



Saudi Arabia HVAC-R Market Outlook, 2021



Market Intelligence . Consulting





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Saudi Arabia HVAC-R: Key Projects



Saudi Arabia HVAC-R: Key Projects

■ Saudi Arabia's GDP stood at around USD790.91 billion in 2015 and the country is one of the largest economies in the Middle East and North Africa (MENA) region. During last 5-10 years, the country implemented various regulations, financial and tax incentives to attract investors across the globe. Availability of huge oil reserves in the country and low energy prices make Saudi Arabia an ideal location for projects that are dependent on high energy consumption.

✦ Due to rapidly growing population base and increasing religious tourism in Saudi Arabia, government has initiated a number of construction projects valued at around USD80 billion, which include huge projects such as construction of economic cities, metro rail projects, etc. These mega projects with huge investments are set to increase demand for HVAC systems in both commercial as well as residential sector over the next few years.

Figure 1: Saudi Arabia GDP, 2013-2019F
(USD Billion)

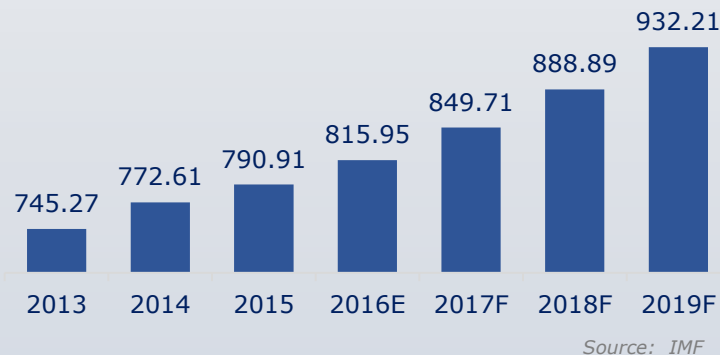
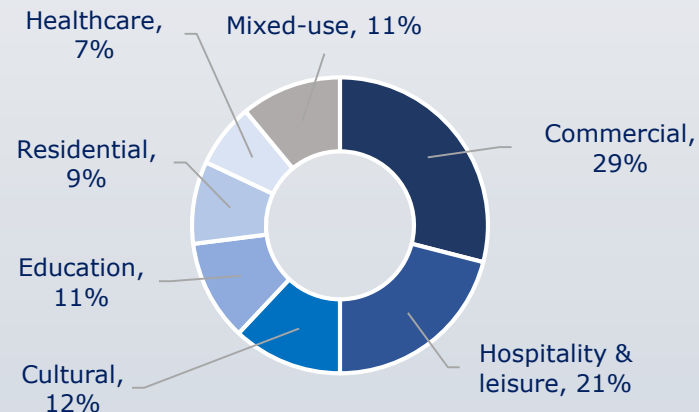


Figure 2: Saudi Arabia Sector-wise Construction Spending Share, 2014





Saudi Arabia HVAC-R: Key Projects

Table 1: Saudi Arabia Ongoing Prominent Infrastructure Project Investments, By Location & Year of Completion as of 2015 (USD Billion)

Name of the Project	Location	Expected Year of Completion	Project Value (USD Billion)
Sudair City Development	Sudair	2029	40
Jazan Economic City (JEC)	Jazan	2036	27
Prince Abdulaziz Bin Mousaed Economic City	Hail	2025	8
Abraj Kudai Towers	Makkah	2019	3.5
Jabal Omar Development	Makkah	2020	2.7
Jeddah Gate Development	Jaddah	2020	1.6
Waad Al Shamaal Phosphate City Development	Shamaal	2022	7.5
Shuqaiq Steam Power Plant	Shuqaiq	2018	3.3
King Abdullah bin Abdulaziz Medical City	Riyadh	2020	6.8
National Railway Network	Riyadh and Dammam	2040	97
Jeddah Public Transportation Program	Jeddah	2033	35
King Abdulaziz International Airport (KAIA) Expansion	Jeddah	2035	28



Saudi Arabia HVAC-R: Key Projects

Table 2: Saudi Arabia Ongoing Airport Expansion Projects, By Location & Project Value, as of 2016 (USD Million)

Name of the Airport	Location	Project Value (USD Million)
Abha Regional Airport	Abha	1,000
King Abdullah bin Abdulaziz Airport	Jizan	900
King Khalid International Airport	Riyadh	500
Al Qassim Domestic Airport	Buraydah	270
Al Baha Domestic Airport	Al Baha	160
Al Jouf Domestic Airport	Al Jouf	100
Arar Domestic Airport	Arar	84
New International Airport	Taif	N/A

N/A - Not Available

Source: TechSci Research

Table 3: Saudi Arabia Major Upcoming Hotel Projects, By Location, as of 2016

Hotel	Location	Company	Number of Rooms	Opening
Courtyard by Marriott Makkah	Makkah, Saudi Arabia	Marriott International	432	2017
Shaza Jeddah	Jeddah, Saudi Arabia	Shaza Hotels	140	2017
Adagio Aparthotel Jeddah Alesayi Plaza	Jeddah, Saudi Arabia	Accor	200 Apartments	2017
Adagio Aparthotel Riyadh Dhabab	Riyadh, Saudi Arabia	Accor	150	2017
Hilton Garden Inn Riyadh Andalusia	Riyadh, Saudi Arabia	Hilton Worldwide	130	2019
One & Only Jeddah	Jeddah, Saudi Arabia	Kerzner International	150	2019
Millennium Hotel Makkah (Umm Al Qurah)	Makkah, Saudi Arabia	Millennium & Copthorne Hotels	1400	2019

Source: Saudi Arabian General Investment Authority



Saudi Arabia HVAC-R: Key Projects

Table 4: Saudi Arabia Major Government Housing Project Investments, as of 2016 (USD Million)

Leading Project Details	Amount of Investment (USD Million)	Current Status
Saudi Housing Project: Phase 1	5,000	Execution
Saudi Housing Project: Riyadh: Dawadmi	169	Execution
Saudi Housing Project: Eastern Province: Hafr Al Batin	145	Execution
Saudi Housing Project: Tabuk: Taimah	107	Execution
Saudi Housing Project: Infrastructure Package (Bisha)	100	Design
Saudi Housing Project: Northern Borders: Arar	85	Execution
Infrastructure Package (Hotat Bani Tamim)	75	Design
Saudi Housing Project: Infrastructure Package (Afif)	73	Design
Saudi Housing Project: Riyadh: Alayeniah	70	Execution
Saudi Housing Project: Riyadh: Shaqra	68	Execution
Saudi Housing Project: Riyadh: Majmaa	60	Execution
Saudi Housing Project: Northern Borders: Rafha	55	Execution
Saudi Housing Project: Jouf: Sakaka 1	48	Execution
Saudi Housing Project: Jouf: Qurayat	38	Execution
Saudi Housing Project: Eastern Province: Khobar	32	Execution
Saudi Housing Project: Infrastructure Package (Huraimla)	32	Design
Saudi Housing Project: Riyadh: Remah	24	Execution
Saudi Housing Project: Eastern Province: Ahsa 2	23	Execution
Total value of all the Projects: USD68 Billion	Duration: 2011-2016	Number of Residential Units: 500,000



Saudi Arabia HVAC-R: Key Projects

Table 5: Saudi Arabia Major Upcoming Project Investments, By Sector & Completion Date, as of 2016 (USD Billion)

