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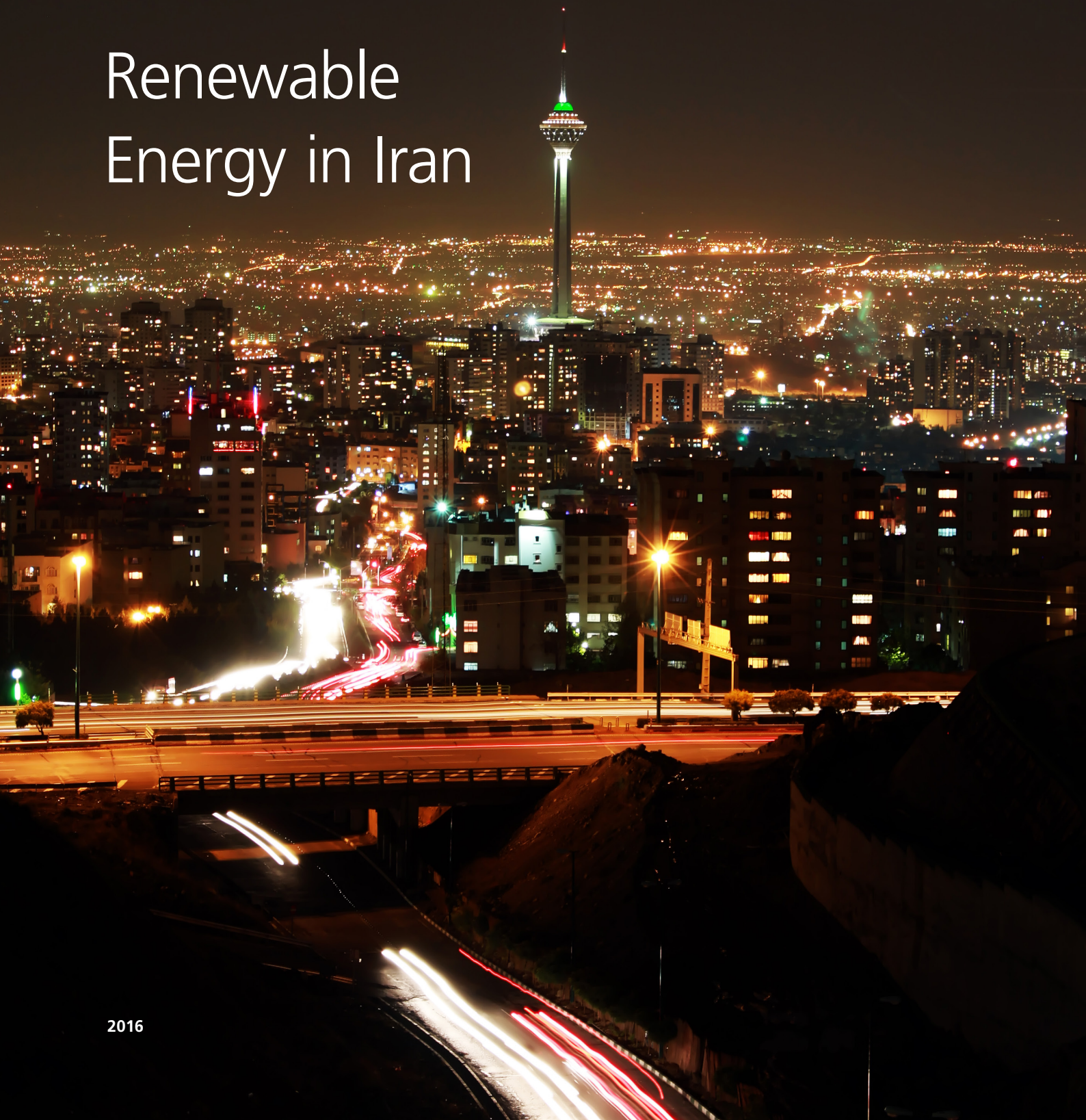
Renewable Energy in Iran



