



THE HEAT IS ON!

STRATEGIC SUSTAINABLE GROWTH IN THE MIDDLE EAST'S
DISTRICT COOLING MARKET AND OPPORTUNITIES FOR
SWEDISH SOLUTIONS

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Strategic sustainable growth in the
Middle East's district cooling market and
opportunities for Swedish solutions

INTRODUCTION

A HOTBED OF OPPORTUNITIES

The Middle East boasts one of the world's youngest and rapidly growing populations with strong projected economic growth. At the same time, it is a region with one the world's harshest climates and searing temperatures that are only expected to rise in the coming years due to global warming. In particular, the Gulf region of the Middle East is subject to particularly extreme weather conditions. Accommodating one of the world's largest shares of urban populations in one of the harshest climatic regions on the planet therefore comes with high energy consumption, of which the majority is used for cooling in residential, commercial and industrial settings.

The Gulf region is also home to the Middle East's most affluent countries which all have aggressive growth plans to diversify their economies from hydrocarbon production and goals to meet the growing demands for sustainable housing and development. This presents challenges for regional decision-makers who are under pressure to provide more efficient and sustainable solutions for cooling which currently accounts for, on average, more than 50% of the region's electricity consumption. While various cooling technologies are used, district cooling is one of the most rapidly growing methods to tackle the extreme heat. Smart and sustainable urban development is also a growing trend and priority, often incorporating district cooling in its design. As a result, the total district cooling market for the Gulf region is expected to grow by 50% until 2025. A growth that is strongly underpinned by heavy government investments aimed at diversifying the current energy mix and reduce energy consumption.

Many of the Gulf countries are mature markets where local market actors have a high level of understanding of district cooling as a method, and leading international district cooling actors are already present in most countries. Across the Gulf region, Swedish technology and expertise is well renowned by local market actors, and Swedish companies are well suited to capture diverse growth opportunities.

Heavy investment into energy diversification, increased efforts to reduce and control energy consumption, and substantial investments into efficient district cooling systems are creating large opportunities for Swedish companies to capture in the rapidly growing district cooling market in the Middle East's Gulf countries.

MARKET OVERVIEW

ON AN UPWARD TRAJECTORY

The Middle East in general, and specifically the Gulf region, is one of the world's most diverse and resource-rich regions, with a complex mix of traditions, politics and market conditions. It has strong and growing economies but is also presents numerous challenges for conducting business.

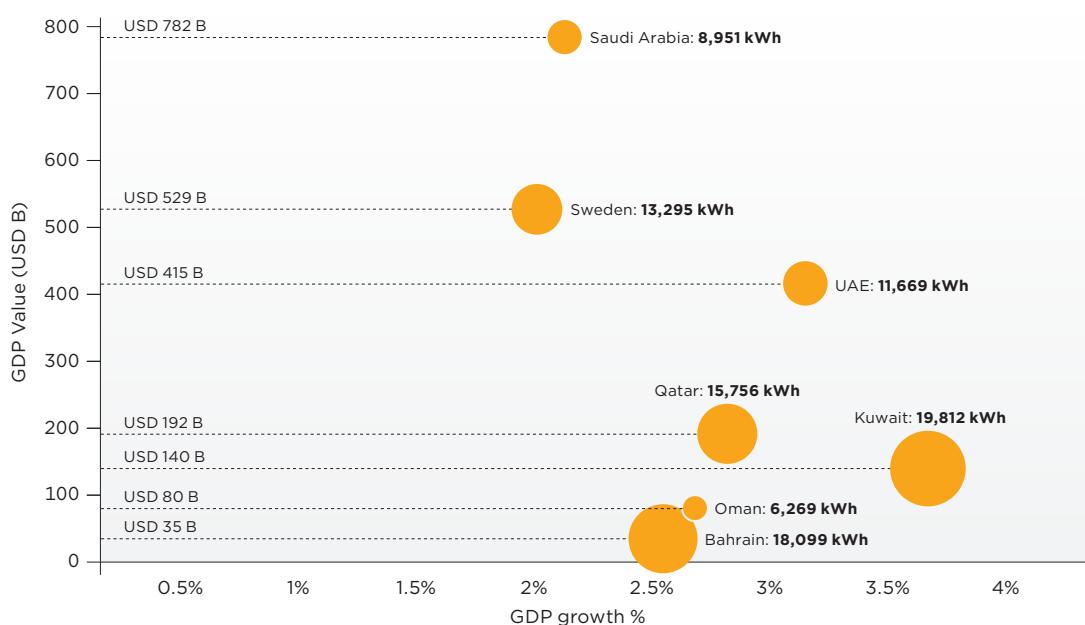
The Gulf region enjoys an abundance of energy reserves through its vast hydrocarbon deposits and countries in the region are both directly and indirectly tied to regional and global oil and gas sectors, with their economies heavily reliant on industry performance and oil prices. Due to a historically strong industry performance, governments in the region have been able to rely on positive revenue projections for the future stability of the economy and their investment capability.

THE MIDDLE EAST IN NUMBERS ¹	
Current GDP	USD 2.9 trillion
Forecasted GDP growth	3%
Total population	254 million
Countries	13

Rapid growth in the Gulf region's district cooling market is expected until 2025, largely driven by increased volumes from the UAE and Saudi Arabia. While the UAE is currently the largest market, Saudi Arabia is set to overtake it by 2025 as a result of many expected greenfield projects. Further growth is anticipated as wider demand from the smaller countries in the region increases, particularly from Qatar, the third largest market, followed by Oman, Kuwait and Bahrain.