Project Name	Sector	Completion Date	Value (USD Billion)
GTC - Ras Al Khair Manufacturing Seamless Pipes Plant	Industry	H2 2017	1000.0
Maaden/Mosaic/Sabic - Umm Waal Phosphate Mine	Industry	Q4 2016	96.0
ADA - Riyadh Metro	Infrastructure	Q2 2018	22.5
KHC - Kingdom City	Real Estate	2019	20.0
ADA - Riyadh Metro - Phase 1	Infrastructure	Q2 2018	14.7
Saudi Arabia MOI - Saudi Arabia Security Border	Infrastructure	2018	12.0
Metro Jeddah Company - Jeddah Metro	Infrastructure	2022	12.0
Aramco - Integrated Gasification Combined Cycle Power Plant	Power and Water	2017	10.0
PIF - Saudi Landbridge	Infrastructure	2018	10.0
ADA - Riyadh Metro - Phase 1 - Lines 1 and 2	Infrastructure	Q2 2018	9.5
Al-Mozaini Real Estate Investment Company - Riyadh East Sub Center	Real Estate	2021	8.0
ADA - Riyadh Metro - Phase 2	Infrastructure	Q2 2018	7.8
ADA - Riyadh Metro - Phase 2 - Lines 4, 5 and 6	Infrastructure	Q2 2018	7.8
ACC - Rabigh Cement Plant Expansion	Industry	Q3 2017	7.0
Aramco - Jazan Refinery and Terminal	Oil and Gas	2018	7.0
KEC - Madinah Knowledge Economic City	Real Estate	2020	7.0



Saudi Arabia HVAC-R: Key Projects

Table 5: Saudi Arabia Major Upcoming Project Investments, By Sector & Completion Date, as of 2016 (USD Billion) Contd.

Project Name	Sector	Completion Date	Value (USD Billion)
SRO - Railway Expansion Program	Infrastructure	2017	7.0
Holy Makkah Municipality - Makkah Metro - Phase 1	Infrastructure	Q4 2018	6.8
JODC - Jabal Omar Development	Real Estate	Q4 2016	5.5
Aramco - Saudi Arabia State of Art Stadiums	Real Estate	Jan-17	5.3
ADA - Riyadh Metro - Phase 1 - Line 3	Infrastructure	Q2 2018	5.2
SEC - Uqair Power Plant	Power and Water	2019	5.2
Holy Makkah Municipality - Makkah Metro - Phase 2	Infrastructure	2022	5.0
SWCC - Rabigh RO Desalination Plant - Phase 4	Power and Water	2017	5.0
Aramco - Wasit Gas Development	Oil and Gas	Dec-15	4.6
Holy Makkah Municipality - Makkah Metro - Phase 3	Infrastructure	2024	4.6
Aramco/Dow Chemical - Ras Tanura Gas Plant	Oil and Gas	NA	4.0
Saudi Arabia MOF - Abraj Kudai Towers	Real Estate	Q1 2019	3.5
Saudi MOI - Riyadh Security Forces Medical City	Real Estate	Q3 2017	3.4
SEC - Shuqaiq Power Plant	Power and Water	2017	3.3
Aramco - Khurais Oilfield Expansion	Oil and Gas	2017	3.0
SSC - Jazan Steel Complex	Industry	NA	2.7
GACA - Prince Mohammed Bin Abdulaziz Airport Expansion	Infrastructure	2020	2.4

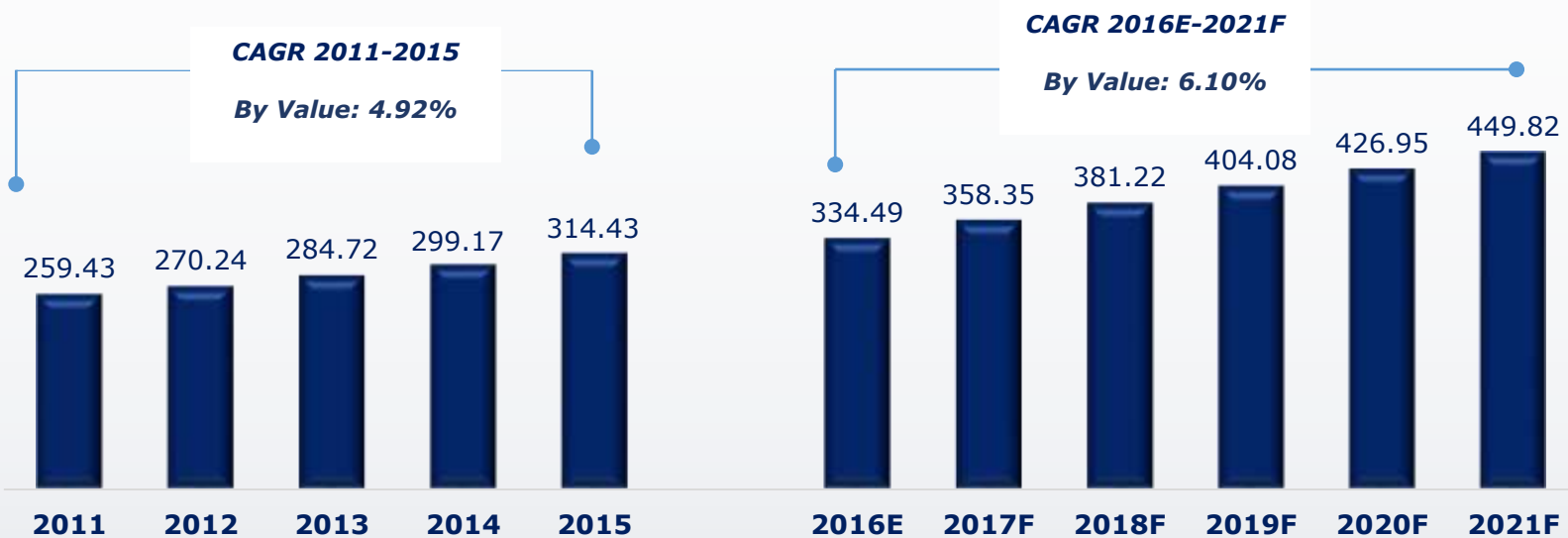


Saudi Arabia Thermal Insulation Market Outlook



Saudi Arabia Thermal Insulation Market Size, By Value

Figure 3: Saudi Arabia Thermal Insulation Market Size, By Value, 2011-2021F (USD Million)



