



10th International Conference on Smart Energy Systems
10-11 September 2024
#SESAAU2024



Sponsored by



INSIGHTS FROM DANISH HEATING METERING: IMPLICATIONS FOR CHINA'S CLEAN HEATING DEVELOPMENT

Lipeng Zhang Danish Energy Agency
Sino-Danish Clean and Renewable Heating Cooperation

CONTENTS

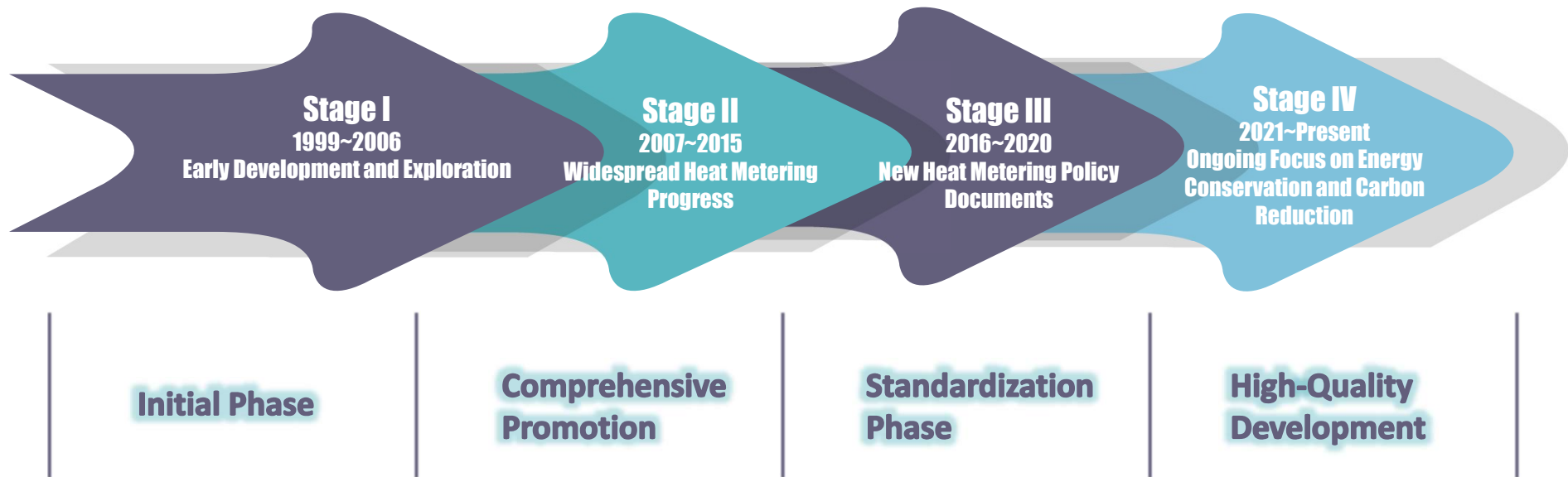
- 📍 **HISTORY:** What is the history of heat metering development in China?
- 📍 **CURRENT:** What is the current situation of heat metering in China?
- 📍 **FUTURE:** What are the future directions for heat metering in China?
- 📍 **CHALLENGES:** What challenges is China currently facing in heat metering?
- 📍 **INSIGHTS:** what insights can be gained from Denmark's experience in this field?



Past, Present, and Future of Heat Metering in China



■ Four Phases of Heat Metering Development in China



■ Development of heat metering is affirmative direction



2023.10 The NDRC and the MoHURD reaffirmed their commitment to advancing "heat metering reform and metered billing."

2024.05 The State Council issued a notice on the "2024-2025 Energy Conservation and Carbon Reduction Action Plan," which emphasizes accelerating heat metering reform and metered billing.