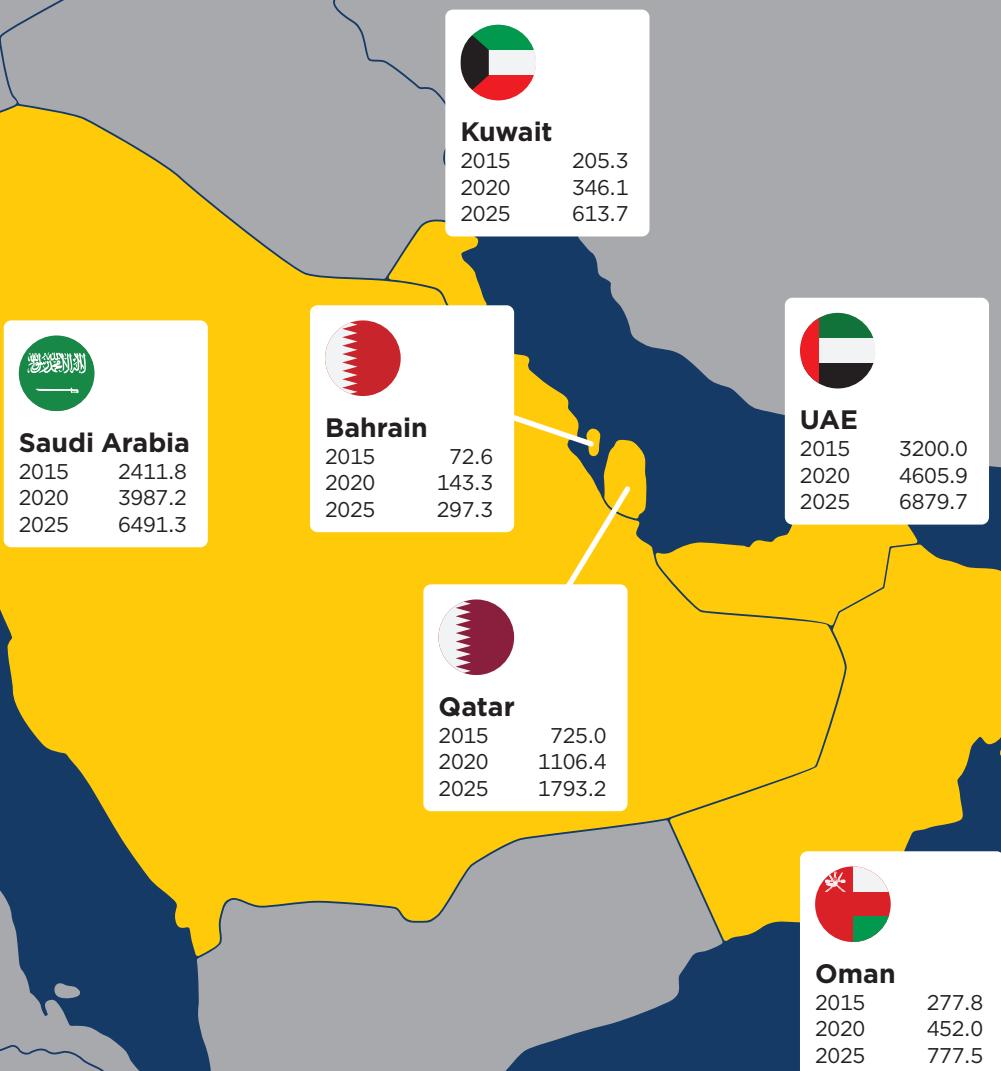
While the UAE is the most developed and competitive market and Saudi Arabia has extensive growth opportunities, they are both higher in complexity than the smaller Gulf countries. This complexity can often be attributed to the pure scale and variety of stakeholders that need to be identified and engaged with, compared to the relatively smaller countries where there are often less. The smaller countries, on the other hand, show higher growth forecasts and have less market complexity, potentially offering a shorter time to market.

GDP VALUE, FORECAST GDP (%) AND ELECTRICITY CONSUMPTION PER CAPITA (kWh)²



THE GULF DISTRICT COOLING MARKET

THOUSAND REFRIGERATED TONS (RT)³



GLOBAL MEGATRENDS AT THE HEART OF CHANGE

Urbanisation, sustainability and digitalisation are three major global megatrends redefining the way we live, consume and interact. These megatrends are the catalysts for change across geographical markets and industrial sectors and challenge stakeholders within different value chains to rethink their current operational and production models. The district cooling industry in the Gulf region is no exception and needs to evolve to meet the challenges of all three megatrends.

How companies respond and adapt to these megatrends will define success not only for individual companies but for entire countries and regions. For the Gulf, it is critical to engage with the world's leading providers of district cooling solutions to implement sustainable approaches that will go beyond meeting the immediate challenges, but also to set a solid foundation for generations to come.

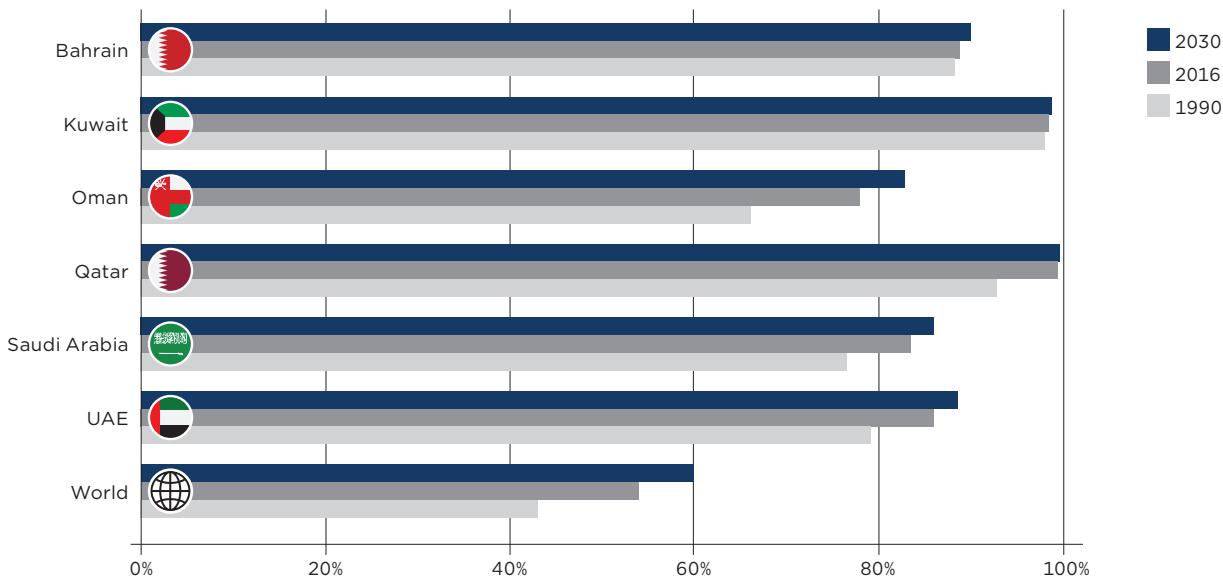
While these megatrends present clear challenges, they also deliver opportunities for enormous growth and expansion. Swedish companies are in a strong position to collaborate with actors

from the Gulf region's district cooling ecosystem to bring proven and sustainable solutions and approaches to the market.

URBANISATION

The harsh and hot climate of the Gulf region is one of the driving factors behind the region's high levels of urbanisation, as people move to cities instead of living in rural dwellings ill-equipped to cope with extreme temperatures. To provide enough suitable housing, construction and infrastructure projects have long been a substantial element of government spending and private sector investments. As part of their construction initiatives, all countries, but especially the UAE and Saudi Arabia, have focused heavily on megaprojects focused at building entire new cities, transport networks and airports. The ambition of these projects is not only to resolve the challenges of urbanisation such as crowded urban spaces and high levels of energy consumption, but also to incorporate cost-effective cooling solutions as basic requirements already in the design stage.

URBANISATION RATES %: GULF COUNTRIES vs WORLD⁴



SUSTAINABILITY

Given their historical economical and energy-related reliance on gas and oil, diversification from hydrocarbons is a challenge for many countries in the Gulf region. Moreover, oil price volatility in recent years and an increasing awareness and priority of sustainability have magnified the importance of a diversified economy and energy mix. Given that the Gulf countries of Bahrain, Oman, Kuwait, Qatar, Saudi Arabia and the UAE are at the harsh end of rising temperatures and the energy demands that cooling places on the system, improving cooling efficiency by actively seeking out and working with international partners and solutions that can reduce energy consumption without compromising on the cooling capacity is a top priority for local governments.