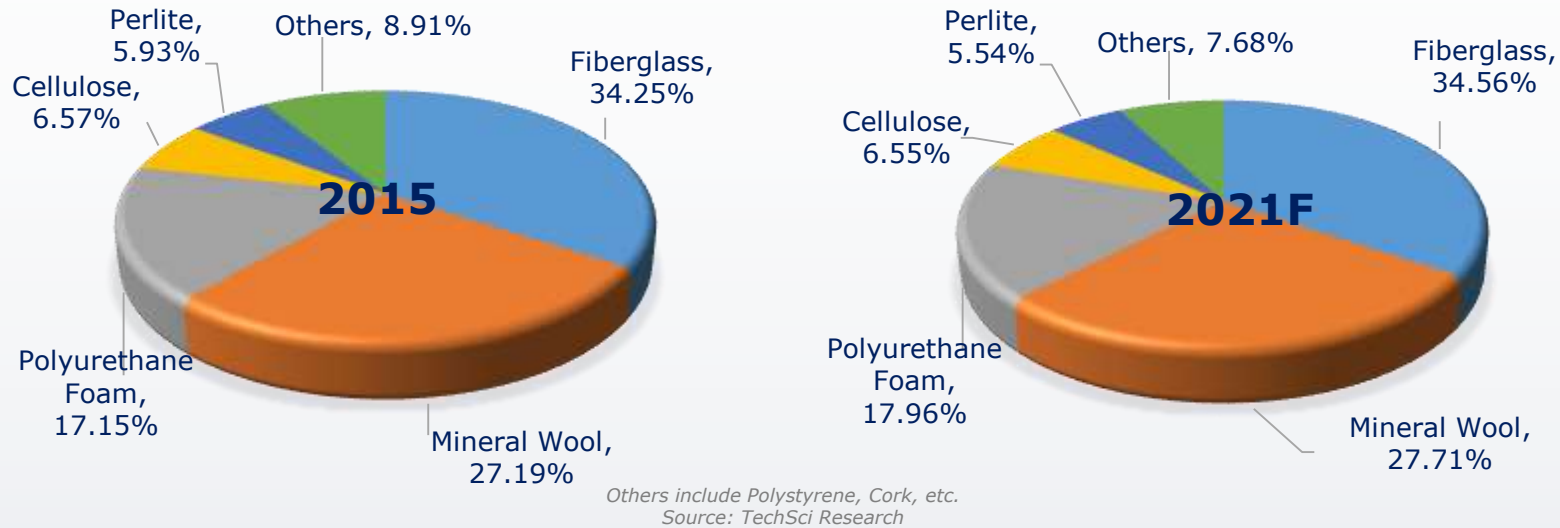
Source: TechSci Research

- Saudi Arabia thermal insulation market stood at USD314.43 million in 2015, and is projected to reach USD449.82 million by 2021, exhibiting a CAGR of 6.10%, in value terms, during 2016-2021. Growth in Saudi Arabia thermal insulation market can be attributed to increasing demand for thermal insulation from end use industries such as power, water, construction, oil & gas, etc.
- With a revenue share of 76.32% in 2014, buildings dominated electricity consumption in Saudi Arabia. In buildings, electricity is used for operating energy intensive electrical appliances. The use of thermal insulation keeps a check on temperature inside the room, thereby reducing need for cooling and thus saving electricity.



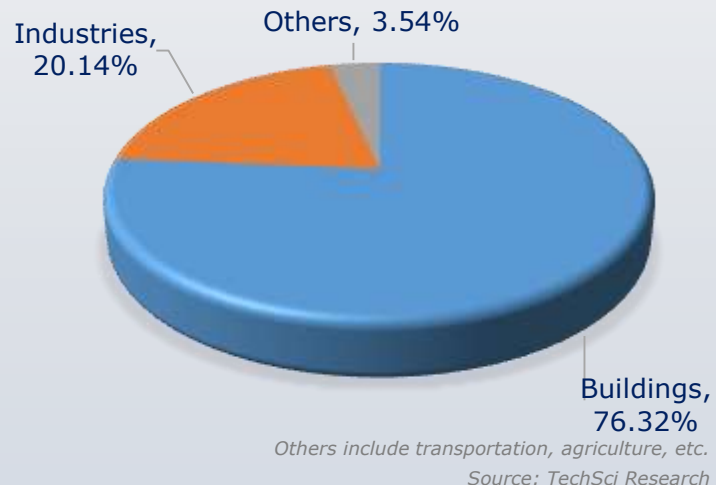
Saudi Arabia Thermal Insulation Market Share, By Type

Figure 4: Saudi Arabia Thermal Insulation Market Share, By Type, By Value, 2015 & 2021F



■ In 2015, Government of Saudi Arabia allocated USD1 trillion for various construction projects related to upgradation of existing infrastructure and building of new projects. Some of the planned and underway projects in the country include construction of infrastructure pertaining to utilities, transport, education, healthcare, etc. Development of infrastructure would require installation of thermal insulation materials in buildings and this is anticipated to boost growth in the country's thermal insulation market.

Figure 5: Saudi Arabia Electricity Consumption Share, By Sector, By Value, 2014





Saudi Arabia Thermal Insulation Market Share, By Application

Figure 6: Saudi Arabia Thermal Insulation Market Share, By Application, By Value, 2015 & 2021F

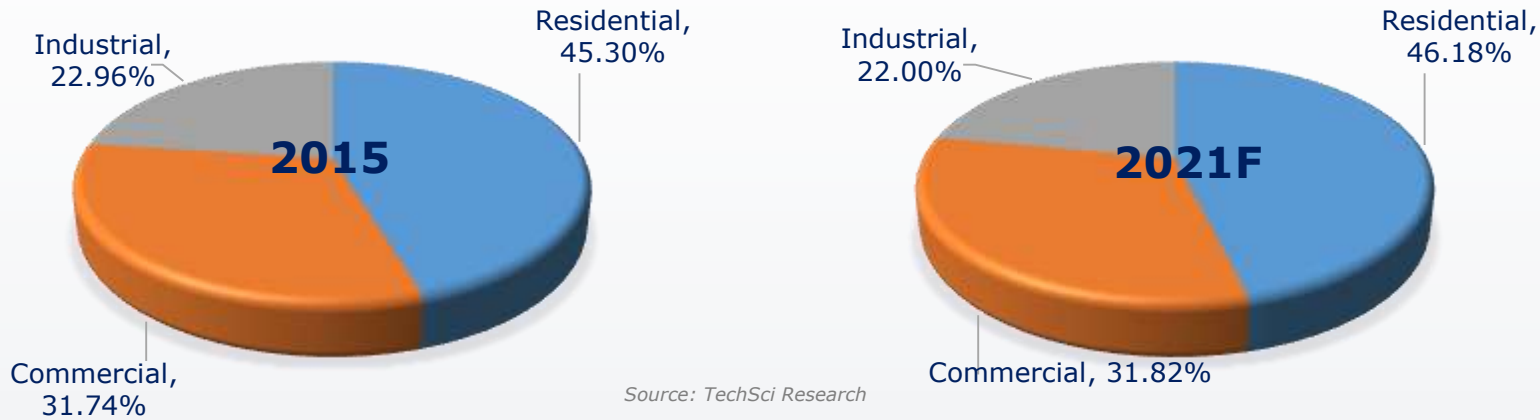
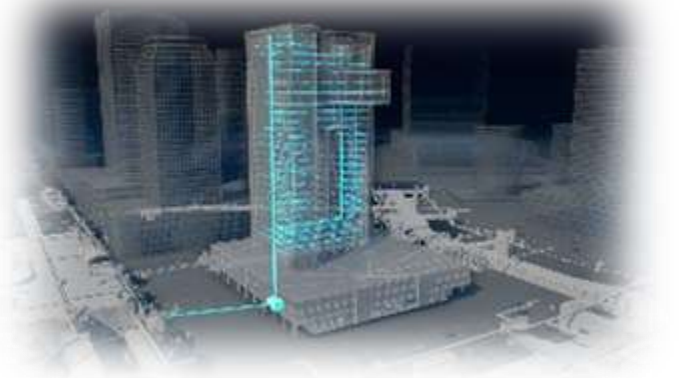
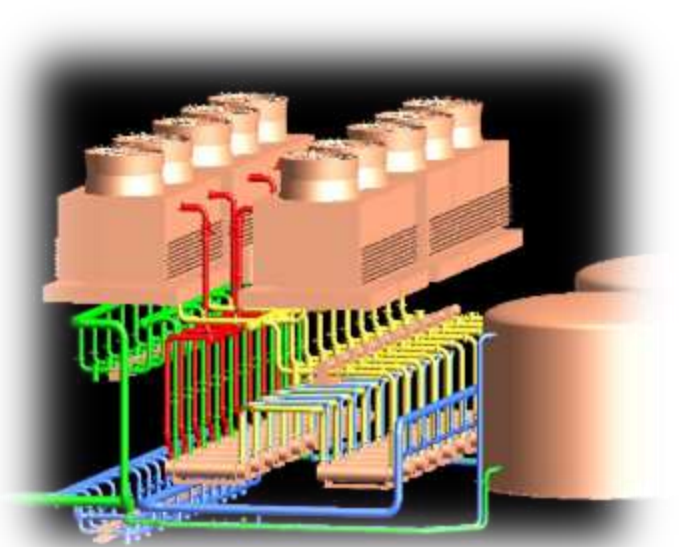


Table 6: Saudi Arabia Percentage of Homes Thermally Insulated, By City, 2014

City	% Home Insulated
Jeddah	15
Riyadh	50
Qassim	3
Dammam	29
Abha	16
Hail	23
Jizan	24
Overall	26.5

Source: TechSci Research

- Climate of Saudi Arabia is hot and it requires regular use of HVAC-R in buildings. Use of thermal insulation in buildings helps in maintaining temperature inside rooms by minimizing dissipation of heat through building walls. Reduction in heat dissipation leads to reduced use of HVACs, which, in turn, saves electricity. Only 26.5% of buildings in the country were thermally insulated in 2014. In Jeddah, 85% of the buildings lack insulation as of 2014. Around 72.6% of houses in the Eastern Province and 50% in Riyadh were not thermally insulated as of 2014.

