Strategic Sector Cooperation (SSC) between Turkey and Denmark: ”Efficient and Low Carbon Supply of Heating and Cooling”

Project Management Team

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Outline

1) An outline of the Turkish-Danish SSC energy project
2) Progress and preliminary findings
    - Output 3. Cost benefit analyses of generic model cases
    - Output 5. Drafting of Heat supply Act

The objective of the project is to assist the Turkish government in:

"Developing relevant policies, strategies and solutions to enable a ***low carbon transition of their energy sector,*** achieve the governments' long term ***objectives for energy efficiency and district energy*** and increase ***the capacity of implementation of the planned new legislation on heat supply".***

Outputs (1)

OUTPUT 0: Inception Phase and Project Management.

OUTPUT 1: Energy mapping and forecasting of heating and cooling demand undertaken.

OUTPUT 2: A gap analysis of current regulation has been performed.

OUTPUT 3: A cost-benefit analysis tool has been developed together with a technology database.

Outputs (2)

OUTPUT 4: Danish and international experience of heating and cooling supply has been shared to relevant Turkish stakeholders.

OUTPUT 5: Draft heat supply law has been provided.

OUTPUT 6: Capacity increased to regulate the heating and cooling sector and to implement low-carbon solutions.

OUTPUT 7: Pre-feasibility study of concrete heating and/or cooling supply projects performed.

Current project duration: April 2017 – December 2019.

Output 3: Cost benefit analyses of district heating in four climate zones

District Heating Assessment Tool (1)

- The applied tool is based on Danish methodology, used by Danish authorities and district heating companies.
- The tool is customized to fit Turkish circumstances and needs.
- Assesses long term cost of ***supplying*** an area with heat and comparing district heating and individual heating solutions. No optimization between supply and demand
- Can provide a business case for consumers and district heating companies.
- Considers total heat demand, including the demand for households, service and industrial sectors within decided scope.

District Heating Assessment Tool (2)

- Depending on available data, DHAT can provide solid indications on the feasibility of district heating and which resources and technical solutions for district heating might be most viable, e.g.:
  - Geothermal heat,
  - surplus heat from industries,
  - Power plants and waste incineration,
  - New combined heat and power,
  - Biomass,
  - Solar energy etc.
- Results are comparable across projects and can be understood and used by non-energy experts.
- Shows emissions from different scenarios and is also able to calculate the socio economic costs and other externalities.

Purpose of cost benefit analysis and DHAT application

- Testing economic viability of district heating in Turkey.
- Screening for most important indicators of economic viability.
- Assessing environmental consequences of district heating.
- Feeding into national impact assessments, provided district heating is promoted by the new Turkish Heat Supply Act.

Analytical DHAT set up

- Economic comparison between established individual heating (mainly natural gas) and district heating.
- Baseline comparison done in four different Turkish climate zones, modelled over specific areas.
- 15 variations (opportunities and risks) done in climate zone 4:
  - Fuels, excess heat, fuel prices, electricity prices, interest rates, investments and heat demand.
- Assumptions and prerequisites from Turkish and international sources where appropriate and available.

Preliminary Findings

- Most important indicator is heat density, e.g. kWh/m2 ground.
- District heating seems viable across all climate zones provided high building density.
  - Climate conditions in Denmark corresponds to climate zone 3-4 in Turkey.
  - Turkish heat consumption per m2 in warm climate zones is comparable to Danish heat consumption.
- District heating has high up-front investments, so financial set up and conditions are important.
- New buildings and use of excess heat from industry seems most viable.

Output 5: Drafting Heat Supply Act

Working Process:

- Prepare an ”**issues paper**” ahead of legal drafting (includes app. 30 issues).
- Prepare a **concluding paper** (precondition for output 2 and the actual drafting).
- Compile stakeholder views on bilateral meetings and on stakeholder workshops.
- Prepare a draft **Heat Supply Act** before July 2018.

Headlines in the issues paper

1) Cross-cutting items.
2) Objectives, targets and priorities.
3) Measures (Heat planning, incentives, direct regulation, “soft measures”, e.g. information).
4) Roles and responsibilities among key institutions.
5) Promotion of projects with a high priority.
6) Pricing models.
7) Access to data and information.

Preliminary outline: Heat Supply Act:

1) Objective, scope and definitions.
2) Principles/guidelines for planning of heat supply?
    - Planning.
    - Implementation of planning.
3) Connection to heat supply.
4) Regulation and control of the heat market.
5) Administrative sanctions and miscellaneous provisions.

Outstanding major issues to look into in the further drafting process

- Turkish Ministry of Energy and Natural Resources cannot instruct municipalities to prepare heat plans.
- No obligation to municipalities to perform district heating planning.
- No methodology exists for heat price calculations
- Difficulties by obtaining permission and license for generating electricity from combined heat and power plants.

Thank you for your attention!

If any questions or you would like to receive this presentation please contact:

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