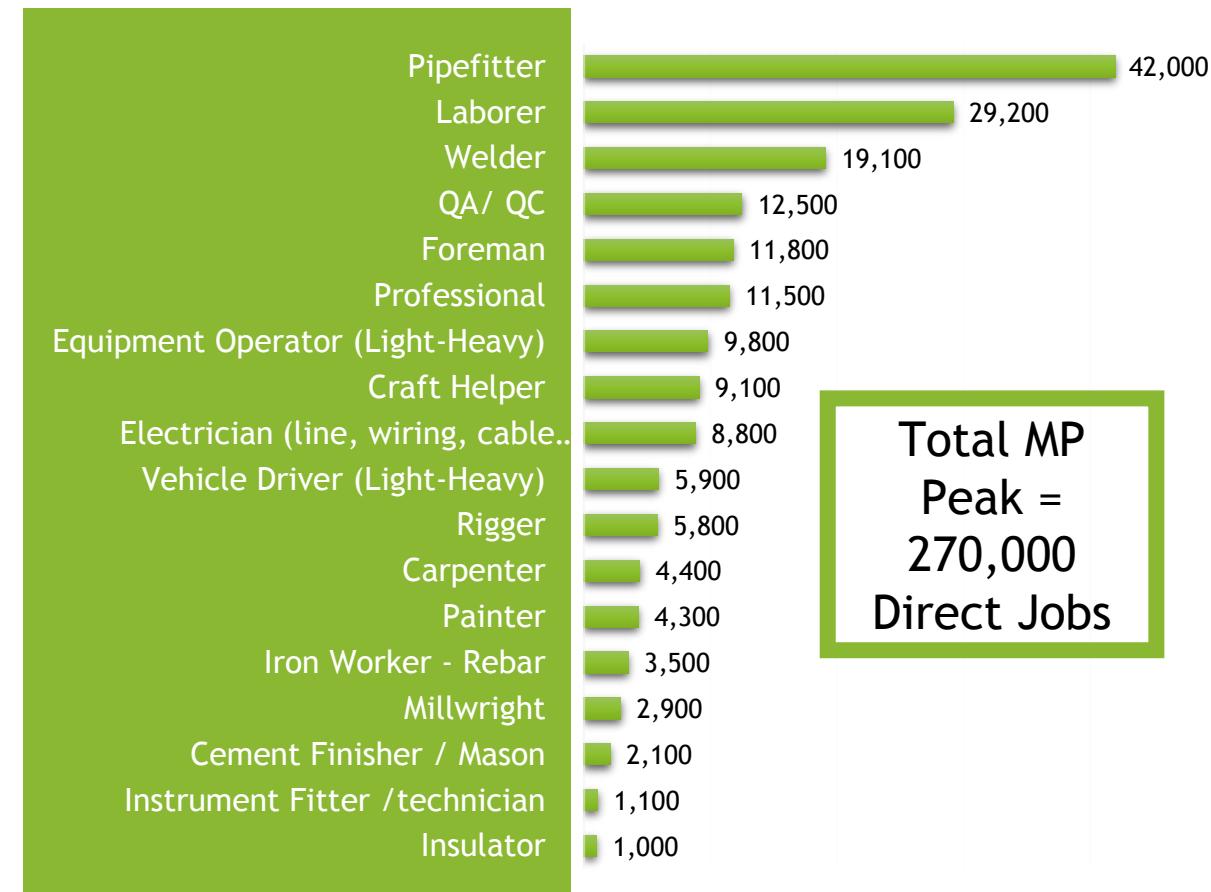
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Examples Required Workforce Skills (2017-2026)

DRILLING AVERAGE MANPOWER/YEAR* SKILL LEVEL EXAMPLES



PROCESS FACILITIES AVERAGE MANPOWER/YEAR* SKILL LEVEL EXAMPLES



* This demand is for industrial projects only. It does not include Commercial, Residential, or Infrastructure Projects.