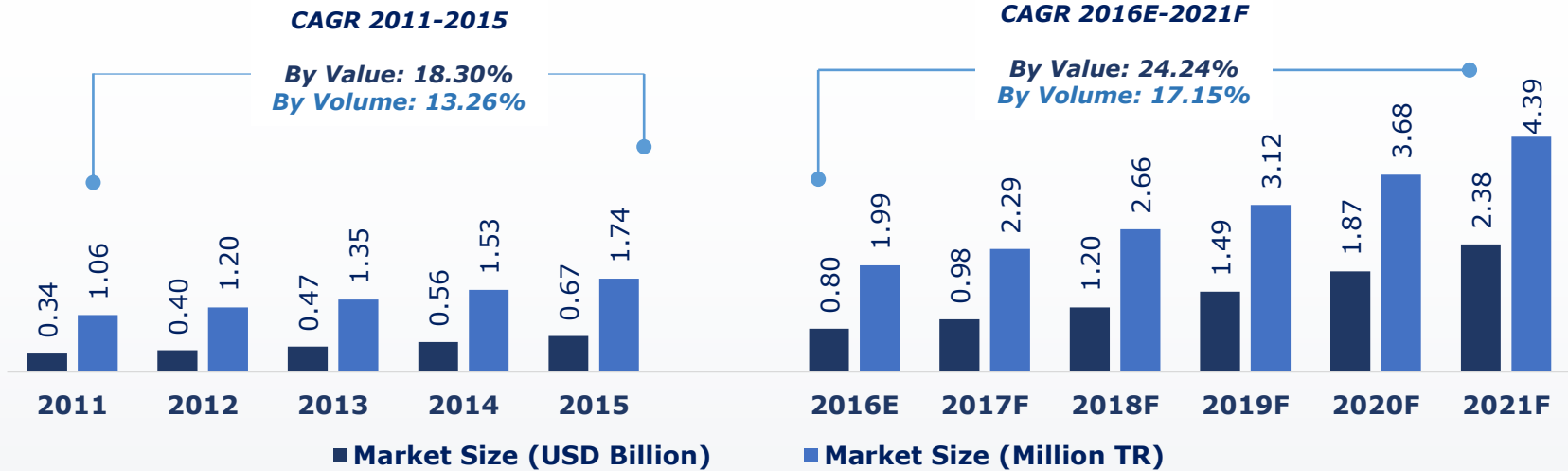


Saudi Arabia District Cooling Market Outlook



Saudi Arabia District Cooling Market Size, By Value & Volume

Figure 7: Saudi Arabia District Cooling Market Size, By Value (USD Billion), By Volume (Million TR), 2011-2021F



Source: TechSci Research

Growing focus on sustainability across the country has resulted in adoption of various energy conservation measures. Additionally, in order to cope with extremely high temperatures, rise in power consumption by air conditioners is being compensated by the use of energy efficient air conditioners. District cooling technology offers central cooling for multiple buildings, while bringing electricity cost savings of about 25%. District cooling market in Saudi Arabia grew at a CAGR of 18.30%, in value terms, during 2011-2015, and is anticipated to grow at a CAGR of 24.24%, in value terms, during the forecast period on account of its ability to control internal temperature in buildings, less noise generation and low electricity consumption, as compared to other air conditioning technologies available in the country. Emission of harmful gases such as CO₂ has been minimized due to adoption of environment friendly refrigerants in district cooling. Moreover, increase in volume sales and average selling price is projected to drive revenue growth in Saudi Arabia district cooling market in the coming years.



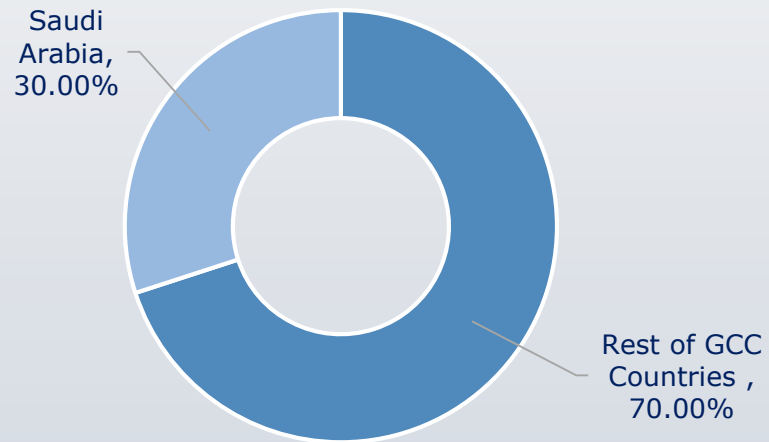
Saudi Arabia District Cooling Market Size, By Value & Volume

■ Demand for district cooling technology in Saudi Arabia grew at a CAGR of 13.26%, in volume terms, during 2011-2015 and is anticipated to grow at a CAGR of 17.15%, in volume terms, during the forecast period due to growing construction sector in the country. Demand for district cooling technology is mainly emanating from small scale developments requiring 5,000 to 25,000 Tonnage Rate (TR) of cooling. This prompted multiple chiller manufacturers to offer chillers with tonnage capacity of around 6,000 TR, especially for district cooling plants in the region, in order to target small projects in residential, commercial, and industrial applications. KSA's district cooling market is mainly dominated by demand from commercial establishments.

✦ District cooling consumes 50% lesser power compared to regular window, split or rooftop chiller ACs. In Saudi Arabia, where more than half of the total power is consumed for cooling purposes, district cooling is a feasible option.

✦ Provinces such as Mecca are projected to become a hub for the district cooling industry in the country due to increasing developments in commercial, educational and utility sectors.

Figure 8: Saudi Arabia District Cooling Market Share in GCC Region, By Value, 2015



Source: TechSci Research

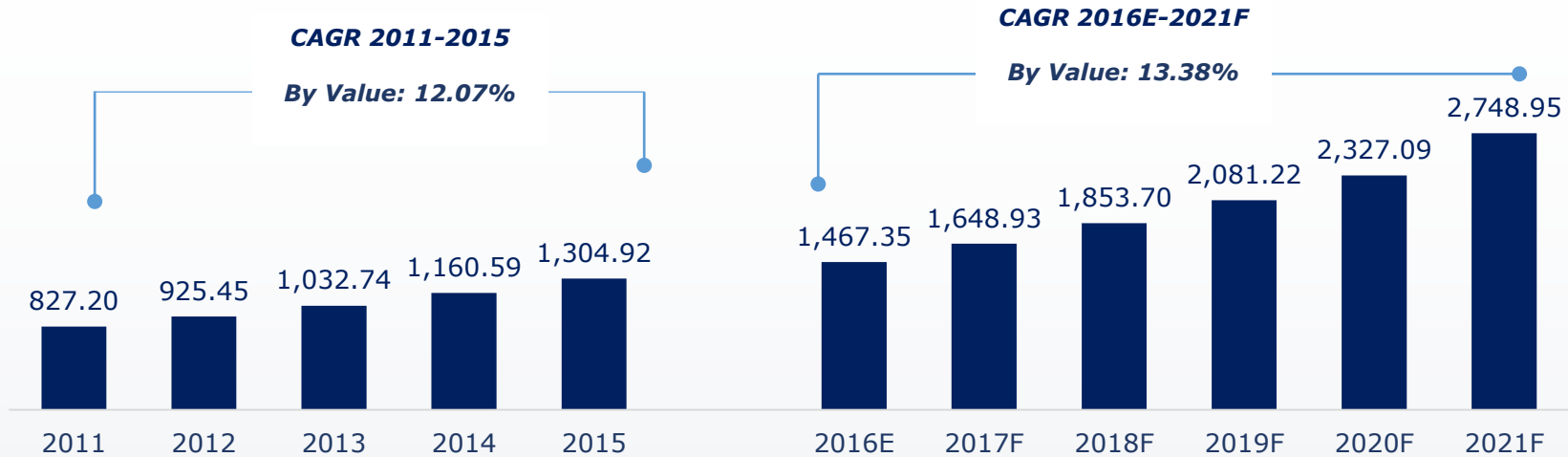


Saudi Arabia Refrigeration Market Outlook



Saudi Arabia Refrigeration Market Size, By Value

Figure 9: Saudi Arabia Refrigeration Market Size, By Value, 2011-2021F (USD Million)



