



Danish Energy
Agency



The joint
Danish-Turkish
cooperation on
climate and energy



Key Data

Turkey

Population (millions): 80.8 (2017)

CO₂-emissions (Mega tonnes): 496.1 (2016)

CO₂ (t/capita): 6.3 (2016)

kg CO₂/GDP: 0.57 (2015)

Investment in RE (billion \$US): 1.5 (2016)

Source: Turkish Statistical Institute 2016 and 2017 and, Frankfurt School-UNEP Centre/BNEF 2017

INDC goals - Turkey

Up to 21% reduction in GHG emissions from the Business as Usual (BAU) level by 2030.



Denmark

Population (millions): 5.7 (2016)

CO₂-emissions (Mega tonnes): 32 (2015)

CO₂ (t/capita): 5,63 (2015)

kg CO₂/GDP: 0,09 (2015)

Investment in RE (billion \$US): 2,5 (2016)

Source: IEA 2017, WorldBank 2016 and Frankfurt School-UNEP Centre/BNEF 2017



Green government-to-government cooperation

Inclusive, sustainable growth and development is a strategic objective of Denmark's development cooperation. Economies in transition and emerging economies are considered key players for achieving the global Sustainable Development Goals, and it is important to provide support for their sustainable development, as they demand expertise, knowledge, technologies and investments to make appropriate strategic choices for their sustainable development. This is not least true with regard to development of their energy sector.

The Danish Energy Agency's global cooperation intends to assist partner countries with their transition to a low carbon pathway reaching the National Determined Contribution (NDC) targets they

committed to at COP21.

The primary modality of the Danish Energy Agency is to engage in government-to-government cooperation to promote the common climate change agenda. It strives for true peer-to-peer exchange to advance the understanding of policy options, strengthen planning - and framework conditions, and strengthen enforcement of regulation.

The overall objective agreed to by the counterparts of the Partnership Program between Denmark and Turkey is to assist the Turkish government in developing relevant policies, strategies and solutions to enable a low carbon transition of their energy sector.

Facing the challenges

Thus, the focus of the Danish-Turkish Strategic Sector Cooperation project is low carbon transition of the Turkish energy sector. Turkey has a growing population and an expanding economy, and consequently, the largest projected rise in energy demand of any member of the International Energy Agency.

One of the key challenges with the economic development of the Turkish economy is related to the heavy dependence on imported energy sources. The costs of fuel imports have contributed to a trade balance deficit of more than USD 40 billion.

The project specifically focuses on the 30% overall energy demand for heating and cooling of buildings. Energy supply

for buildings in Turkey is mostly based on imported natural gas and on coal. Most of the imported fuel is sourced from the region. The natural gas infrastructure is exploited to its maximum capacity, particularly during winters, when heat demand is at its highest.

The Turkish government's 2023 centennial goals include expansion of the emerging district heating sector.

Turkey and Denmark cooperate on climate and energy

The Danish Ministry of Energy, Utilities and Climate/Danish Energy Agency and the Turkish Ministry for Energy and Natural Resources/General Directorate of Renewable Energy have signed the Strategic Sector Cooperation project in



March 2017. The current phase of the project is planned to be completed in December 2019 and is expected to be prolonged with a new 3-year period.

A Danish-Turkish Memorandum of Understanding on energy cooperation was ratified in 2013 and is now being prolonged. This Strategic Sector Cooperation intends to establish long-term bilateral relations between public energy authorities in Turkey and Denmark and through public and private partnerships contribute to a joint goal of more sustainable and green energy sector in Turkey.

Through technical assistance, the Danish government is assisting Turkey to meet its climate commitments, improve economic competitiveness and bolster its energy security. The government-to-government collaboration has identified district heating as one of the key solutions to reach these targets.

Joint effort to accelerate green development

Turkey possesses large untapped potentials for supply of waste heat from existing power plants, large industries, municipal waste incineration (waste-to-energy) and geothermal energy. Other potentially useful sources of heat include solar energy and biomass, which also could be suitable low-cost heating sources for district heating.