2016

Renewable Energy in Iran

1. Introduction to the renewable energy sector

The Middle East energy production sector is dominated by low priced fossil fuels that can present economic and environmental issues. Presently, the use of renewable energy is gaining political attention and many Middle Eastern countries are putting in place ambitious renewable targets, particularly in light of increased electrification and demand in the region. Iran is no exception to this trend. Iran has an extremely high level of energy consumption per head of population (estimated to be 80% above average for the Middle East). This is due to high levels of subsidies on energy and fuel for consumers and businesses, which does not incentivise efficient energy use. Post-sanctions Iran offers significant opportunities for companies looking to enter Iran's renewable energy sector.

Clearly, the bankability and stability of the regime in Iran will be of key interest to renewables investors, both those looking to finance through debt and those looking to ensure that projects are able to attract sufficient development equity. We have set out some key considerations in relation to the PPA and the existing regime in this paper. A number of further considerations also arise, both on a project/investor specific basis and depending on the funding structure that is chosen. While some have written off the regime as not bankable, the scale of the programme in Iran, if it is to be realised, requires the Iranian institutions to engage with initial projects to help shape approaches that allow these sources of financing to enter the market. This is a common learning process that has been undergone in a number of developing markets. We would be happy to discuss our knowledge of the broader context, our more detailed analysis of the PPA terms, further financing issues and the implications of the regime for a specific project.

2. Renewable energy sector today

This summer Iran's electricity consumption reached the peak of its production capacity (just over 51 GW). Iran's electricity sector will face a shortage in coming years as Iran's electricity demand is expected to grow by 6% per year but growth in its generating capacity is only limited to a third of that amount. Iran currently is only producing 0.2% of its energy from renewable sources. The renewable energy sector comprises of mainly wind (53.88 MW), biomass (13.56 MW), solar (0.51 MW) and hydropower (0.44 MW).

Iran's geography and climate are highly suitable for the various forms of renewable energy technology. The southern provinces of Iran are an ideal location for solar projects as they are located on the world's 'Sun Belt' enjoying high solar irradiation (direct nominal irradiation of up to 5.5 kWh/m² day) and an average of 300 sunny days per year. Further, the country also has the potential to produce 1.4 GW of wind power as it is located in a low pressure region surrounded by high pressures areas and is in the main air corridor of winds in summer and winter.

The Iranian government is pushing for a move away from the use of hydrocarbons as a source of electricity production. This will free up oil and gas for export and allow electricity to be produced more cost effectively. Iran's policy makers have recognised the potential of the renewable energy sector and have taken steps to exploit it. The Iranian government in its 5th Development Plan (2010 to 2015) announced plans to install 5,000 MW of renewable energy by providing incentives, such as minimum tariff rates, to the private sector to invest in the sector. This target was too ambitious to achieve in a country where the renewable energy sector is in its infancy. International sanctions were also a contributing factor in Iran failing to meet this target. The Iranian government has now set a new target in its 6th Development Plan (2016 to 2020), to be passed by parliament this year, which will see the instalment of renewable capacity of 5,000 MW within this period as well as plans for an additional 2,500 MW by 2030. The Iranian Power Generation, Transmission, Distribution and Management Company (the '**TAVANIR**'), estimates that Iran's renewable energy capacity will be able to provide 10% of the country's energy requirement within 5 years.

The lure of Iran's renewable energy sector can be seen in the investments already made in this sector after sanctions were lifted. There are a number of solar and wind farm projects that have signed PPAs, including a 48 MW wind farm in southwest Iran, 1,250 MW of solar power plants to be constructed at various locations across Iran (including 500 MW near Tehran), a 1 GW solar park in the Khuzestan province to be built by a consortium of Iranian, Indian and South Korean companies and a 50 MW solar plant in Qeshm Island to be built by an Italian company. Furthermore, a Danish company has announced the construction of a wind turbines facility in Iran and a Spanish company has signed an 18 month contract to supply technical services to the Renewable Energy Organization of Iran (the '**SUNA**'). The head of the Ministry of Energy (the '**MoE**') has recently stated that Iran is planning to tender 1,000 MW of wind and as much as 3,000 MW of solar projects. This process will begin later this year and will take place over several stages.