Source: TechSci Research

Saudi Arabia refrigeration market grew at a CAGR of over 12%, in value terms, during 2011-2015, and is further forecast to grow at CAGR of 13.38%, in value terms, during the forecast period, on account of rising demand from commercial and industrial sectors in the country. Due to rising demand for commercial refrigeration systems, especially from cold chain and industrial sectors, Saudi Arabia is one of the largest importers of refrigeration products across the globe. Moreover, growing demand for refrigeration systems with eco friendly technologies, particularly HCFC - free refrigerants such as R134A and R410A, is projected to boost growth in refrigeration market in Saudi Arabia. Further, replacement demand for HCFC - free refrigerants has also contributed to the growth of refrigeration in the country.



Saudi Arabia HVAC-R Market Outlook



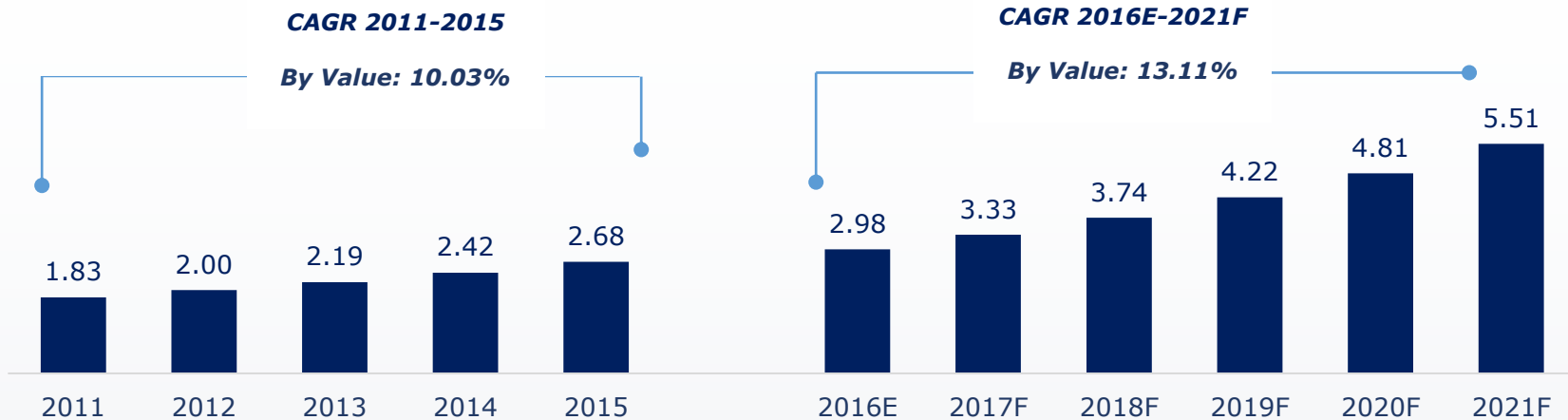
Saudi Arabia HVAC-R Market Outlook

- ✦ Rising population, increasing disposable income, upcoming residential and commercial projects in the country, new technological advancements and launch of energy efficient air conditioning systems are driving HVAC-R market in Saudi Arabia.
- ✦ Growing demand for HVAC-R systems from the commercial sector in the country can be attributed to technological upgradation and innovations such as district cooling technology, solar air conditioning systems and HVAC-R usage. Companies such as Hitachi, Daikin and TVP Solar SA are launching new products and technologies that comply with SASO regulations.
- ✦ On the back of rapid economic growth, huge section of the population relocated from rural areas to urban centers. Around 80% of the urban population lives in three main cities in Saudi Arabia - Riyadh, Jeddah and Dammam, and this has increased demand for HVAC-R equipment majorly from these cities, due to the establishment of commercial and residential units.
- ✦ Other sectors such as travel & tourism are also propelling growth in the country's HVAC-R market. According to the World Travel and Tourism Council, travel & tourism sector contributed to a share of 7.7% to the country's GDP in 2014 and this is expected to reach 8.5% by 2016. During Ramadan and Hajj, over 3 million pilgrims gather in Mecca and Medina to perform Hajj and Umrah pilgrimages.
- ✦ Upcoming commercial projects such as airports, high rise buildings, etc., and developments in luxury homes and villas in the residential sector is projected to generate substantial opportunities for HVAC-R industry in Saudi Arabia.



Saudi Arabia HVAC-R Market Size, By Value

Figure 10: Saudi Arabia HVAC-R Market Size, By Value, 2011-2021F (USD Billion)



Source: TechSci Research

☛ Saudi Arabia HVAC-R market grew at a CAGR of around 10.03%, in value terms, during 2011-2015 and is further projected to grow at a CAGR of 13.11%, in value terms, during the forecast period. Boom in the construction sector in Saudi Arabia propelled growth in the country's HVAC-R market. In Saudi Arabia, temperatures often shooting up to 50°C during peak summer, and thus HVAC-R installation is extremely important in the country.

☛ Implementation of new rules and regulations by the government pertaining to the use of energy efficient HVAC machines has further contributed to the growth in demand for HVAC-R systems in the country. Riyadh, Jeddah, Dammam, and Mecca are few of leading regional markets for HVAC-R systems across the country, due to increasing demand for energy efficient systems, which lower electricity consumption and reduce input cost.