DIGITALISATION AND TECHNOLOGY ADOPTION

As a global megatrend, digitalisation is radically transforming whole industries with innovative approaches and solutions that improve ease of use. However, digitalisation can only succeed if there is technology adoption. The rate of innovation and adoption of new technology varies across regions and markets and is heavily influenced by the historical context.

The Gulf region's substantial hydrogen output has created a history of abundant financial resources, and this lack of financial constraints have enabled an investment mentality with a distinct preference for high quality alternatives.

This has resulted in local governments and companies preferring to utilise high-quality Western products over Chinese manufacturers. This is expected to continue in the short to medium term and presents significant opportunities for Swedish companies and solutions within the district cooling landscape.

Today, most of the countries in the region have national development agendas that incentivise technology adoption across most industries and wider society, and new technologies for energy efficiency is high on the priority list. While district cooling as a method is not necessarily a 'new technology' since it has been applied in the region for many years, modern district cooling methods and the new technologies that enable them are viewed as the most preferable option to make the cooling of modern cities more resource efficient.

THE COLLECTIVE IMPACT

These three megatrends are together driving growth within the district cooling market across the whole region. Despite the already high urban population rates, Gulf countries are expected to see an increase in coming years. This means that regional economies have a strong foundation based on the real estate and construction sectors. But for governments to cater for the increasing urbanisation, they must construct smarter cities with lower electricity consumption that fulfils the need of cooling in a more sustainable and efficient way. District cooling solutions are key to this and governments in the Gulf have a strong understanding and focus on adopting and applying cutting edge technologies within smart city developments. Beneficially for Swedish actors and suppliers, these high-quality technological solutions are sought primarily from Western countries.



OPPORTUNITIES FOR SWEDISH COMPANIES

The shift in market dynamics and the need to engage with international expertise to meet these demands is creating specific conditions and opportunities for Swedish companies to engage with providers in the Gulf region. Due to both a broad technical know-how as well as strong expertise from similar engagements in other parts of the world, Swedish companies have the opportunity to engage with the district cooling market in the Gulf in a variety of ways, primarily:

- 1** Offer management and consultancy support directly to district cooling service providers, preferably coupled with financing
- 2** Provide specialist district cooling expertise and solutions to engineering contractors, to be incorporated in their bids for larger greenfield EPC contracts
- 3** Position district cooling solutions and technologies directly towards district cooling service providers, to be included in tender specifications for greenfield projects or directly supplied to brownfield projects
- 4** Support plant operators to more successfully fulfill their contracts for operations and maintenance
- 5** Interact directly with property owners to provide niched energy efficiency solutions that can be retrofitted to the properties' cooling systems

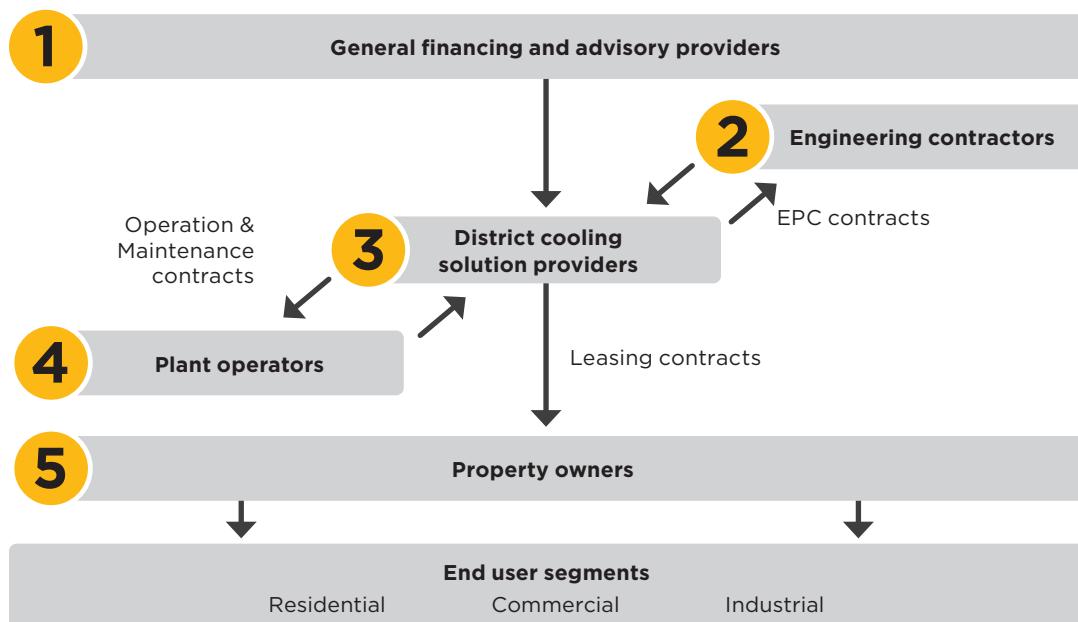
A REGION FULL OF POTENTIAL

MARKET STRUCTURE

Strong, local district cooling companies, a high level of forward and backward integration and many international system and technology providers characterise the Gulf market. Many district cooling providers have local branches operating simultaneously in multiple Gulf countries and they normally get financing and advisory services from banks and management consultants at both a regional and international level.

They are also dependent on expertise and support from engineering contractors for the design and construction of greenfield district cooling plants. Greenfield projects are normally tendered via engineering, procurement and construction (EPC) contracts looking for turnkey solutions from engineering contractors. While some district cooling solution providers have external plant operators, others have internal operations.

DISTRICT COOLING VALUE CHAIN



The Gulf region's six biggest district cooling markets are focused on creating and implementing sustainable, low-cost and efficient solutions. Individual government agendas are supporting investment and initiatives that will meet their long-term goals.

The shift towards renewables in the energy mix is a priority in all markets, but the strategies to

achieve these targets are country specific. Identifying key stakeholders and the role they play in the ecosystem can be challenging for companies with limited experience in the region. However, there is a willingness in all markets for strategic international collaborations that can help deliver smart solutions.



INVESTMENTS RISE IN LEAD MARKET

Despite being one of the smaller countries by population with around 10 million people, the UAE is the financial centre of the Gulf region. Its GDP is roughly USD 415 billion, and it is Sweden's second largest trading partner in the Middle East after Saudi Arabia. The UAE consists of seven Emirates (independent regions), where Abu Dhabi is the political capital and Dubai the main financial centre. The various Emirates operate independently, with separate governments, authorities and economic focus areas. Oil revenues are concentrated to Abu Dhabi, which has roughly 95% of the country's total oil reserves, whereas the Dubai economy relies on trade, logistics, finance and tourism. The business environment normally requires international companies to collaborate with locally established business partners in order to submit for tenders and projects, particularly needed when interacting with governmentally owned entities.