中华人民共和国中央人民政府
www.gov.cn

首页 > 政策 > 国务院政策文件库 > 国务院文件

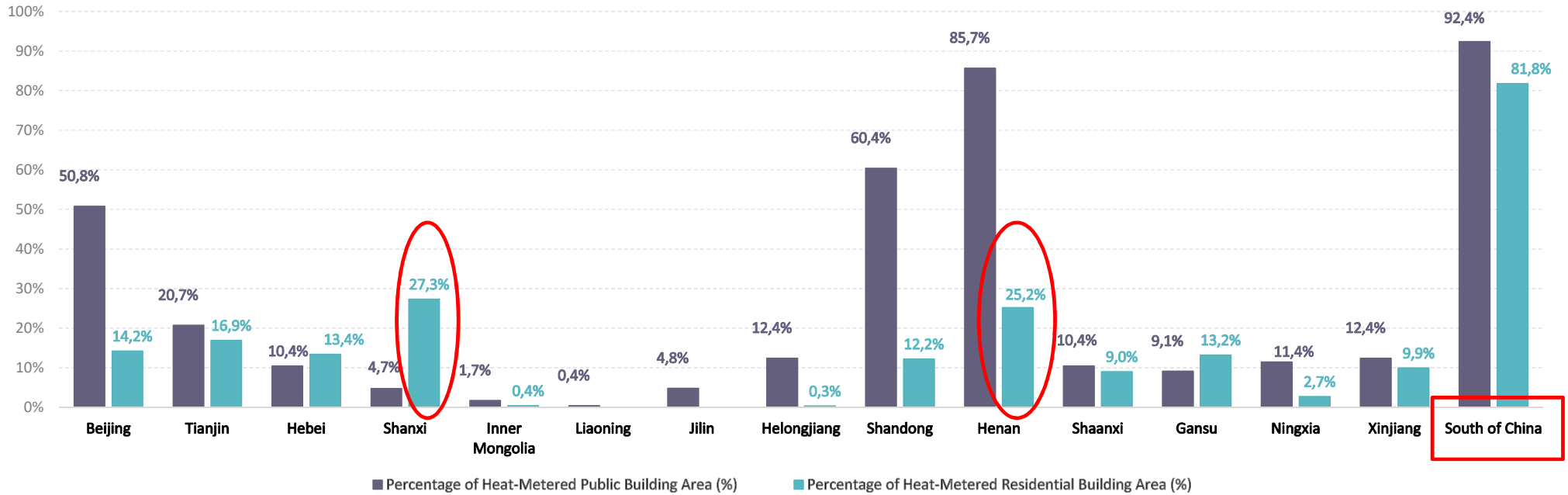
索引号: 000014349/2024-00046	主题分类: 城乡建设、环境保护、节能与资源综合利用
发文机关: 国务院	成文日期: 2024年05月23日
标题: 国务院关于印发《2024—2025年节能降碳行动方案》的通知	发布日期: 2024年05月29日
发文字号: 国发〔2024〕12号	