3. Renewable regulatory framework

The MoE, established in 1975, is the main body responsible for regulating and implementing policies for the electricity, renewable energy, water and wastewater services in Iran. The MoE established TAVANIR to manage and supervise the activities of the government in operating and developing the power industry. This includes the various regional electricity companies as well as SUNA.

SUNA, established in 1996, was originally only responsible for evaluating Iran's potential renewable energy sector and trying to attract private sector investors with a guarantee to purchase any renewable power produced. But today SUNA's responsibilities have increased to include acting as the regulatory authority for developing policies, issuing licenses for renewable projects and entering into power purchase agreements ('**PPAs**') with developers. The government in recent years has introduced policies and legal mechanisms to support the renewable energy sector and encourage private developers to invest. These include:

— Decree from Cabinet Ministers No. H 52375 T/153440 - Revised Feed in Tariff Rates (February 2016) and the Directive from the Minster of Energy with No. 95/14273/30/100 (May 2016), which provide the legal bases for SUNA to sign long term PPA with renewable power producers;

— The Budget for Purchasing Renewable Energy Electricity (2013), which aims to collect fees from consumers to be invested in rural electrification and renewable energy projects;

— Article 61 of the Law of Modifying Consumption Patterns (2011), which obligated the MoE to purchase electricity through long term contracts with guaranteed tariff;

— Article 133 (Paragraph B) of Fifth Five-Year Development Plan (2010 to 2015) and its executive instruction as approved by the Council of Ministers (2010), which sets out the renewable targets for the country;

— The National Development Fund (2010) (the '**NDF**'), which aims to fund projects through Iran's oil and gas revenue;

— An Amendment to Article 44 of the Constitution (2004), which states that at least 20% of state owned power companies should be held by private sector and 'cooperative' entities; and

— Article 62 of the Government's Financial Regulations Act (2001) and the Executive instruction of Article 62 (2006), which are similar to feed-in-tariff laws in Europe and sets out the obligation of the government to purchase renewable power generated based on a guaranteed price.

Through these regulatory frameworks SUNA has been able to draft a more attractive PPA for developers eager to enter the renewable market in Iran.

4. Power purchase agreement and feed in tariff rates

The summary PPA terms offered by SUNA are as follows:

Issues	PPA Terms
Term	20 years, after which the developer is allowed to sell the electricity produced to the open market (provided MoE approval is obtained).
Completion Date	To be commissioned depending on the renewable source used.
Land Cost	The developer.
Design and Finance Cost	The developer.
Payment Currency	Iranian Rials.
Payment Guarantees	SUNA to open a letter of credit in Iranian Rials in favour of the developer in an Iranian bank for an amount equal to 6 months of payments under the PPA. This letter of credit is to be renewed every 6 months with the developer bearing the cost of renewing the letter of credit.
Delay Payments	SUNA to compensate the developer based on a minimum interest rate offered in Iran as determined on a yearly basis by the government.
Construction Cost	The developer is responsible for construction and operation and maintenance costs.
Construction Delay	SUNA can terminate the PPA and cancel the construction permit if the construction is delayed for 9 months from the agreed commercial operation date.
Feed in Tariff Rates	The tariff rates announced at the time of signing the PPA or the applicable tariff rates at the commercial operation date (for more detail see section 5).
Taxation	The developer will be subject to Iranian corporate and VAT taxes but will receive tax credits for investing in less developed regions of Iran.
Grid Connection Cost	The developer is to bear the cost of connecting the project to the national grid.
Political Force Majeure (or "Coercive Events")	No compensation is paid to the developer and the developer is only entitled to request the extension of the PPA term by the length of the period the project is suspended due to force majeure.
Governing Law	Laws of Iran.
Dispute Resolution Mechanism	Bilateral negotiation between the parties and if that fails, resolution before a committee consisting of one representative of the each party and an expert agreed by both parties. If the dispute cannot be resolved by the committee, such dispute can be resolved by 'other legal means'.