THE DISTRICT COOLING MARKET

The UAE market for district cooling is currently the largest in the Gulf region, estimated at 4.03 million RT and expected to reach RT 6.88 million by 2025.⁵ Several of the leading actors within the district cooling sector in the Gulf region are headquartered in the UAE. Although there is already a relatively high penetration of district cooling, the market is expected to remain strong and continue to grow. Compared to other markets in the Gulf, the UAE is more competitive with a higher level of market saturation.

Due to high market maturity, most investments are driven by brownfield projects as opposed to greenfield projects. Electrical chillers are expected to remain the largest production technique for cooling solutions. District cooling applications are mainly commercial and residential.

GOVERNMENT AGENDA

The UAE federal government has a strong agenda to reduce energy consumption, increase the share of energy efficient technologies, construct energy efficient buildings, and spread the adoption of district cooling technologies. In Abu Dhabi, the Regulation and Supervision Bureau (part of the Abu Dhabi Department of Energy) regulates the district cooling market and its initiatives. In 2016, they developed a regulatory framework for how district cooling initiatives should be implemented to align with Abu Dhabi's Economic Vision 2030, which aims to increase energy efficiency in the Emirate. The main district cooling provider in Abu Dhabi is Tabreed.

Dubai aims to achieve district cooling as 40% of total cooling supply by 2030. The entity responsible for driving the energy efficiency agenda in Dubai is the governmentally owned Energy Service Company (ESCO) known as Etihad ESCO.

By 2030, Dubai aims to reduce energy demand by 30% and reduce building energy use by 20%. Additionally, Dubai plans to implement thermal energy storage solutions within its district cooling plants. Dubai is home to two of the country's, and the region's, leading district cooling providers: Empower and Emicool.

ANNOUNCED INVESTMENTS

Tabreed announced in the beginning of 2020 to initiate a partnership with the waste management company Bee'ah in the Emirate of Sharjah to jointly explore large-scale district cooling projects.

Emicool has announced a plan to expand capacity of its district cooling plant in Dubai Investments Park as preparation for the World Expo.

In February 2020, Empower announced a major upgrade to its existing facilities in Jumeirah Beach Residence (JBR) as part of its plan to modernise its 79 existing district cooling plants in the country.

KEY STAKEHOLDERS

District cooling providers: Emicool, Empower, Tabreed

Technical consultancies: SNC Lavalin, Veolia, Ramboll Group, Stellar Energy, Shinryo Corporation, Siemens, DC Pro Engineering, ADC Energy Systems

Trade association: International District Energy Association (IDEA)

Regulators: Regulatory Supervisory Bureau (Dubai), Department of Energy (Abu Dhabi)

Policymakers: Dubai Supreme Council of Energy, Ministry of Energy

PROJECTED GROWTH

16.5% estimated district cooling penetration rate (2018)

8.5% district cooling CAGR 2018–2025

PRODUCTION TECHNIQUES

	2018		2025	
	Vol. (M10RT)	Share	Vol. (MRT)	Share
Free cooling	0.87	24%	1.74	25%
Electric chiller	1.99	56%	3.57	51%
Absorption	0.25	7%	0.56	8%
Other	0.43	13%	1.07	16%

ENERGY MIX⁶

	2017	2050 target
Renewables	2%	44%
Oil and gas	75%	38%
Clean coal	25%	12%
Nuclear		6%



DIVERSIFICATION LEADS STRONG GROWTH

The Kingdom of Saudi Arabia is the largest country in the Middle East, both in terms of population with approximately 33 million people and size of the economy, which is estimated at approximately USD 782 billion. The economy is highly dependent on oil and gas, but extensive efforts are being made to diversify away from this. Most of Saudi Arabia's industries and business sectors are centrally governed from the capital Riyadh. Investments are performed by the Public Investment Fund (PIF) of Saudi Arabia, enabling the creation of new sectors and opportunities that aim to shape the future global economy, while driving the economic transformation in Saudi Arabia. To participate in public projects and tenders, a local partner and presence is necessary and will aid in more smooth business operation.

THE DISTRICT COOLING MARKET

The district cooling market is expected become the region's largest market by 2025, reaching a volume of 6.94 million RT. Given the country's vast size and relatively low penetration rate of district cooling, many new greenfield projects are expected during the coming years. The commercial and the residential segments are the most important application areas today and these will continue to dominate in the future, however large-scale mega projects are mostly expected for industrial purposes. The mix of production techniques for district cooling is expected to even out slightly by 2025 but electric chillers will still dominate.

GOVERNMENT AGENDA

The Saudi Arabian Vision 2030 outlines the Kingdom's ambitions through a detailed development and investment agenda for different sectors in the country.

One of the key initiatives in Vision 2030 is the establishment of a National Energy Efficiency Services Company (Super ESCO) which will be mandated to operate the country's energy efficiency services.

ANNOUNCED INVESTMENTS

PIF recently announced investments towards modernizing and making the Kingdom's energy and electricity sector more efficient.

KEY STAKEHOLDERS

District cooling providers: Saudi Electricity Company (a PIF asset), Water and Electricity Holding Company, Saudi Tabreed

Technical consultancies and suppliers: SNC-Lavalin, Ramboll Group, Veolia, DC Pro Engineering, ACWA Power, ADC Energy Systems

Trade association: International District Energy Association (IDEA)

Regulator: Electricity & Cogeneration Regulatory Authority (ECRA)

Policymaker: Ministry of Water and Electricity (MoWE)

PROJECTED GROWTH

4% estimated district cooling penetration rate (2018)

11.5% district cooling CAGR 2019–2025

PRODUCTION TECHNIQUES

	2018		2025	
	Vol. (M11RT)	Share	Vol. (MRT)	Share
Free cooling	0.87	24%	1.74	25%
Electric chiller	1.99	56%	3.57	51%
Absorption	0.25	7%	0.56	8%
Other	0.43	13%	1.07	16%

ENERGY MIX⁷

	2017	2023 target
Renewables	1%	30%
Natural gas		10%
Oil	65%	20%
Nuclear		40%

GREAT POTENTIAL IN A SMALL, ISOLATED MARKET

Qatar is one of the smaller countries in the Middle East, both in terms of population at approximately 2.7 million people and with an economy estimated at USD 192 billion. The Qatari economy is highly dependent on oil and gas and has gone through a period of extensive diversification due to the diplomatic and commercial blockade from Saudi Arabia, the UAE, Bahrain and Egypt. In a bid to strengthen the national economy and independence through new asset diversification, key investments are performed by the state-owned holding company Qatar Investment Authority (QIA). Within the region, the ease of doing business with Qatar has become more challenging due to the on-going blockade that hinders both direct travelling and logistics between the two sides in the conflict.