国务院关于印发《2024—2025年
节能降碳行动方案》的通知
国发〔2024〕12号

Source: www.gov.cn



■ Current Heat Metering Situation in China

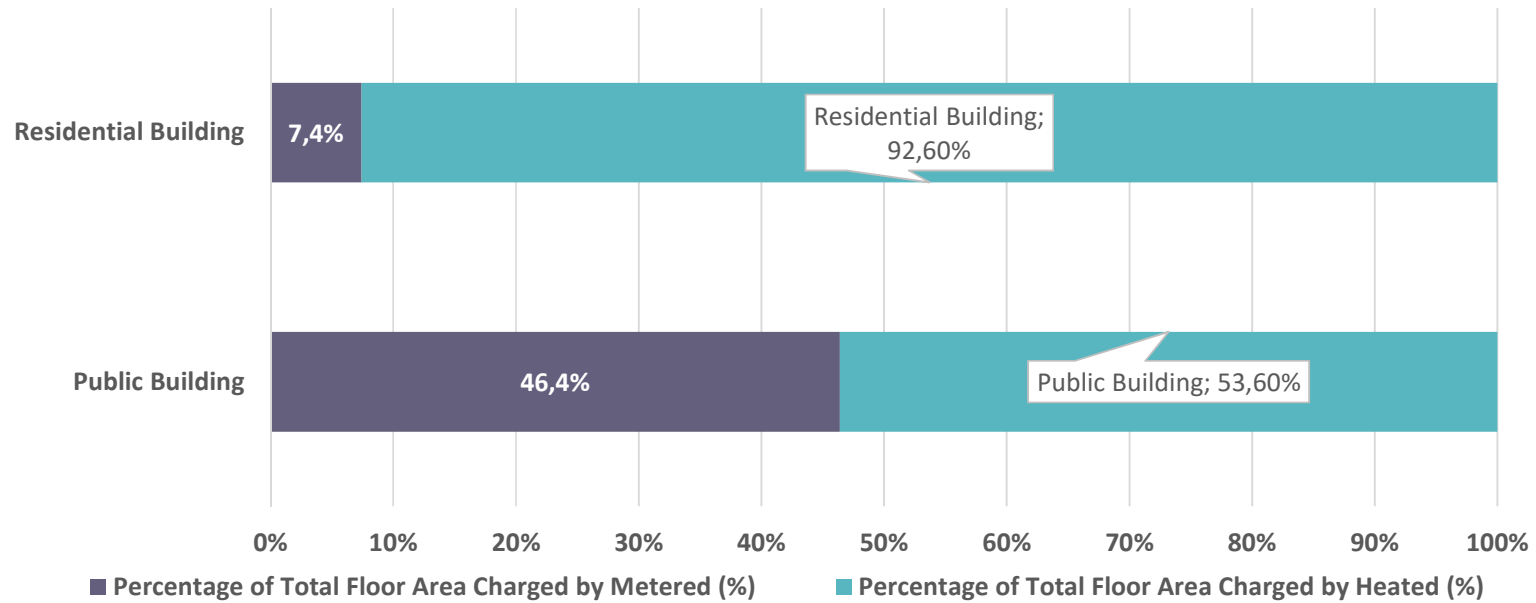


Percentage of Heat-Metered Area in Public and Residential Buildings Across 14 Northern Provinces Cities and Some Southern Regions

Source: 2023 China Urban Heating Development Report



■ Current Heat Metering Situation in China



Percentage of Heat-Metered Public and Residential Building Area to Total Heating Area in 14 Provinces

Source: 2023 China Urban Heating Development Report

Challenges and Insights:

Political, economic and technical obstacles in China's heat metering, with lessons from Danish experiences.