This PPA is for a longer term than previous agreements provided by SUNA, which were only for 5 years and, more importantly, the new minimum tariff rates offer a different rate for different renewable technologies. Previously, only one tariff rate was announced for various types of renewable energy projects which made the tariffs uneconomical for some types of renewable projects and required renewable developers to take on risks that they were ill-placed to manage.

The new tariff rates are announced annually by the MoE for each renewable source and project size and it is calculated based on a number of factors including the cost of fuel and environmental costs. The tariff rates announced in May 2016 and set out in the next page will be guaranteed for 20 years but will be reduced by 30% (except for wind projects which has a different applicable formula) in the second half of the term. Furthermore, the tariff rates will be adjusted during the term of the PPA by a formula that takes into consideration inflation and the euro exchange rate in Iran. In addition the scheme offers a bonus of up to 30% if the power plant is developed with locally produced components and technology. To assist the developers SUNA has released a breakdown on the bonus percentages offered for different locally produced components.

The guarantee purchase tariff rates as announced by SUNA in May 2016 are as follows:

Technology type		Feed in Tariff (Iranian Rials per kWh)	Feed in Tariff (US Dollars per kWh)[1]
Biomass	Landfill	2,700	0.09
	Anaerobic digestion	3,500	0.11
	Incineration and waste gas storage	3,700	0.12
Wind farm	Above 50 MW	3,400	0.11
	50 MW and less	4,200	0.13
	1 MW and less	5,700	0.18
Solar farm	Above 30 MW	3,200	0.10
	30 MW and less	4,000	0.13
	10 MW and less	4,900	0.16
	100 KW and less	7,000	0.22
	20 KW and less	8,000	0.26
Geothermal (including excavation and equipment)		4,900	0.16
Waste Recycling in industrial processes		2,900	0.09
Small hydropower (with the less than 10 MW)	Installation on the rivers and side facility of dams	2,100	0.07
	Installation on the pipelines	1,500	0.05

Source: SUNA website – Guaranteed Renewable Energy Purchase Tariff Rates[2]

Through the new terms of the PPA and tariff rates, Iran hopes for an increase in foreign investment in the renewable energy sector. This would not only decrease the unemployment rate and support the local developers but also provide environmental and economic benefits.

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[1] Official Central Bank of Iran exchange rate for US dollar as announced on 1 September 2016.

[2] http://www.suna.org.ir/en/guaranteed-Guaranteed-Renewable-Electricity-Purchase-Tariffs (last accessed on 7 September 2016)

5. Process for development applications

SUNA has divided the application process into four phases:

Project registration

(a) The developer must provide SUNA with their technical and financial credentials and project details (including the location). The developer must also prepare and submit a feasibility study to SUNA, which will identify the land and technology to be used for the project.

(b) SUNA will only register the project and issue a construction permit to the developer after it has verified that the developer is a non-governmental Iranian person, the feasibility report requirement is satisfied and confirmation has been issued that the project site does not overlap with other registered project sites.

Obtaining of permits

(a) After obtaining the construction permits, the developer must apply for the following:

(i) land permit: the duration of the land permit must match the minimum term of the PPA. The time frame required to obtain this permit will depend on whether the land to be acquired is public or private. If the developer is to acquire public land, it must submit an application to the Land Affairs Organisation. As a part of the land permit application, the developer must also obtain approval for other basic infrastructure requirements for the project, such as running water. SUNA has also set out maximum land requirements for various types of renewable projects, for example, a solar project requires a maximum of 2 hectares of land per MW of power produced;

(ii) grid connection permit: the developer must apply to the relevant regional power companies for a grid connection permit; and

(iii) environmental permit: the developer must obtain the necessary environmental permits based on technologies used in the project and its geographical location. The developer must also obtain a confirmation from the Environmental Preservation Organization that the project is environmentally safe.

