

## Terms of Reference

# Consultancy Support for Inception Phase of Strategic Sector Cooperation on District Heating in China

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## 1. Background

In the northern provinces of China, in the so called 'heat zone', there are about 320 million potential district heating customers. While a significant amount of district heating networks have been established in the heat zones, however most of this load is supplied via coal. In order to combat serious air pollution, the Chinese government has presented a plan called "Cleaner Heat towards 2021" in North China.

Through a long-term cooperation with the National Energy Conservation Center (NECC) of China on Clean Heating, Denmark has a unique opportunity to help shape the framework that will determine the future of the Chinese heating market. The implementing agreement, signed between the DEA and NECC in February 2017, has laid a strong foundation for the bilateral cooperation.

One of the key projects that have sprung from this cooperation is the work being done with the city of Tongchuan in the Shaanxi province, where a Danish long-term advisor has used Danish methodology to help the local government select pathways to cleaner and more efficient heat networks.

However, while the cooperation is proceeding according to plan, there are clear and proven opportunities to scale up the engagement with the national government by enhancing understanding and engaging with the regulatory process as it relates to district heating.

A successful strategic sector cooperation (SSC) project between China and Denmark on district heating would utilize and transfer Danish experiences to enable Chinese authorities. This would open the door to Chinese authorities establishing a better regulatory framework that supports the development of district heating projects with positive socio-economic impact. This inception project will deliver an initial regulatory assessment for district heating and aims to thereby explore the potential for a full scale SSC project in China.

The overall goal of this inception project is to uncover how Danish experiences can support national authorities to reach national goals for clean heating by using regulatory experiences from Denmark. This inception phase will end in the first quarter of 2020, and will lay the foundation for a multi-year effort. Therefore, collecting sufficient data in the preparation phase is crucial.

DEA has assigned the training work in China to Copenhagen Centre on Energy Efficiency in August 2019.

## 2. Objectives

The objective of the assignment is to advise the inception project team regarding the strategic sector cooperation on district heating in China. The final result should map out how a multi-year effort aimed at district heating knowledge transfer might achieve the most impact. Impact in this context would mean providing input directly into policy creating processes on the national/regional level.

Mainly, this would be accomplished by making local Chinese insights available to the project team through a combination of analytical work and in-person meetings and interviews conducted alongside members of the project team whenever possible. A main source of knowledge is the partners from the ongoing Danish Energy Agency Energy Partnership Programme (DEPP) in collaboration with NECC. Partners in this project include NECC and the Royal Danish Embassy in Beijing (RDE) as well as Shaanxi Development and Reform Commission and Tongchuan municipal government in connection with the pilot-project in Tongchuan. Stakeholders outside the current collaboration are also to be interviewed when relevant. In this way it is ensured that knowledge from the current project is merged with additional knowledge on the regulatory framework.

### **3. Scope of Work**

The inception project will comprise of two or three missions with potential participation of experts from the DEA and/or the RDE. The main task of the consultants will be to undertake a comprehensive analytical mapping of key Chinese stakeholders, processes and methods for creating regulation that concerns district heating and/or heating regulations in general. As soon as the key public agencies are identified, all effort should be made to transfer relevant contacts to the project team, or assist the project team with building out a network of stakeholders that covers as many of the identified contacts as possible.

The consultants will also be responsible of writing mission reports containing an overview of activities during the missions and specific follow-up activities, as well as compiling and analysing documents that outline the power and interests of the relevant public stakeholders. Furthermore, the consultants are expected to be available for ongoing discussions with the project team to help analyse the collected data.

The consultants will then assist with distilling the key document into the necessary documents for a full SSC program application, which will be completed by the end of December 2019.

### **4. Deliverables**

- Assist in planning of and reporting after missions.
- Collection of information and documents during the meetings and workshops.
- Producing meeting summaries.
- Preparation of a document with the following overarching table of contents:
  - 1) A brief overview of district heating regulation in China
  - 2) From which institutions does heating regulation originate in China?
  - 3) Typical drivers for suggesting heating regulations and their objectives

- 4) Detailed overview of the regulatory process from start to finish, including how new regulation is disseminated to private and public entities responsible for implementing the policies.
- 5) Overview of national and provincial public entities that support or hinder various types of heating regulation, especially related to district heating
- 6) Mapping of government agencies, including but not limited to MOHURD, NEA and NDRC, and their role and interest in district heating policy creation
- 7) General overview of how the economic gains from a successfully implemented district heating project are typically distributed between public entities, private entities, or consumers.
- 8) Potential ranking of barriers to more efficient district heating as seen by the identified agencies. The barriers could be:
  - a) the cap on heating prices that prevents installation of individual meters in new buildings, as heating companies are unable to recover the costs.
  - b) Lack of requirements for installing individual heat regulators in new buildings.
  - c) incentive to maximize short-term economic gains overshadows the incentive to lower heating prices access to finance for projects with longer pay-back periods
  - d) inability to adequately quantify associated advantages such as improved air quality and job creation.

## 5. Budget

It is estimated that the assignment requires a total of 15 man-days for the Chinese senior consultant. The cost of 15 man-days for senior consultant, at 8,500 DKK per day, amounts to 127,800 DKK

Travel expenses for first mission are expected to be covered under DEA relating to travel for the consultant on the mission. Accommodations will be covered separately during travels, to the same standards that DEA employees adhere to.

Expense category	Units	Cost per unit (DKK/unit)	TOTAL (DKK)
Per diem <sup>1</sup> in Shaanxi (UN rates for Changsha are applied, since no UN rate for Shaanxi exists)	5-10	Changsha rate = 1,274 DKK/day (approx. 186 USD/day)	6,370-12,740
National transport	2	2,000DKK/flight	4,000

<sup>1</sup> Per diem rules for travel of more than 24 hours duration (but below 60 days): Departure day = 100%. Days on site = 100% for every day calculated from midnight to midnight local time. Return day = No per diem. And per diem includes "accommodation, meals, transportation within the place of mission (intra-city travel) and sundry expenses".

## **6. Qualifications and Skills**

The appointed consultants should have:

- PhD. degree (desirable)
- Based in China (preferred in Beijing), able to travel to other Chinese cities (desirable)
- Solid knowledge about district heating policy, regulation framework in China.
- In-depth knowledge of the Chinese heat sector, preferably from a regulatory standpoint as well as knowledge about key stakeholders on the national level in heating and energy efficiency.
- Experience of working in district heating and/or policy analysis in China
- Fluent in English and Maderian

## **7. Working Arrangement**

The consultant will be retained on a contract with the C2E2 and payments based on deliverable output. They would be required to be available for the timely delivery of milestones throughout the project.

The consultant will work under the supervision of Dr. Zhuolun Chen in C2E2 and will agree on face-to-face workdays in China or conference calls as per the progress of work.

## **8. Language**

All outputs should be prepared and submitted in the English and/or Chinese language, as required, to the Copenhagen Centre for Energy Efficiency.

## **9. Time for completion**

Two months with possible extension on demand of DEA.

## **10. Confidentiality and ownership of results**

The contracted consultant is obliged to maintain confidentiality regarding the activities they carry out. The presentations and training materials generated, and all products related to the object of the present contract will be the exclusive property of C2E2. Any publication or dissemination that the consultant requires to do on joint works, may only be executed after authorization of such by C2E2 and the UNDERSECRETARIAT OF RENEWABLE ENERGY AND ENERGY EFFICIENCY.