I. Challenges on Policy and Regulatory

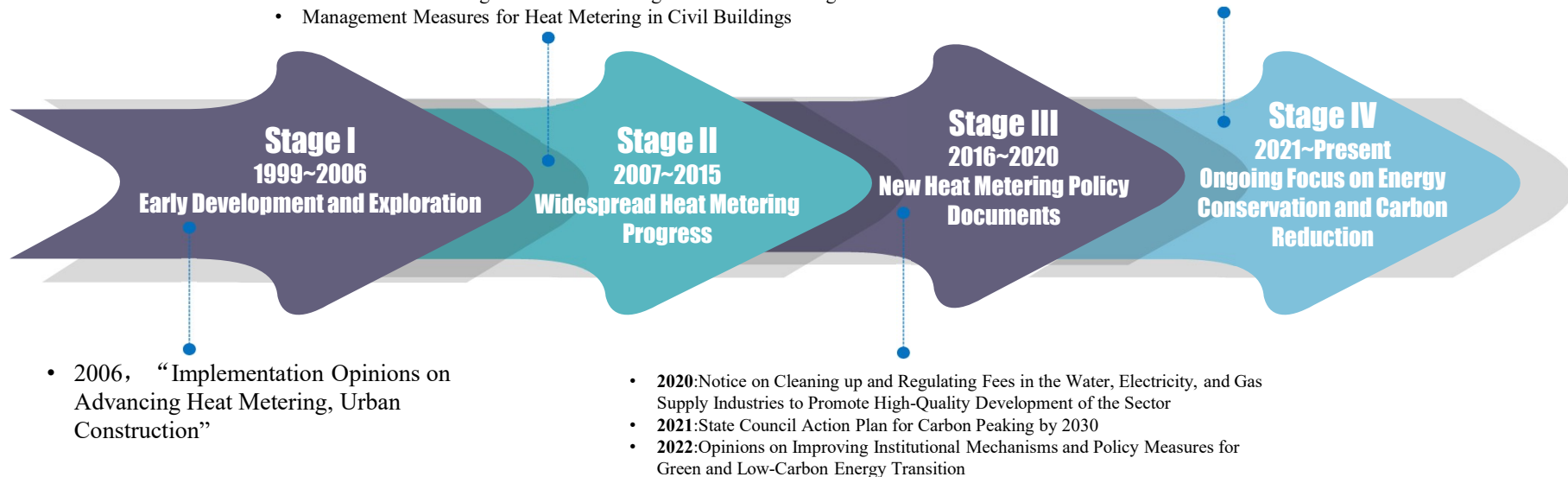
2007

- Energy Conservation Law of the People's Republic of China
- Interim Measures for the Management of Incentive Funds for Heat Metering and Energy-Saving Renovation of Existing Residential Buildings in Northern Heating Areas
- Comprehensive Work Plan for Energy Conservation and Emission Reduction”
- Interim Measures for the Management of Urban Heating Prices

2008

- Opinions on Further Advancing Heat Metering Reform
- Implementation Opinions on Advancing Heat Metering and In In 2008, Energy-Saving Renovation of Existing Residential Buildings in Northern Heating Areas
- Management Measures for Heat Metering in Civil Buildings

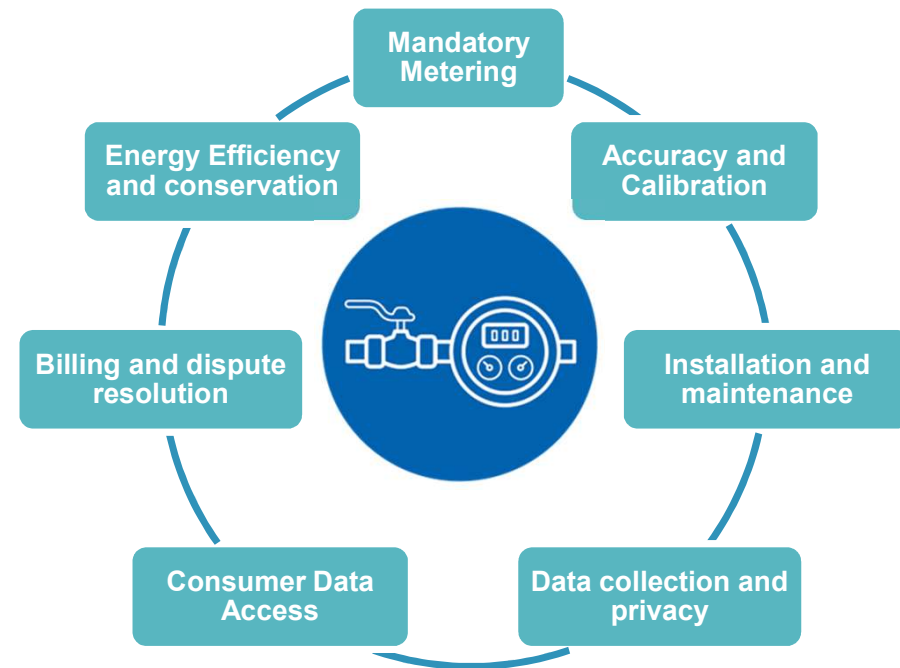
- 2024: Energy Conservation and Carbon Reduction Action Plan in 2024-2025