(b) These permits must be obtained within 6 months of the construction permit being issued. The developer can request for extensions if it is able to demonstrate to SUNA that progress have been made in obtaining the required permits. Any assignment of permits must be approved by SUNA and any transfer of more than 25% of the shares of the company holding the permits prior to commissioning must be approved by the MoE.

(c) After obtaining these permits, SUNA and the developer will sign the standard PPA. It should be noted that the PPA is a non-negotiable contract and the developer cannot change the terms of it. The tariff rates are fixed only at the time of the PPA signing. This rate is only conditional to projects reaching commercial operation within a certain period of time. For biomass, geothermal and small hydro power plants it is 30 months, for wind projects it is 24 months and for solar project it is 15 months from the date of PPA signing. If the developer fails to reach commercial operation within such a period, the lower tariff rates either at the time of PPA signing or commercial operation will apply to the project.

Project construction

The developer is responsible for financing the project and signing the required EPC contracts. During the construction period, the developer must provide progress reports to SUNA. SUNA will be responsible for supervision and inspection during the construction phase and coordinating the grid connection.

Operation

(a) The project is considered operational on generation of electricity and issuance of a monthly invoice to SUNA pursuant to the PPA.

(b) By this time, SUNA must have had provided a letter of credit pursuant to the PPA in favour of the developer as a guarantee of payment.

6. Challenges for the renewable energy sector

The renewable energy sector in Iran faces a number of significant challenges for it to achieve its potential, including:

Financing

Financing of renewable projects in Iran is a significant challenge. Domestically, the local Iranian banks are not prepared to offer project finance and will only provide loans at very high interest rates (around 20%). In addition, due to the decline in the world oil prices, the Iranian government is only prepared to finance the most urgent projects through the NDF. Internationally, the global financial sector is still hesitant to fund projects in Iran due to the US sanctions that remain in place. However, there is potential for smaller international banks and Export Credit Agencies to finance renewable energy projects in Iran.

Credit worthiness of SUNA

Developers might be concerned whether SUNA has the financial capability to meet its financial obligations for payment of the minimum tariff rates announced. SUNA has announced that it will provide a letter of credit for six months but the letter does not have a credit rating from international rating agencies and is not supported by any sovereign guarantee by the Iranian Government or Central Bank of Iran.

Local capability

Local developers lack experience and knowledge compared with other jurisdictions where renewable energy is more developed. Furthermore, in a country where the majority of energy is generated by fossil fuels, there is a lack of knowledge about the benefits of renewable energy, particularly in rural areas.

Regulatory framework

The current regulations in place have not yet been fully tested. There have not yet been sufficient renewable energy projects in Iran to gain a full understanding of how the regulations will be applied. There is also the risk of encountering the bureaucratic delays and red tape that have made Iran 118th (out of 189 countries) in the World Bank's 2016 'Ease of Doing Business' report. SUNA has indicated that the first three phases of the application process should take around 7 months, but the reality might differ as market information indicates that the average time is around 1 year.

Land acquirement

For renewable energy projects the location is a key consideration. However, acquiring public or private land in Iran can be a time-consuming and expensive task for developers. Generally, the market standard is for the land to be provided by the government.

7. Future developments

Despite these challenges, Iran is an exciting new market for renewable energy, with a high demand for electricity and numerous incentives from the government to encourage a switch from hydrocarbons to renewable energy. The biggest challenge faced by developers is the bankability of renewable energy projects in Iran, in particular whether SUNA is able to meet its financial obligations. But the reality for the developers is that the tariff rates offered by the government are declining year by year and will soon reduce to be competitive with the rates offered elsewhere in the region. Developers entering the market today may take some risk but they will reap greater rewards for the next 20 years in the form of higher tariff rates offered now.