THE DISTRICT COOLING MARKET

Growth of the market is expected to make Qatar the region's third largest district cooling market with a volume of 1.79 million RT by 2025. Greater regulation for district cooling is expected to come soon from Kahramaa, the state run organisation established in 2000 to regulate and maintain the supply of electricity and water for the population of Qatar. Like many other countries in the region the commercial and the residential segments are the most important application areas for the foreseeable future. The FIFA World Cup 2022 will also be a great application opportunity for district cooling technology as development continues to meet the infrastructure requirements. Qatar stands out as the country that has surprisingly many private district cooling companies and investors.

GOVERNMENT AGENDA

The Qatar National Vision 2030 outlines the country's ambitions through a detailed development and investment agenda for different sectors in the country. The Vision clearly marks out that all projects and sectors where an environmental cost will be made for economic progress, it must be compensated with investments in technologies that help improve the environment.

ANNOUNCED INVESTMENTS

A specific investment focus area for QIA is towards assets that allow the country's diversification and shift from a gas dependent to a more renewable energy mix.

KEY STAKEHOLDERS

District cooling providers: Qatar District Cooling Company (Qatar Cool; Emirati Tabreed owns 44% of the shares), Marafeq Qatar

Technical consultancies and suppliers: Hyder Consulting, Stanley Consultants, Siemens, Ramboll

Trade association: International District Energy Association (IDEA)

Regulators: Qatar General Electricity and Water Corporation (Kahramaa), Public Works Authority (Ashghal)

Policymakers: Ministry of Energy and Industry (MoEI), Ministry of Municipality and Environment (MoME)

PROJECTED GROWTH

6.5% estimated district cooling penetration rate (2018)

9.94% district cooling CAGR 2019–2025

PRODUCTION TECHNIQUES

	2018		2025	
	Vol. (M12RT)	Share	Vol. (MRT)	Share
Free cooling	0.28	30%	0.51	28%
Electric chiller	0.51	55%	0.96	53%
Absorption	0.08	8%	0.17	10%
Other	0.07	7%	0.15	9%

ENERGY MIX^a

	2017	2030 target
Renewables	0%	20%
Natural gas	98%	78%
Oil	2%	2%

OMAN:



SOLID, NEUTRAL AND STABLE PERFORMER

The Sultanate of Oman has one of the larger populations in the Gulf region with close to five million people but has a relatively restricted economy size at USD 80 billion. Oman has limited fossil fuels reservoirs which means the country's economy is highly dependent on its logistics and manufacturing, tourism and service sectors. The Sovereign Wealth Fund of Oman (OIF) is governed by the Ministry of Finance and used as a way for the Omani Government to build a diversified portfolio of assets that support the country's development agenda.

Oman is often recognised as a stable and neutral country in a more complex regional setting. Most Swedish companies manage their activities in Oman from regional headquarters in the UAE or Saudi Arabia.

THE DISTRICT COOLING MARKET

The Omani market for district cooling is expected to grow to become the region's fourth largest market by volume at 0.778 million RT. The residential application segment is dominant, and this trend is expected to continue. As there is no real regulation for district cooling, both public and private actors are launching stand-alone projects for new district cooling plants. Electric chiller technology is expected to remain the most commonly used production method, however, given Oman's geographical location with many coastal cities, the conditions for free cooling are positive.

GOVERNMENT AGENDA

The Omani Vision 2040 outlines the Sultanate's development path towards a stronger national governance, economy and society. The Vision pinpoints the role that smart and sustainable cities and a vital countryside with high quality, urban living, working and leisure will have for the future of Oman's citizens.

ANNOUNCED INVESTMENTS

New district cooling plant projects in Oman are continually being launched by both public and private actors.

KEY STAKEHOLDERS

District cooling providers: Tabreed Oman, Muscat District Cooling Company (part of Bahwan Engineering Company)

Technical consultancies and suppliers: Bahwan Engineering Company, Siemens, Ramboll

Trade association: International District Energy Association (IDEA)

Regulator: Oman Authority for Electricity Regulation (OAER)

Policymaker: Ministry of Housing (MoHo)

PROJECTED GROWTH

4% estimated district cooling penetration rate (2018)

11.25% district cooling CAGR 2019–2025

PRODUCTION TECHNIQUES

	2018		2025	
	Vol. (M13RT)	Share	Vol. (MRT)	Share
Free cooling	0.11	28%	0.21	27%
Electric chiller	0.21	57%	0.43	55%
Absorption	0.02	7%	0.04	5%
Other	0.03	8%	0.09	12%

ENERGY MIX⁹

	2017		2030 target
	Renewables	Natural gas	Oil
Renewables	0%	87%	13%
Natural gas	30%	60%	10%



SMALL BUT A HEAVY HITTER

By population, Kuwait is one of the smaller countries with just over 4 million people and an economy size of USD 140 billion. Kuwait has a geographically small, but wealthy, relatively open economy which is underpinned by their ownership of more than 6% of the world's crude oil reserves. Kuwait Investment Authority (KIA) manages the Kuwait General Reserve Fund, the Kuwait Future Generations Fund as well as many other public assets commissioned by the Ministry of Finance. Extensive bureaucracy, poor transparency and local custom and business practices in Kuwait means doing business is often challenging. Most Swedish companies have feet on the ground via a local partner or agent.

THE DISTRICT COOLING MARKET

The market is expected to grow however Kuwait will remain the region's second smallest market by volume at 0.614 million RT. However, given the relatively low market penetration and low market volumes today, all application segments are expected to witness extensive growth in the coming years. Electric chiller technology is very dominant today and the trend is expected to continue. With old infrastructure in place in most existing buildings, replacing this is expected to drive the demand for new and modern district cooling systems. The country has energy efficiency regulations in place which aim to reduce energy consumption in commercial, residential and industrial segments by 10% by 2030.

GOVERNMENT AGENDA

Vision Kuwait 2035 outlines the country's ambitions for a unified approach towards a more prosperous and sustainable Kuwait. The Ministry of Electricity and Water (MoEW) has officially recognised the value of district cooling in Kuwait both as a major contribution to sustainable energy policy and as an industrial diversification opportunity.

ANNOUNCED INVESTMENTS

Investments in district cooling plants are prioritised by the government and are expected to reduce the country's power consumption by at least 40-60% annually.

KEY STAKEHOLDERS

District cooling provider: Tabreed

Technical consultancies and suppliers: DC PRO Engineering, Stanely Consultant Group, Xylem, Siemens, Ramboll, Schneider Electric, Evapco Europe, Kamstrup

Trade association: International District Energy Association (IDEA)

Regulator: Public Authority for Industry (PAI)

Policymaker: Ministry of Electricity and Water (MoEW)

PROJECTED GROWTH

2.5% estimated district cooling penetration rate (2018)

11.93% district cooling CAGR 2019–2025

PRODUCTION TECHNIQUES

	2018		2025	
	Vol. (M14RT)	Share	Vol. (MRT)	Share
Free cooling	0.02	6%	0.04	6%
Electric chiller	0.26	85%	0.51	83%
Absorption	0.01	3%	0.015	3%
Other	0.02	6%	0.05	8%

ENERGY MIX¹⁰

	2017		2030 target
Renewables	0%		15%
Natural gas	48%		45%
Oil	52%		40%



PUNCHES ABOVE ITS WEIGHT

The Kingdom of Bahrain is the smallest country in the Middle East's Gulf region, with a population size of approximately 1.4 million and an economy size of USD 35 billion. Despite the Bahraini government's efforts to diversify the economy, oil still comprises 85% of Bahraini budget revenues and in the last few years volatile oil prices have substantially affected the Kingdom's prosperity and development plans. Mumtalakat is the Bahraini Sovereign Wealth Fund and it manages all public assets, as well being responsible for investing much of the country's capital in foreign ventures and industries. Bahrain's ease of doing business has improved significantly over the past few years and multiple Swedish companies are currently exploring the surprisingly numerous opportunities that exist in the small kingdom.