■ Regulative Insights from Denmark's Heat Supply Act

Udskriftsdato: 14. oktober 2023 Print date: 2023.10.14	Retsinformation Legal Information
LBK nr 1215 af 14/08/2020 (Historisk) Bekendtgørelse af lov om varmforsyning Executive Order on the Heating Act	
Ministerium: Klima-, Energi- og Forsyningsministeriet Department: Department of Climate, Energy and Public Utilities	Journalnummer: Klima-, Energi- og Forsyningsmin., Energiestyrelsen, j.nr. 2020 - 1806 No. : Danish Energy Agency 2020-1806
Senere ændringer til forskriften LOV nr 883 af 12/05/2021 § 5 - LOV nr 923 af 18/05/2021 § 3 - LBK nr 2068 af 16/11/2021	



■ Responsibilities and Authorities of Stakeholders



**NATIONAL
GOVERNMENT**



MUNICIPALITY



**HEATING
COMPANIES**

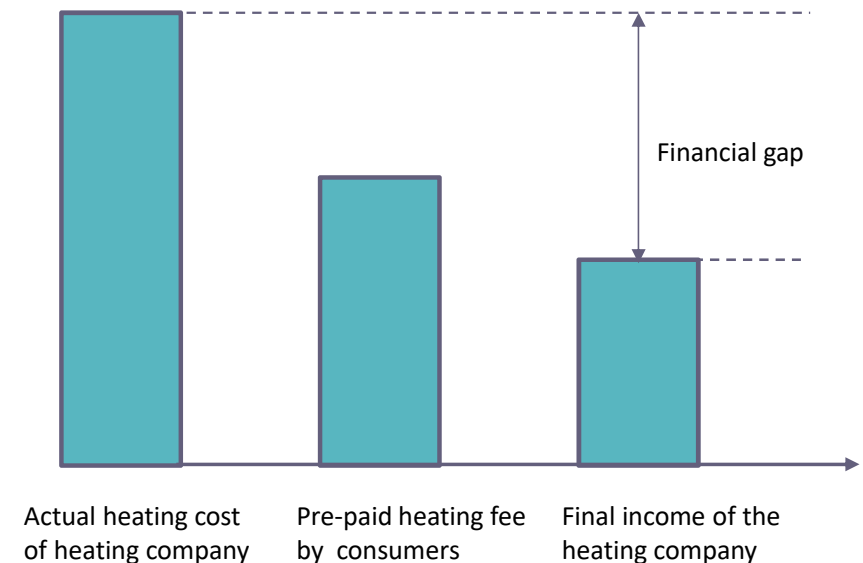


**HEAT
CONSUMERS**

■ III. Challenges: Heat Billing and Tariff Mechanisms

" Refund the excess, but do not charge the shortfall" policy in China

- This policy is used during the transition to heat metering for residential buildings in China.
- Residents pay a one-time fee based on the heating area before the heating season starts.
- After the heating season, actual heating consumption is reviewed.
- If metered costs are less than the area-based fee, the excess is refunded or credited for the next season.
- Residents are not charged more if the metered cost exceeds the area-based fee during the transition.
- Ultimately, the system will evolve to charge or refund residents based on actual heat usage, ending the transitional policy.