Cost efficient use of these potentials

require in many cases large and coherent heat markets, based on district heating. District heating in Turkey has today only a very limited dissemination. Turkish district heating technology is today mainly connected to geothermal sources, which are prevalent in Turkey, while combined heating and power generation is most widespread in industry.

Further, the current regulation of the heat market in buildings has so far been limited to energy performance standards of new buildings and compulsory central heating in new buildings having an area of more than 2000 m².

The Turkish government acknowledges the long-standing Danish experience on efficient heating. In Denmark, more than 60% of the buildings are connected to district heat, while an increasing number of buildings outside of district heating zones are being heated using renewable energy sources. This remarkable development was driven by a sustained policy and effective regulation of the sector.

One key activity of the current cooperation is to prepare a draft primary Heat Supply Act for Turkey. Progress in this activity has a top priority in the work programs for 2017 and 2018, because a draft Heat Supply Act is requested by the Turkish side to be completed by mid-2018, ready for public consultations. Discussions of the direction and the structure in a future heat supply regulation as well as specific

drafting are ongoing in close dialogue with key stakeholders in Turkey. The drafting is based on Danish experiences, however adapted to Turkish conditions. The Danish Energy Agency is providing technical assistance to the development of this framework based on Danish experiences. In addition, Danish technology suppliers are mobilised to share resources and expertise with relevant Turkish stakeholders.

The current Danish technical assistance includes the following main components:

- drafting effective legislation on supply of heating,
- mapping and forecasting of national heating and cooling demand,
- introduction and transfer of appropriate tools for cost-benefit analyses of heating and cooling supply,
- preparation of concrete pre-feasibility studies of low-carbon supply of heating and/or cooling to specific urban areas,
- training of local planners to undertake

municipal planning for supply of heating and cooling,

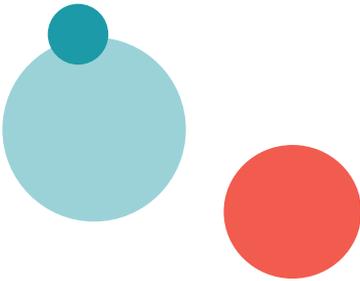
- increasing the capacity of the private sector, local authorities and other stakeholders to implement cost-effective low-carbon solutions to heating and cooling supply.

In a second phase of the cooperation, there may be a need for Danish support to secondary regulation for heating and cooling and related guidance documents to municipalities and the sector. This may include test cases for, how to prepare municipal heat supply plans. Preparation of pilot projects for full-scale implementation of district heating and district cooling projects may as well be a part of a secondary phase.

Danish Energy Agency and the Royal Danish Embassy are in a positive dialogue with the Turkish government about extending the current strategic sector cooperation by developing an offshore wind roadmap for Turkey. The Turkish government is currently planning a tender for offshore wind with the capacity of app. 1 GW. In addition, parallel tenders for onshore wind (1 GW) and solar energy (1



GW) are scheduled. Developing an offshore wind roadmap should facilitate informed decisions for further deployment of offshore wind in Turkey.



District heating development. Soma, Turkey 2018. Source: Danfoss



Agreements and work streams

Turkey and Denmark have developed a Memorandum of Understanding with focus on energy cooperation.

This agreement is augmented with joint working groups, a high-level Steering Committee and a mutually agreed upon work program for 2017-2019, which has spelled out the commitments of the Turkish and Danish governments.

The overall objective of the current Danish-Turkish Strategic Sector Cooperation is to assist the Turkish government in developing a strong regulatory framework for low-carbon supply of energy to buildings, and to build up capacity to implement the framework.



The Danish Energy Agency's Centre for Global Cooperation supports emerging economies to combine sustainable future energy supplies with economic growth. The initiative is based on four decades of Danish experience with renewable energy and energy efficiency, transforming the energy sectors to deploy increasingly more low-carbon technologies.

Learn more on our website:

www.ens.dk/en/our-responsibilities/global-cooperation

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