THE DISTRICT COOLING MARKET

The district cooling market is expected to be the region's fastest growing in the short-term, however, given the country's very small size it remains the region's smallest market by volume at 0.297 million RT. Bahrain has the region's largest relative usage of free cooling technology and this trend is expected to continue in the future. Expansion of district cooling is one of the key initiatives presented by the Bahraini National Energy Efficiency Plan. New regulations to increase adoption of district cooling were put for approval in April 2019. One of the Middle East's district cooling flagships projects is the Bahrain Bay plant, a state-of-the-art installation providing cooling to the entire island landscape.

GOVERNMENT AGENDA

Bahrain 2030 is the development agenda and economic vision for Bahrain which gives a guiding direction towards the goal of improving the lives of Bahraini citizens, residents and visitors. One of the key objectives in the agenda is "sustainable and attractive living environments", with the concrete target of implementing energy-efficiency regulations.

ANNOUNCED INVESTMENTS

Bahrain 2030 outlines that investments shall be directed to technologies that reduce CO₂ emissions, minimise pollution and promote sourcing sustainable energy.

KEY STAKEHOLDERS

District cooling provider: Tabreed Bahrain (partially owned by Emirati Tabreed)

Technical consultancies and suppliers: DC PRO Engineering, Unicorp, Veolia, Siemens, Ramboll, Schneider Electric

Trade association: International District Energy Association (IDEA)

Regulator: Central Planning Office (CPO) at MoWMU

Policymaker: Ministry of Works, Municipalities Affairs and Urban Planning (MoWMU)

PROJECTED GROWTH

4% estimated district cooling penetration rate (2018)

15.53% district cooling CAGR 2019–2025

PRODUCTION TECHNIQUES

	2018		2025	
	Vol. (M15RT)	Share	Vol. (MRT)	Share
Free cooling	0.08	61%	0.17	57%
Electric chiller	0.04	32%	0.10	35%
Absorption	0.003	3%	0.01	4%
Other	0.005	4%	0.02	4%

ENERGY MIX¹¹

	2017	2030 target
Renewables	0%	5%
Natural gas	85%	80%
Oil	15%	10%



CHALLENGES AND OPPORTUNITIES

GROWTH IN A COMPLEX REGION

The Middle East, and more specifically the Gulf region, is currently characterised by sweeping socio-political change and geo-political tension. This political and economic instability can create challenges for Swedish companies doing business in the region but for those who implement a robust stakeholder management strategy there are substantial opportunities. Most of Sweden's largest companies have been active in the region for a long time and increasingly many small and medium enterprises are now expanding their operations to include the Middle East to leverage the expected growth trajectory for the region.

Unpredictable law and regulation changes could occur with short notice and without prior communication, and to mitigate the impact to operations, it is important to have a dynamic business model which can react and adapt to the changing landscape. Despite the potential for geo-political tensions to dampen investor willingness, the district cooling sector, and wider market is still expected to grow.

The reason for this is that although these geopolitical tensions exist, regional or local tensions often have a limited and short-lived direct impact on the business environment. In terms of long-term market outlook, the Gulf region is not all too different from other areas around the world, as the largest impacts can be seen by event such as the US/China trade war, as well as the current global healthcare crisis caused by Covid-19. There is therefore an opportunity for Swedish companies to leverage existing competence from their global operations to mitigate risks in the Gulf region as well.

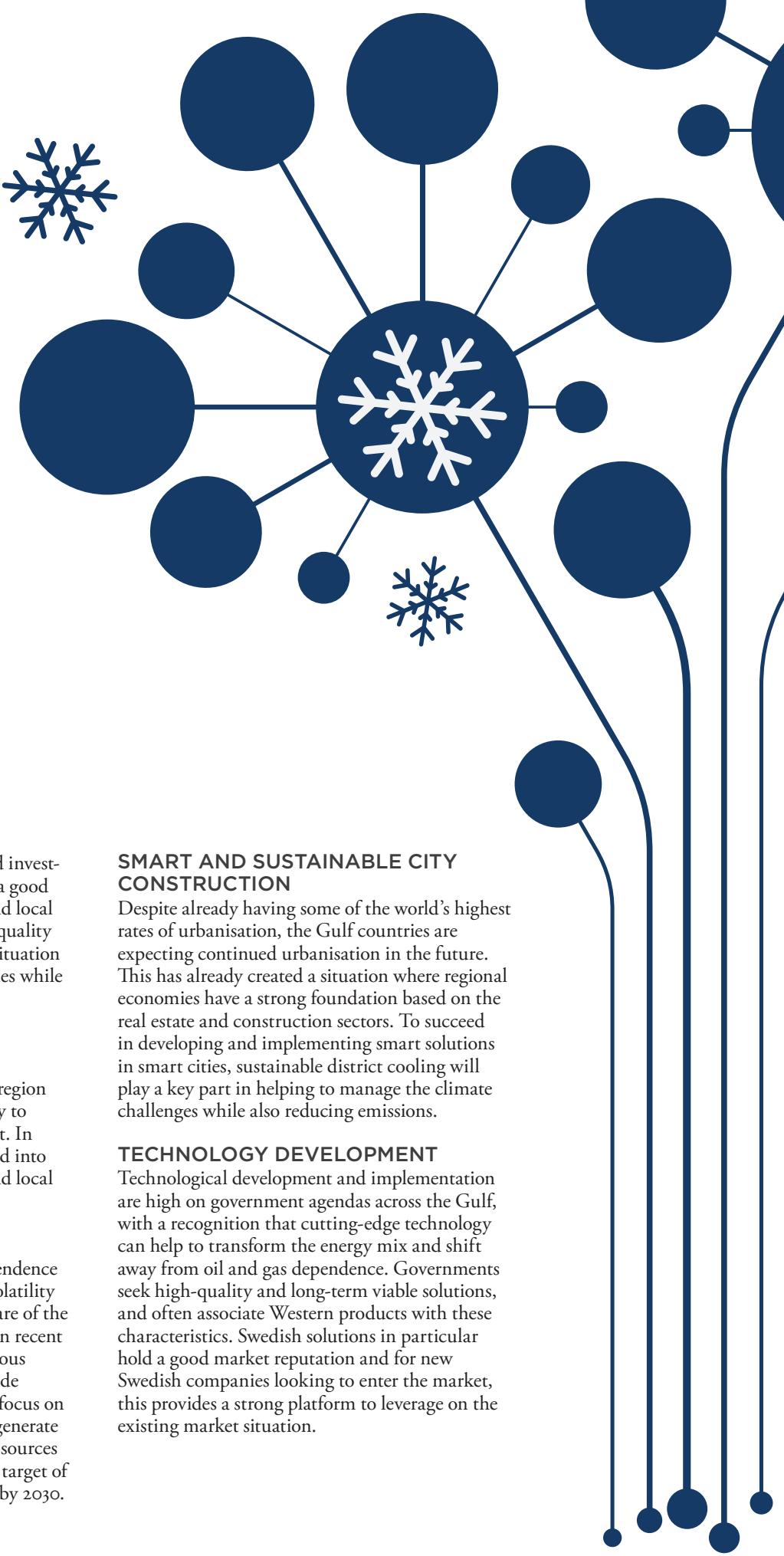
Due to the nature of the regulatory environments in the region's countries, tailored strategies for different markets in the region are essential and more effective than trying to implement a singular strategy for all markets. Swedish companies are likely to need to invest more resources in local partnerships with regional distributors and partners in order to capture the region's growth opportunities. In some countries, national empowerment policies like Saudization in Saudi Arabia, have increased the need for companies with a large local footprint, such as those with local manufacturing, to have a higher level of investment in the market.

