Experiences and Lessons from China’s Success in Achieving Electricity for All

Gang He
Department of Technology and Society
Stony Brook University
Gang.He@stonybrook.edu
http://www.ganghe.net

EIA Energy Conference 2017
Washington, D.C.
June 26-27, 2017
What people are focusing on when talking about China’s Energy?

- World biggest carbon emitter
- World largest energy consumer
- World largest coal consumer/producer/importer
- Will China be a climate leader

- Often ignored: China achieved electricity-for-all for its 1.4 billion population in 2015
Life without electricity

Photo: http://www.nandudu.com/article/16758
What’s new?

• Largest population
• Distributed technologies
• Role of government
• Role of private companies
• Holistic strategy

Three key questions

• What China did on electricity for all?
• How China did it?
• What are the implications for global endeavor?
The ROUGH road to full electrification

• Earlier stage: foreign import
• Standard: - 97%
  • 1949-1977: Establishing a Comprehensive Management Network Vertically from the National Level
  • 1978-1997: Central Government Transferring Management of Local Electricity System to Local Government
  • 1998-2002: Promoting Commercial Operation of the Utility Market
• 2003-2015: 97% - 100%
  • 2013-2015: 99.8% - 100% (The last mile, 2.73 million population)
The last mile problem

- “Lao, Shao, Bian, Qiong” (老少边穷)
  - Old revolutionary base area
  - Minority area
  - Remote and border area
  - Poor area
- Xizang, Qinghai, Xinjiang, Gansu, Inner Mongolia, Sichuan, Yunnan
- High elevation, adverse natural condition, natural hazards (landslide, snow, frost, debris flow), no roads for transport
Lessons from the last mile

• Coordination between the central government and local government

• Appropriate technology to fit local condition and demand

• Embed electrification into other social economic development

New opportunities for global collaboration

Upgrade and renovation

One Road, One Belt

Acknowledgment and related research

- Based on the co-author paper with professor David Victor (UCSD)
- Turkana Basin Institute in Kenya
- My research group
  - Energy and development
  - Data driven energy modeling
  - Low carbon and sustainability
  - Clean energy transition
Gang.He@stonybrook.edu
www.ganghe.net
Q&A?