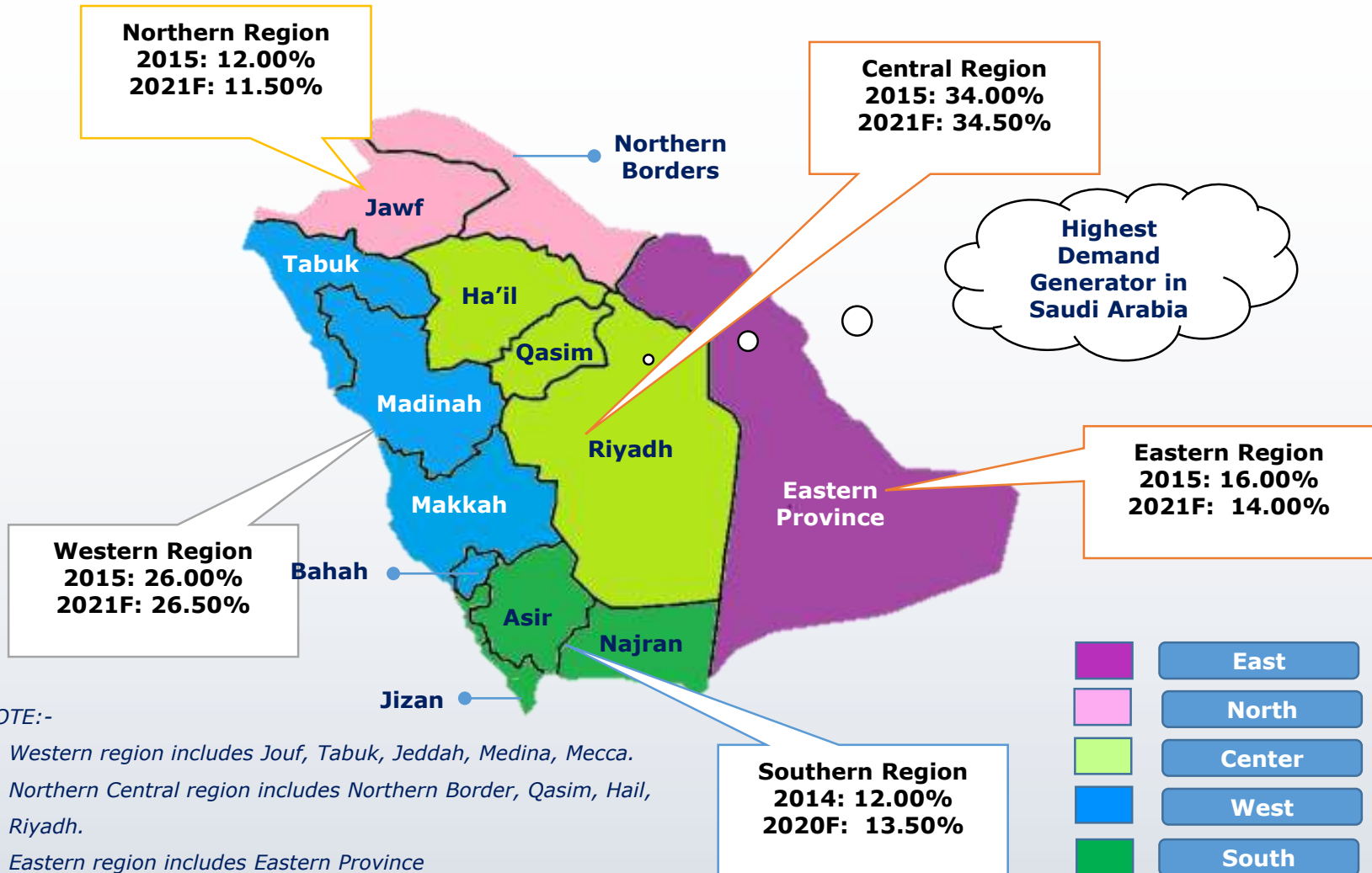
Saudi Arabia HVAC-R Market Size, By Value

- ✦ Saudi Housing Ministry launched Phase-1 of a housing project in Riyadh, which included construction of 830 residential apartments and 13 real estate companies. The organization would be focusing on development of housing sector in the country in Phase 2.
- ✦ Phase-2 included the various changes in policies for the real state sector such as reducing maintenance years from 10 to 5 years, re-scheduling developers payment and parking facility outside apartments.
- ✦ Housing Ministry selected two companies Al-Hakmiah and Emdad Najed, for construction of 888 apartments and 2,000 apartments in Dammam. This is projected to drive installation of HVAC-R systems in the Eastern region of the country in the coming years.
- ✦ Saudi Arabia's King Abdullah Economic City (KAEC) is one of the most ambitious construction projects in the world. The plan is to create a city of two million people and one of the world's biggest deep water ports. According to Ministry of Economy and Planning (MEP), it has been estimated that Saudi Arabia needs to construct 2.4 million new houses by 2016 to address the demands of the growing population.
- ✦ Growth in demand from the commercial sector in the country is mainly due technological upgradations and innovations such as district cooling technology, solar air conditioning systems and HVAC integrated with new technologies. Companies such as Hitachi, Daikin and TVP Solar SA are launching new products and technologies that comply with SASO regulation.



Saudi Arabia HVAC-R Market Share, By Region

Figure 11: Saudi Arabia HVAC-R Market Share, By Region, By Volume, 2015 & 2021F



NOTE:-

- Western region includes Jouf, Tabuk, Jeddah, Medina, Mecca.
- Northern Central region includes Northern Border, Qasim, Hail, Riyadh.
- Eastern region includes Eastern Province
- Southern region includes Asir, Najran.



Saudi Arabia HVAC-R Market Share, By Region

Central Region

Central region dominated Saudi Arabia HVAC-R market, Major demand for HVAC-R in the region is emanating from Riyadh Province. Population of the Central region is highest in Saudi Arabia. Moreover, Riyadh is economically stronger than other regions in the country and registered high per capita income. In addition, increasing construction projects in the region such as Al Rajhi Bank Tower, Elegance Medical Tower, Al Majdoul Tower Projects, etc., that are slated for completion in 2016 are anticipated to drive growth in HVAC-R market in the region during the forecasted period.

West Region

Mecca and Madinah are a part of the Western region and the most important centers for tourism. Nearly 3 to 4 million Muslim pilgrims visit Mecca and Madinah each year. Number of pilgrims visiting Mecca and Madinah are rising and this is projected to propel demand for hotels and resorts in the region. Dar Al-Handasah Group Building Abraj Kudai in Mecca, the largest hotel in the world that would have around 10,000 rooms in 12 towers, is slated for completion by 2018. Due to such projects, demand for HVAC-R systems from West region of Saudi Arabia is expected to increase in the ensuing years.

East Region

In 2015, Eastern region of the country accounted for a volume share of 15% in Saudi Arabia HVAC-R market. Construction of economic cities and houses in the region under various development plans announced by Saudi Ministry of Water and Electricity is projected to boost growth in the region's HVAC-R market. Saudi Electricity Company announced plans to construct 16 power projects in Eastern province of AL-Hasa over the next three years to address the growing demand for electricity in the region.



Saudi Arabia HVAC-R Market Share, By Region

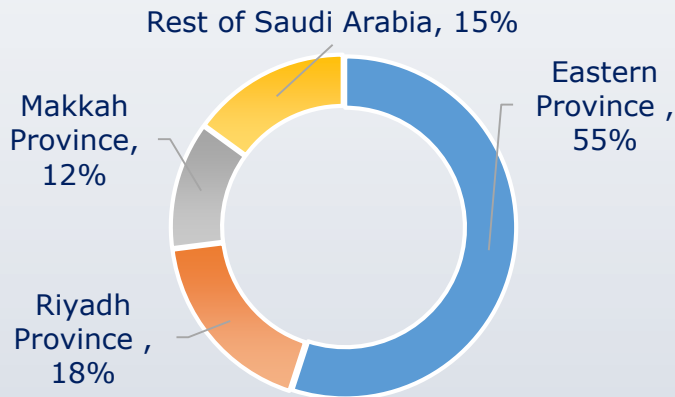
South Region

Southern region, which has coastal cities such as Najtan, Jizan and Asir, accounted for a volume share of 12% in Saudi Arabia HVAC-R market in 2015 and this is projected to reach 13.50% by 2021, due to increasing infrastructure developments in the region such as construction of Jizan Economic City in Jizan that would include a port and various industrial hubs.

North Region

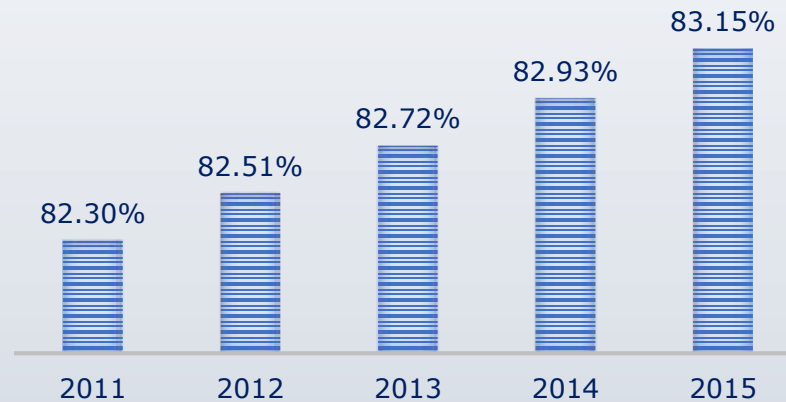
Northern region accounted for a volume share of 12% in the country’s HVAC-R market in 2015, due to low population density in Northern Borders and Jawf. Volume share of the region in the country’s HVAC-R market is projected to reach 11.50% by 2021, as the region is comparatively less developed than other regions in the country.