While the region is characterised by its oil revenues, there is still a key issue of economic risk, and more specifically, liquidity and payment problems. This is a common problem for all Gulf states within both the private and public sectors and needs to be taken into consideration when entering these markets. Difficulties to secure financing results in payment delays and postponed due dates for large projects. Liquidity issues are common in public and private sectors and are expected to remain in the short-to-medium terms. This needs to be accounted for when taking part in tenders and commercial discussions with district cooling actors. The need amongst local actors for external financing can also be an opportunity for Swedish companies and agencies that can provide financing as part of their solution offering.

The region also contains a relatively high level of bureaucracy, which is most notable when doing business with public sector entities: adequate vendor registration and full compliance is key when doing business with public sector entities, of which the leading district cooling companies are, and is a process which can be time consuming and administratively complex. Sometimes cumbersome import rules and extensive documentation is time consuming and costly, and large shipments can be stuck in customs for longer periods time. These issues are less for the UAE than for the other countries, as the UAE has established itself as an international trade hub with smooth trade regulations as a key selling point. This has led to a very high global ranking in terms of ease of doing business, scoring higher than several European countries.

Finally, effective stakeholder management is needed in order to navigate sometimes unclear ownership structures which heighten the difficulties in identifying correct decision-makers. Corruption, partially in the form of nepotism, could potentially be an issue for Swedish companies when trying to win larger deals but also when trying to reach decision-makers. Despite the complexities, many Swedish companies have been and continue to use the Swedish corporate sustainability mindset to win and retain business. This can be achieved by demonstrating long-term value and





having clear stakeholder engagement and investment. Swedish companies already enjoy a good reputation in the markets in the Gulf, and local stakeholders are often aware of the high quality associated with Swedish solutions. This situation should be leveraged by Swedish companies while interacting with local stakeholders.

TURNING CHALLENGES INTO GROWTH

Specific conditions exist across the Gulf region that influence Swedish companies' ability to do business in the district cooling market. In some instances, the barriers can be turned into opportunities with the right approach and local on the ground knowledge and networks.

ENERGY EFFICIENCY

Across the region, a shift away from dependence on oil and gas is a common trend. The volatility of oil prices has made Gulf countries aware of the importance of a diversified energy mix. In recent years, all countries have launched ambitious diversification strategies which also include increased energy efficiency targets and a focus on sustainable solutions. The UAE aims to generate 50% of its energy from renewable energy sources by 2050, and the Emirate of Dubai has a target of reducing total energy demand with 30% by 2030.

5 STEPS TO SUCCESS IN THE MIDDLE EAST

1 Do your homework

COMMON CHALLENGES

- Market data is often not available or unreliable
- There is a challenge to understand and assess continuous economic and political changes and regional variations within large markets
- It is hard to identify decision-makers

PROPOSED ACTIONS

- Target markets based on growth needs, capital requirements and time horizon
- Be aware of variations across the region or within specific countries
- Conduct due diligence with the support of local expertise

2 Define and develop strategy

COMMON CHALLENGES

- Create and implement a tailored strategy that leverages information and knowledge from the market data and analysis

PROPOSED ACTIONS

- Be asset light in order to maintain responsiveness to fast-paced changes in market conditions
- Be confident in iterating your go-to-market approach as the market evolves
- Plan scalability for the long-term and stay relevant
- Remain focused on continuous stakeholder engagement and identifying any changes in the decision-maker landscape

3 Adapt business model

COMMON CHALLENGES

- The financial position and strength of your local counterparts, both partners and customers
- Long-term contracts in local currency carry higher risk exposure
- Sales processes for most companies are time consuming given lack of access to decision-makers, bureaucratic processes, and the strong interpersonal nature of business relationships

PROPOSED ACTIONS

- Alter and adapt the business model in accordance with changed reality
- Connect your offering with technology and offer end-to-end solutions
- Go beyond 'quality' as the USP and focus on relationships and knowledge exchange

4 Invest long-term and be resilient

COMMON CHALLENGES

- Procurement processes are more complex than many other countries and decision-making takes longer
- Contract negotiations and extensions are often delayed
- Long gaps between initial client meetings to when the deal has been struck, as counterparts expect time to be invested in building relationships with suppliers

PROPOSED ACTIONS

- Plan and build long term relationships with government and local stakeholders
- Build resilience and mitigate short-term volatility by:
 - Hedging financial risks
 - Keeping the business as lean as possible
 - Diversifying portfolio
- Prepare for a long negotiation period and invest in building stakeholder relationships as once a partnership is agreed, it is expected to last a long time