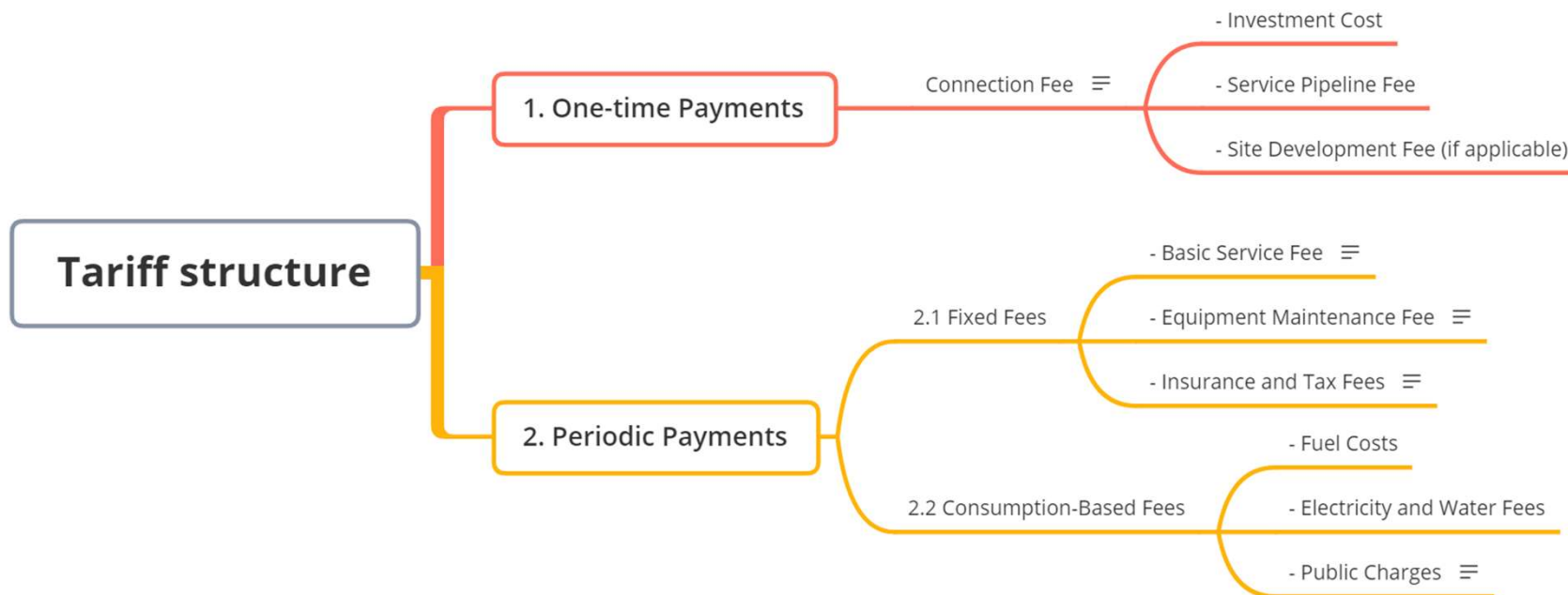
■ Danish Heating Tariff Principle and Framework

Tariff in Heat Supply Act

- Tariffs should comply with the following overall requirements:
- They must be cost-reflective
- They must be easily manageable with minimal costs
- They must be transparent and comprehensible by consumers
- They must ensure that all consumers make a positive contribution to the costs of the community.