Figure 12: Saudi Arabia GDP Share, By Province, 2014



Source: TechSci Research

Figure 13: Saudi Arabia Urbanization Rate, 2011-2015 (As Percentage of Total Population)

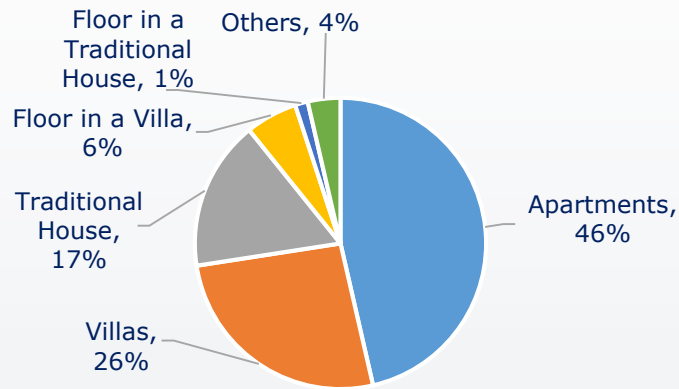


Source: World Bank



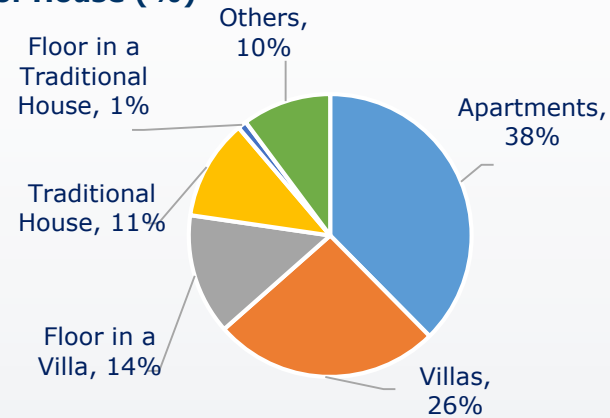
Saudi Arabia HVAC-R Market Share, By Region

Figure 14: Eastern Province Housing Unit Share, By Type of House (%)



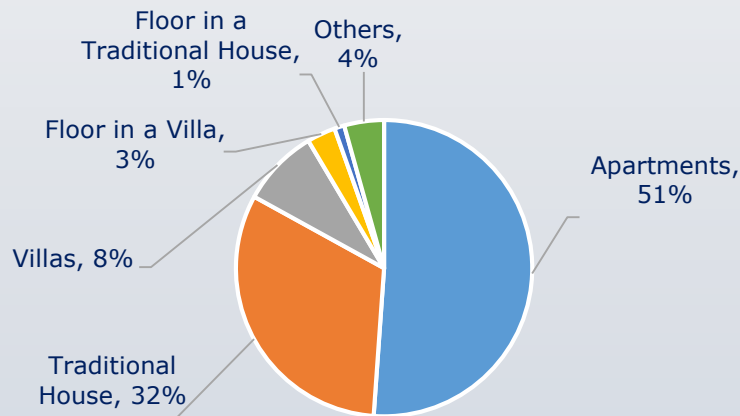
Source: Central Department Of Statistics & Information

Figure 15: Riyadh Housing Unit Share, By Type of House (%)



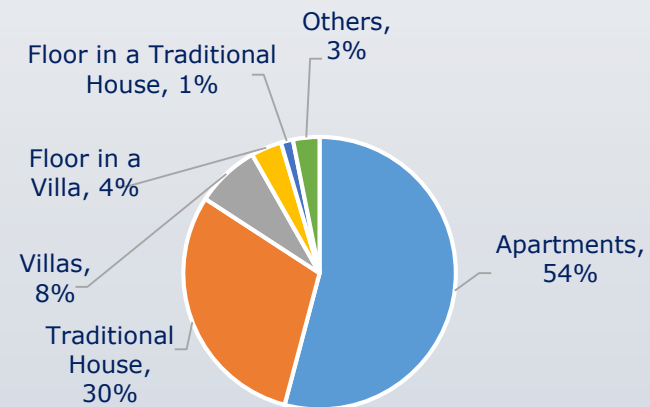
Source: Central Department Of Statistics & Information

Figure 16: Madinah Housing Unit Share, By Type of House (%)



Source: Central Department Of Statistics & Information

Figure 17: Makkah Housing Unit Share, By Type of House (%)



Source: Central Department Of Statistics & Information



Saudi Arabia HVAC-R Market Share, By Region

Table 8: Saudi Arabia Population Share, By Province, 2013

Provinces	Capital	Population (%)
Riyadh Province	Riyadh	25.04%
Makkah Province	Makkah	25.59%
Madinah Province	Madinah	6.55%
Qassim province	Buraidah	4.47%
Eastern Province	Dammam	15.12%
Aseer province	Abha	7.00%
Tabuk Province	Tabuk	2.90%
Hail Province	Hail	2.19%
Northern Borders Province	Ar'ar	1.17%
Jizan	Jizan	5.00%
Najran Province	Najran	1.85%
Al-Baha Province	Al-Baha	1.51%
Jawf Province	Sakakah	1.61%

Source: The Central Department of Statistics and Information of Saudi Arabia

Hot climatic conditions in the country make installation of HVAC-R a necessity in households, commercial and industrial units in the country. In 2015, about 83.15% of the total population in Saudi Arabia lived in urban areas. By 2021, the country's population is estimated to reach 37 million. With 7.1 million households, by 2021, the number of air conditioning units installed in the country is forecast to reach 3 million. In March 2016, a three party consortium won a USD20 billion project to build 100,000 homes in Saudi Arabia. The consortium includes Hanwha Engineering & Construction, Daewoo Engineering & Construction and Saudi Pan Kingdom for Trading & Contracting (SAPAC). Rising development of residential projects in Saudi Arabia is expected drive demand for thermal insulation in the country during forecast period.

Table 9: Saudi Arabia Number of Haj Pilgrims, 2011-2015 (Million)

2011	2012	2013	2014	2015
2.92	3.16	1.98	2.08	1.95

Source: The Central Department of Statistics and Information of Saudi Arabia



Sustainability and Energy Saving in HVAC-R Saudi Arabia Market



Sustainability and Energy Saving in HVAC-R Saudi Arabia Market

- Most of the electrical appliances in Saudi Arabia are labelled with Energy Efficiency Rating. Saudi Standards, Metrology and Quality Organization (SASO) modified Standard No. 2663/2012 "Energy Labelling and Minimum Energy Performance Requirements for Air-Conditioners", by adding national modifications that have been approved by the SASO Council Board in 2014, i.e.SASO2663/2014.
- According to SASO, cooling capacity for air conditioners at different test conditions should be less than or equal to 70,000 Btu/h (20,000 W).