5 Ensure local integration

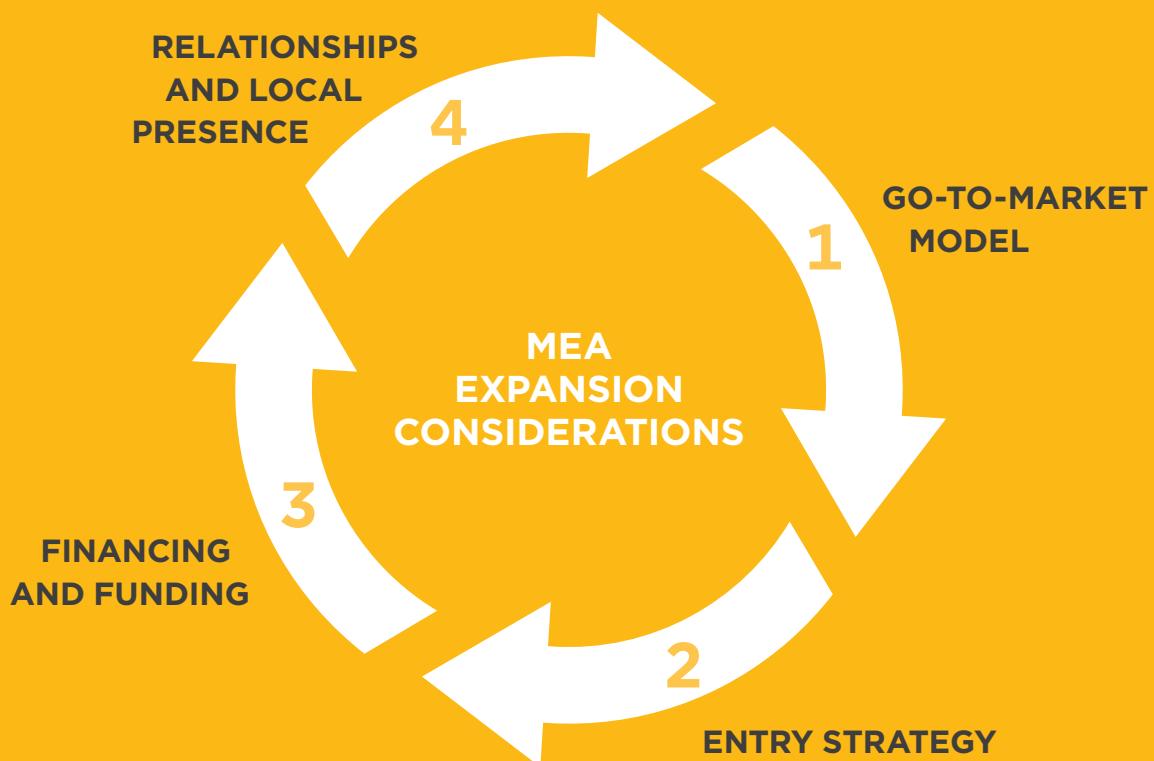
COMMON CHALLENGES

- Business culture is characterised by informal decision-making processes, and buyers are often hard negotiators
- While it is easier to enter indirectly via distributors, selling indirectly makes it harder to learn key success factors in local culture

PROPOSED ACTIONS

- Show commitment and dedication to the market:
 - In the Middle East, all business is personal
 - Invest in local presence via greenfield, alliance or partnership

PRACTICAL CONSIDERATIONS AND SUPPORT



Key factors to consider

- 1**
 - What products should we bring to market?
 - Which customers do we target?
 - Which channels can we sell via?
- 2**
 - Should we buy, build or partner?
 - Which opportunities should we prioritize?
 - What are the costs to achieve?
 - How can we minimize customer risk?
- 3**
 - What are the ways to get paid (fx, commodities, derivatives?) and transfer funds?
 - What types of public and private funding mechanisms are available?
- 4**
 - Who are the key decision-makers for our products and services?
 - What local talent pools can we access and which skillsets are critical to success?

How Business Sweden can support

- 1**
 - Market assessment
 - Customer search and sales support
 - Distributor search
- 2**
 - M&A screening and partner search
 - Footprint and operating model review
 - Business case development support
- 3**
 - Deal validation and qualification
 - Feasibility studies
 - Deal structuring and introduction to public financiers
- 4**
 - Business-to-Government and Public Affairs strategy
 - Tender process support
 - Introductions to local business networks

CONSIDERATIONS FOR SUSTAINABLE BUSINESS PRACTICE



CULTURAL AWARENESS
Informal business practices
Accepted social norms
Local process



SUSTAINABILITY
Environmental strategy
Sustainable economic growth
Social and community



LEGAL COMPLIANCE
Local, regional or national laws
Trade agreements or tariffs
Tax regulations

The global demand and drive towards sustainable business growth is becoming a critical factor for success. Sweden and Swedish companies have and continue to hold a strong reputation in this area, and it should be a key aspect of any global growth plans. While every market has unique characteristics that influence business operations, growth opportunities and long-term viability, there should be a standard approach to building strategies for sustainable growth that are market and region specific.

Before you enter any market within the Middle East, it is advisable to have a strategy in place to manage both macro and micro market related issues. This strategy should address all or a combination of, sustainability, legal and customs practices. In all countries in the Middle East, there is a shift towards adopting and enforcing sustainable business practices across the environment, economic and social spheres and these changes need to be considered in a strategic approach.

To reduce the risks of business malpractice and ensure you continue to meet international and Swedish standards and maintain economic stability, it is important to have a region-specific

sustainability strategy. A tailored sustainability strategy must address economic, human rights and labour condition issues and how your company aims to work with local suppliers to address these. It should also outline how you plan to meet and exceed environmental sustainability in accordance with applicable global and regional legislation.

Across the Middle East there is a broad spectrum of unique and different legislative systems which define and impact how international companies can operate. Different signed trade agreements and tariffs also exist that may affect different parts of the district cooling industry in the region. A complete analysis of your legal responsibilities and the implications of these should be conducted before entering the market. Conducting business in the Middle East is heavily influenced by cultural practices. And these often differ between the countries.

Building relationships with potential key stakeholders and getting an understanding of cultural nuances is as important as knowing the formal business structures.



ABOUT BUSINESS SWEDEN IN THE MIDDLE EAST

Business Sweden's purpose is to help Swedish companies grow global sales and international companies invest and expand in Sweden. Swedish companies can trust us to shorten time to market, find new revenue streams and minimise risks. We offer strategic advice and hands-on support in more than 50 markets and 600 management consultants. Business Sweden has three offices in the Middle East: Saudi Arabia, Iran and the UAE and covers the wider Middle East and Egypt markets in the region. Business Sweden is owned by the Swedish Government and the industrial sector, a partnership that provides access to contacts and networks at all levels.

By combining our on-the-ground knowledge with industry expertise, we provide the most adequate and tailored support for Swedish companies. Our long-standing, local presence in the region, has equipped us with extensive knowledge of the district cooling market and the leading players in the region, enabling us to give effective support to Swedish companies so they can engage with the right actors within the district cooling sector, from private sector companies to public sector district cooling entities.

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NOTES

¹ Business Sweden EMEA, 2019, "Moving beyond perceptions - maximizing opportunities and mitigating risk in the Middle East and Africa"
This internal report consists of multiple sources, mainly:
*Euromonitor International, Fitch Solutions, World Bank Open Database
IMF, EKN, PwC, Business Sweden interviews*

² World Bank Ease of Doing Business (<https://www.doingbusiness.org/en/rankings>)

³ Global Market Insights, 2019, "Middle East District Cooling Market, 2025"
Report not publicly available, purchased for this project

⁴ World Bank Open Data (<https://data.worldbank.org/>)

⁵⁻¹¹ Global Market Insights, 2019, "Middle East District Cooling Market, 2025"
Report not publicly available, purchased for this project



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