** Inclusive of all disciplines

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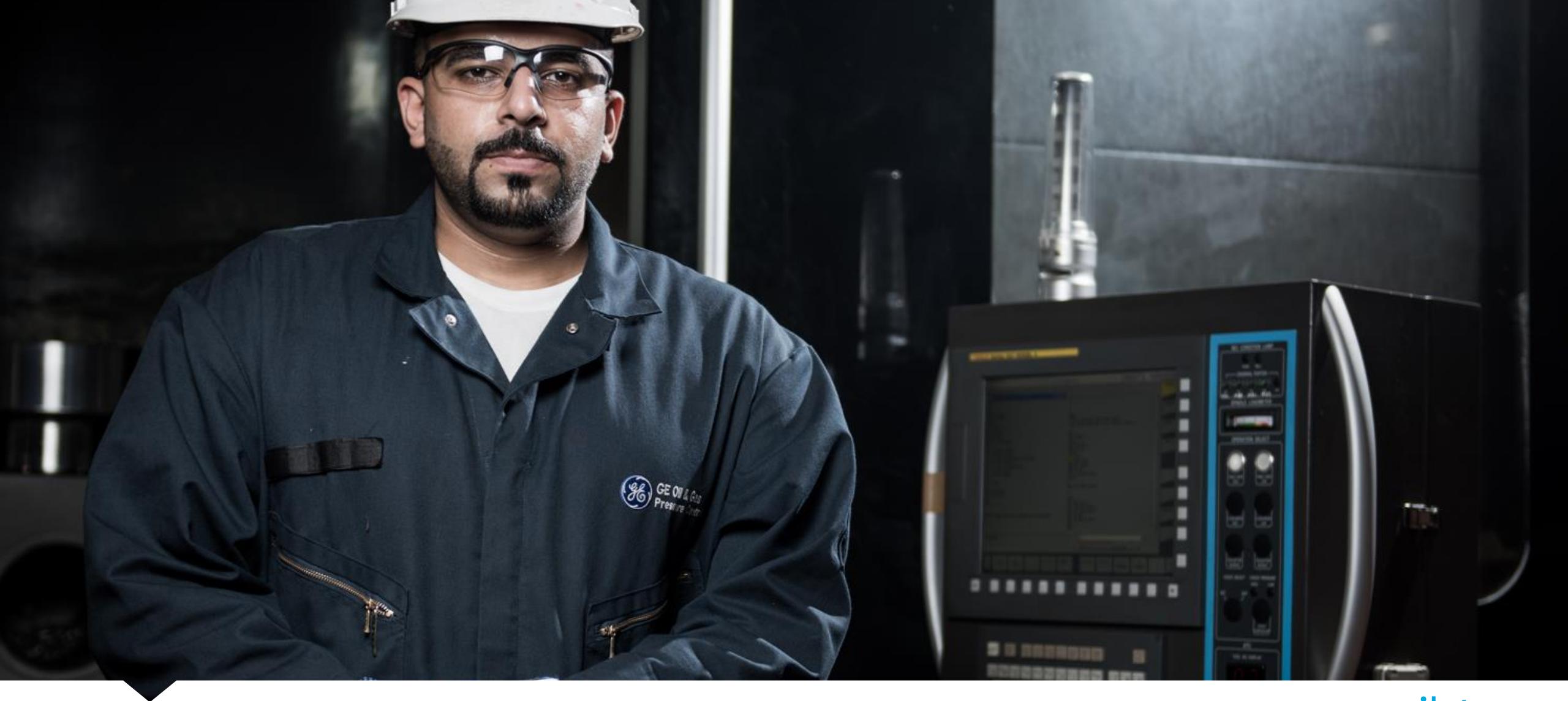
Key Points

- Immediate opportunities for materials
 - Materials with no or few local suppliers
 - Increasing capability – removing limitations
- Collaboration - Saudi Aramco and its supply chain will drive new business
- Doing Business - be competitive
- Over SR 1 trillion in spend over the next 10 years = opportunity



Saudi Aramco Contact details

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New local businesses, market information	Local Business Development Unit	Imran Hariri Tel.: 874-0093 Local-content@aramco.com
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Thank you

iktva

70 by 21

70% localization
by the year 2021