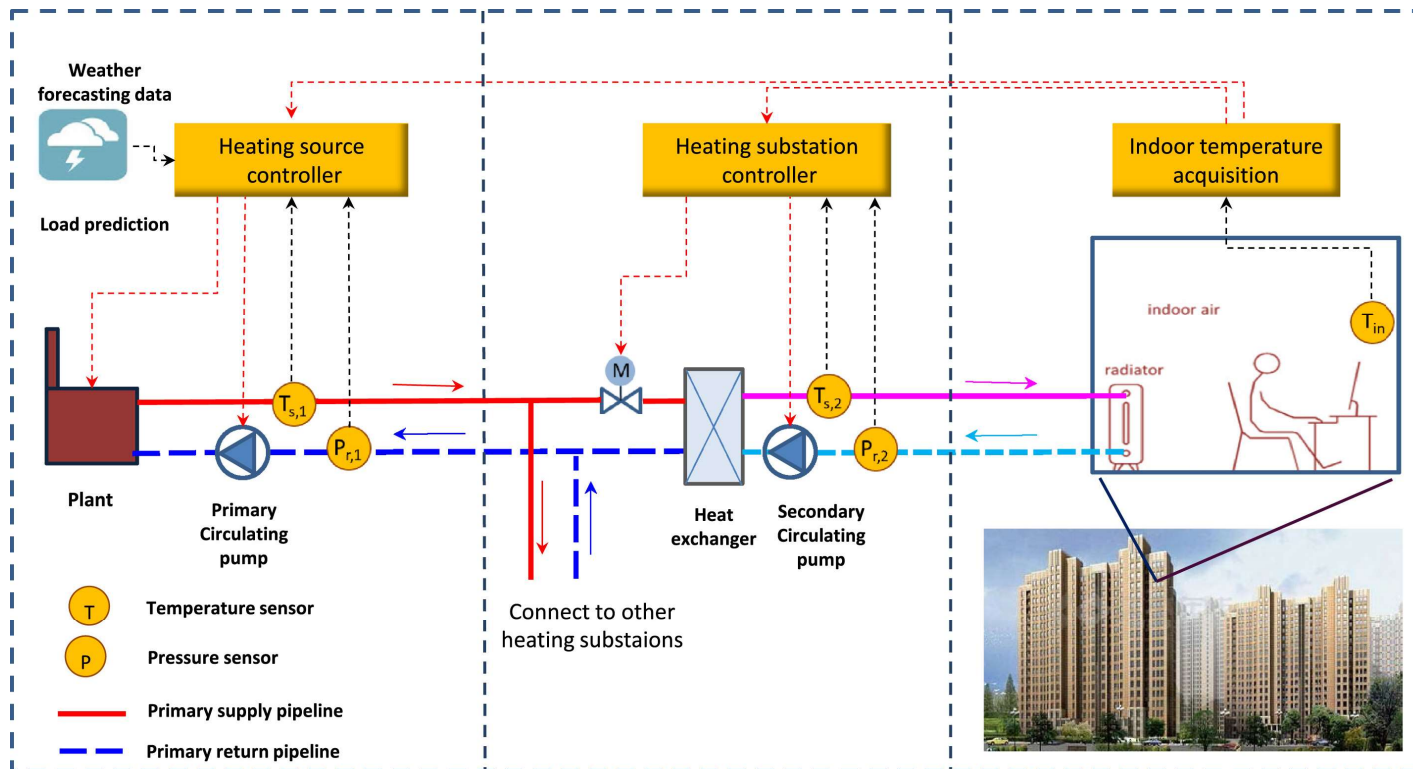


■ Danish Heating Tariff Principle and Framework





II. Challenges in District Heating Technical Upgrades

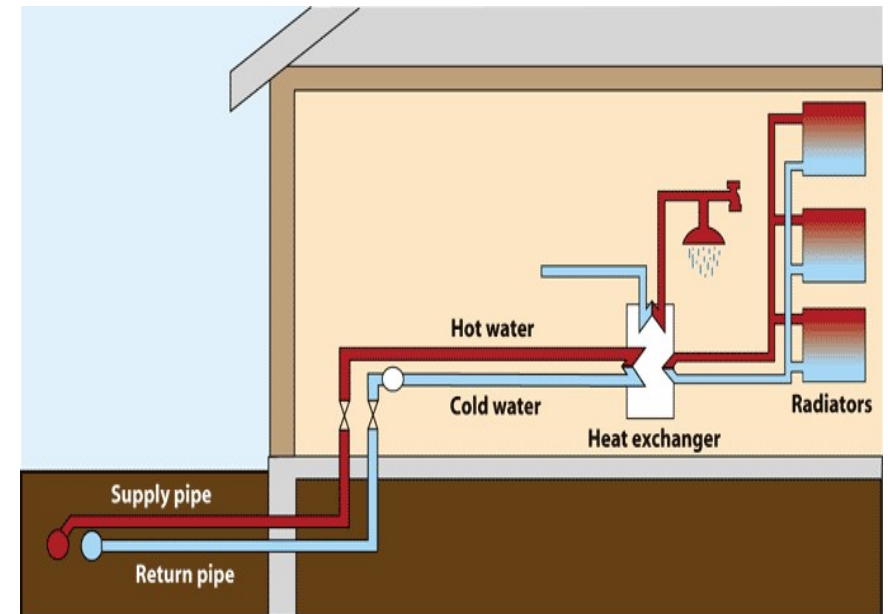




■ Technology Solutions Driven by Clear Objectives in Denmark

Incentive Tariffs

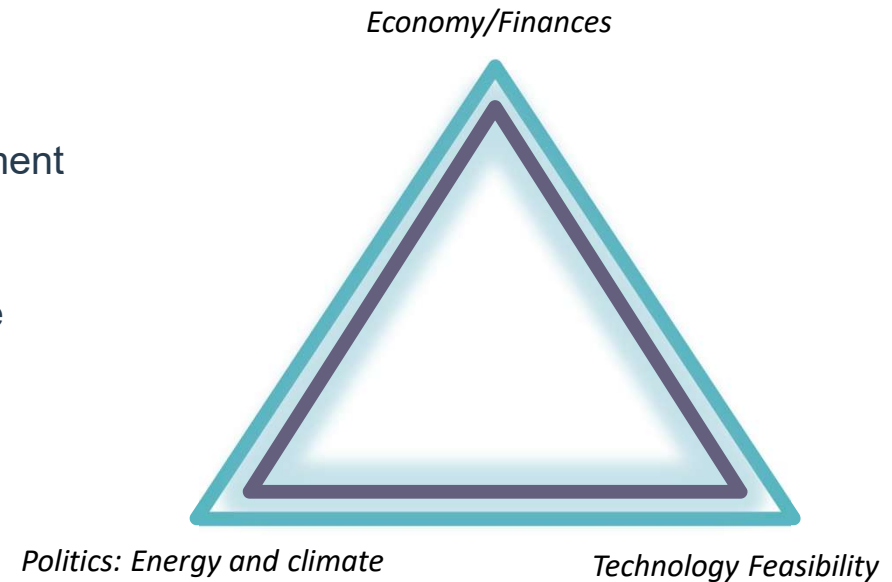
- Cooling Tariff: Encourages users to optimize radiator systems to achieve as low a return water temperature as possible, enhancing system energy efficiency.
- Time-Dependent Tariff: Sets different rates according to the heat demand during various times of the day, encouraging users to use heat during off-peak periods to reduce load during peak times.