Table 10: Saudi Arabia EER and Star Ratings for Air Conditioners, 2015

EER limits (Tested Value) (Btu/h)/w at T1	Star Rating**
EER ≥ 18.1	10
18.1 > EER ≥ 16.8	9.5
16.8 > EER ≥ 15.6	9
15.6 > EER ≥ 14.5	8.5
14.5 > EER ≥ 13.4	8
13.4 > EER ≥ 12.4	7.5
12.4 > EER ≥ 11.5	7
11.5 > EER ≥ 10	6
10 > EER ≥ 9.7	5

**Note: Star Rating has to be applied starting from 3 stars and above only.

Source: Saudi Standards, Metrology and Quality Organization



Table 11: Saudi Arabia Mandatory Energy Efficiency Ratio, 2014 & 2015

Air Conditioner Appliance Type	Cooling Capacity Limit (CC) (Btu/h)	Mandatory EER (Btu/h)/watt Phase 1: 7 September 2014		Mandatory EER (Btu/h)/watt Phase 2: 1 January 2015	
		At testing conditions T1 (35°C)	T1 (35°C)	T3 (46°C)	T1 (35°C)
Window Type	CC ≤ 18,000	8.5	6.12	9.8	7.06
	18,000 < CC ≤ 24,000	8.5	6.12	9.7	6.98
	24,000 < CC ≤ 70,000	8.5	6.12	8.5	6.12
Split Type and Other Types	CC ≤ 70,000	9.5	6.84	11.5	8.28

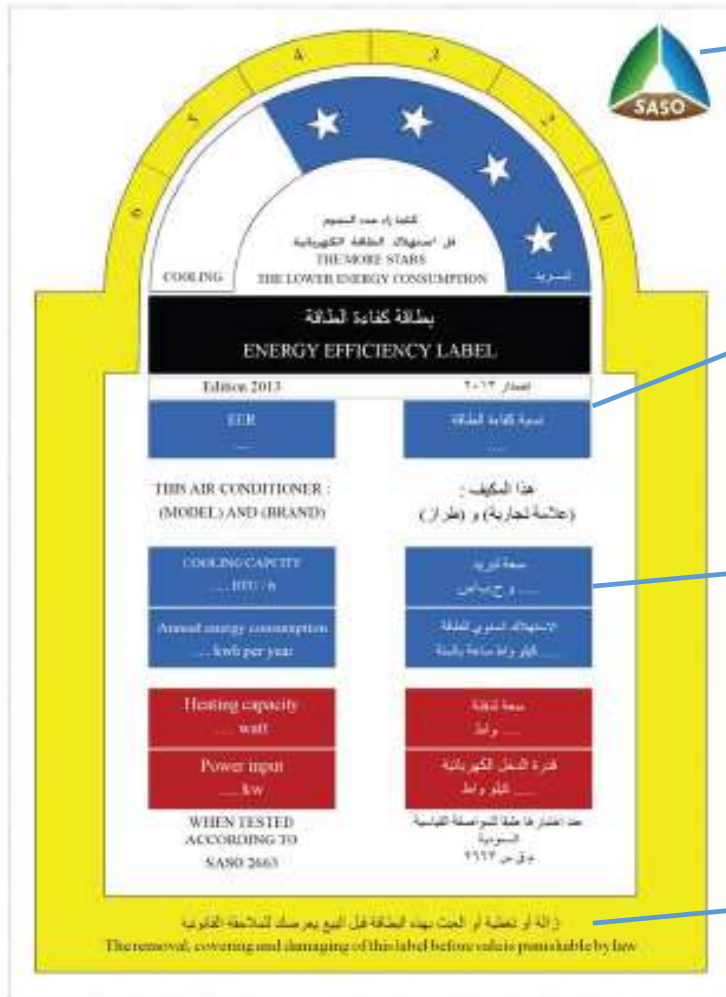
Source: Saudi Standards, Metrology and Quality Organization

Minimum Energy Performance Standard (MEPS) value for air conditioners shall be greater than or equal to the value of Energy Efficiency Ratio (EER), when calculating cooling capacity at test conditions.



Sustainability and Energy Saving in HVAC-R Saudi Arabia Market

New Energy Efficiency Label for Air Conditioners



New SASO logo

Information about EER

Information about annual electricity consumption

Legal mention to mandate presence of energy efficiency label prior to selling

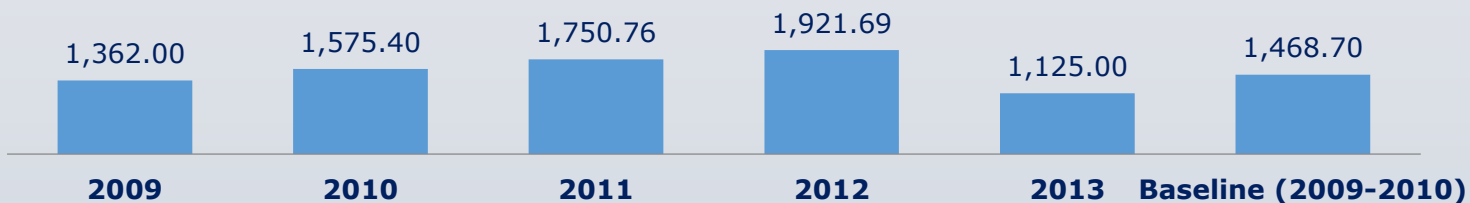


✦ Energy Efficiency Ratings are used to label each air conditioner unit manufactured or sold in Saudi Arabia. It is mandatory for companies operating in Saudi Arabia to have Energy Efficiency Label for split air conditioners and window air conditioners.

Rules that Companies Should Follow for EER Labelling:

- ✦ Companies having EER certificates for air conditioners, that were not issued according to the new standard, were allowed to use the EER label till 6 September, 2013.
- ✦ Companies having EER certificates for air conditioners according to the new standard would be allowed to use EER label according to expiry date mentioned in the certificate at no additional charge.
- ✦ A SASO EER label certificate/licence, after approval, will be issued with a validity of 1 year instead of 2 years.
- ✦ An EER testing report must be issued by an accredited laboratory according to ISO 17025 within the scope of EER testing.
- ✦ A safety test report must be part of the application documents for EER label approval.

Figure 18: Saudi Arabia HCFC Consumption, 2009-2013 (ODP Tonnes)



Source: United Nations Environment Programme



SASO approved 13 insulation standards covering 10 insulation products in 2015 :

- Extruded Polystyrene, Expanded Rigid Polystyrene, Spray-applied polyurethane foam, Rigid polyisocyanurate (PIR), Polyurethane (PUR), Mineral wool, Rock wool, Cellular glass (CG), Perlite Loose Fill Insulation and Vermiculite Loose Fill Insulation.
- SASO is in the process of developing standards for secondary insulation products.

Table 12: List of Approved SASO Insulation Standards, 2015

SASO Standards	Insulation Materials
SASO ASTM C-578:2014	Rigid, Cellular Polystyrene
SASO-GSO-ISO-8873-1/2:2009	Spray-applied polyurethane foam
SASO-GSO-BS-4841-1/2/3/4/5/6:2010	Rigid polyisocyanurate (PIR) Polyurethane (PUR)
SASO-GSO-EN-13162:2012	Mineral wool
SASO- EN-13167:2012	Cellular glass (CG)
SASO-ASTM C-549 :2007	Perlite Loose Fill Insulation
SASO-ASTM C-516 :2007	Vermiculite Loose Fill Insulation



Table 13: Saudi Arabia Building Thermal Insulation Regulations

Building element	Stage 1: November 2014			Stage 2: January 2017		
	Zone 1	Zone 2	Zone 3	Zone 1	Zone 2	Zone 3
Roofs	0.31	0.37	0.42	0.2	0.24	0.27
Walls	0.53	0.61	0.7	0.34	0.4	0.45
Vertical Glazing	2.67 SHGC-0.25	2.67 SHGC-0.26	2.67 SHGC-0.27	2.67 SHGC-0.28	2.67 SHGC-0.29	2.67 SHGC-0.30

Source: Saudi Standards, Metrology and Quality Organization

- ISO 9001/2000 standard focuses upon quality management systems. This standard determines quality management principles, including process approach, its improvement and strong customer focus.
- ISO 14001 standard addresses various aspects of environmental management. The standard provides tools for organizations, including air conditioner manufacturers, to identify and control their operational impact on the environment.
- ISO 18001 is an international occupational health and safety management system specification. The standard is intended to help organizations in addressing and controlling occupational, health and safety risks.
- SASO is currently in its way to obtain an international accreditation in ISO 14001 Environmental Management Systems certification



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