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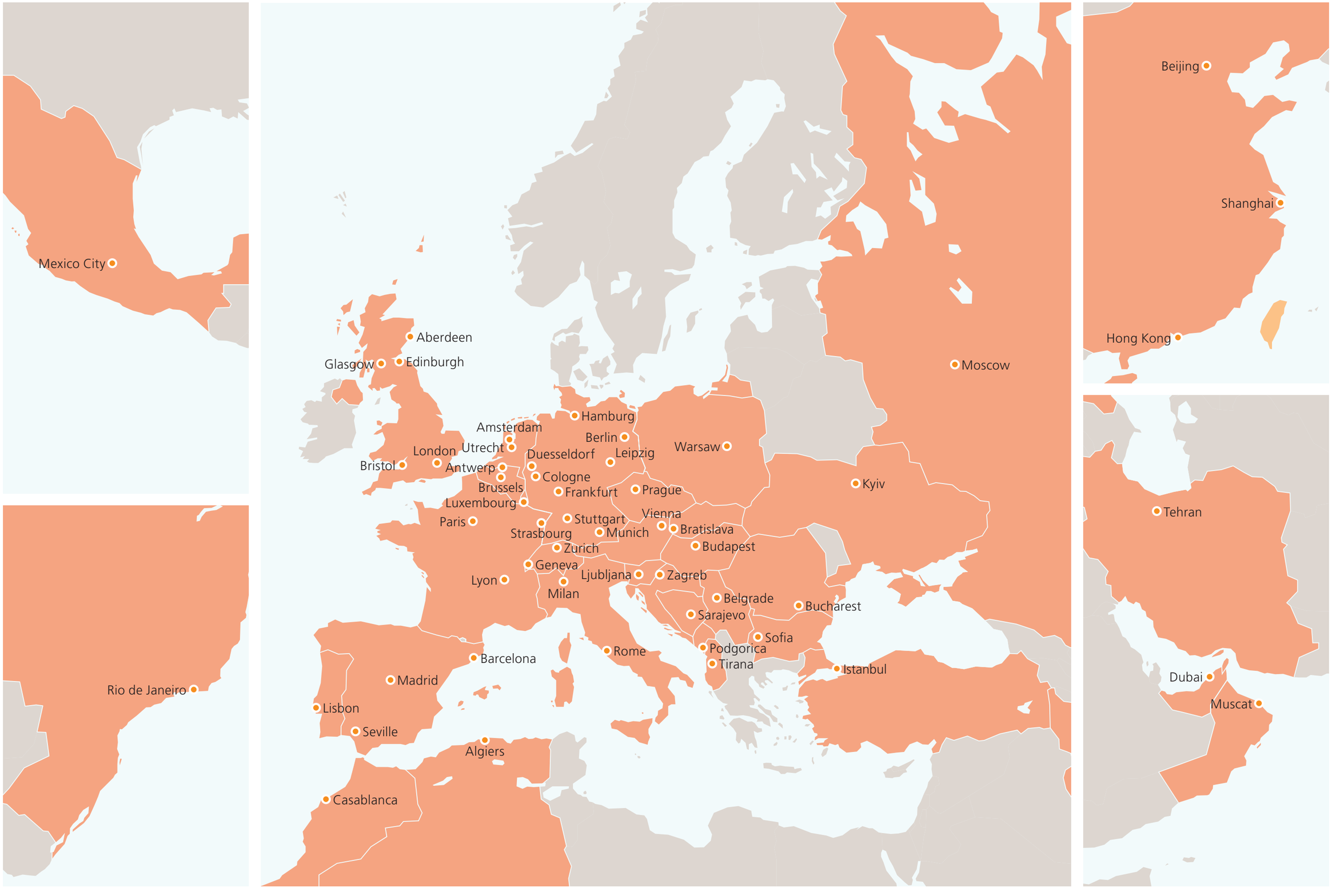
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