Sources: <https://www.buildinggreen.com>

■ Recommendations and Conclusions

- **Policy:** Develop universally applicable policies or regulations for heat metering that clearly define the principles of heat measurement and billing.
- **Technology:** Intelligent upgrades to the heating system form the foundation for implementing heat metering.
- **Economics:** The method for calculating heating charges should cover the minimum costs, benefiting stakeholders at all levels.

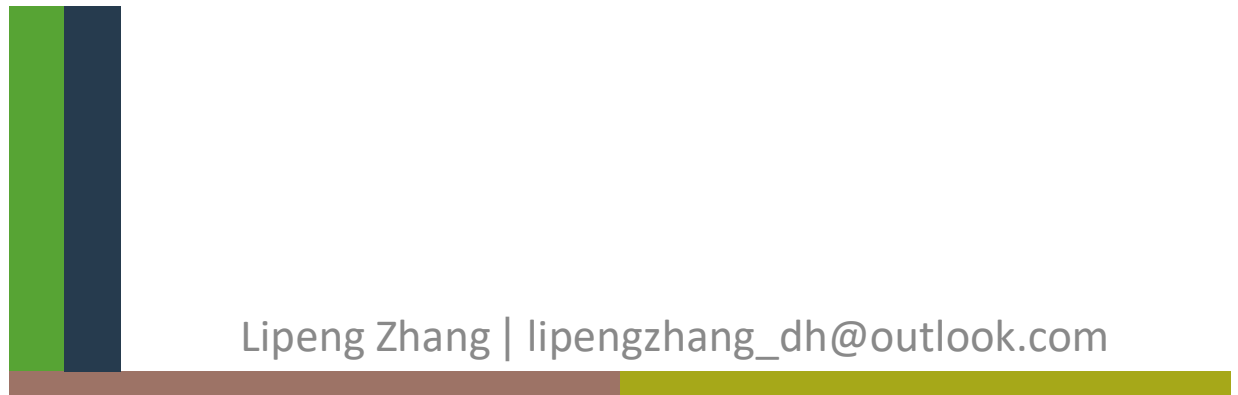




10th International Conference on Smart Energy Systems
10-11 September 2024
#SESAAU2024



Sponsored by



Lipeng Zhang | lipengzhang_dh@outlook.com