

The convergence of water, electricity and gas industries: Implications for PPPs and regulation

Sock-Yong Phang

Singapore Management University

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Sector Coupling. How to regulate convergence?

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Power+desalination PPP: Making headlines

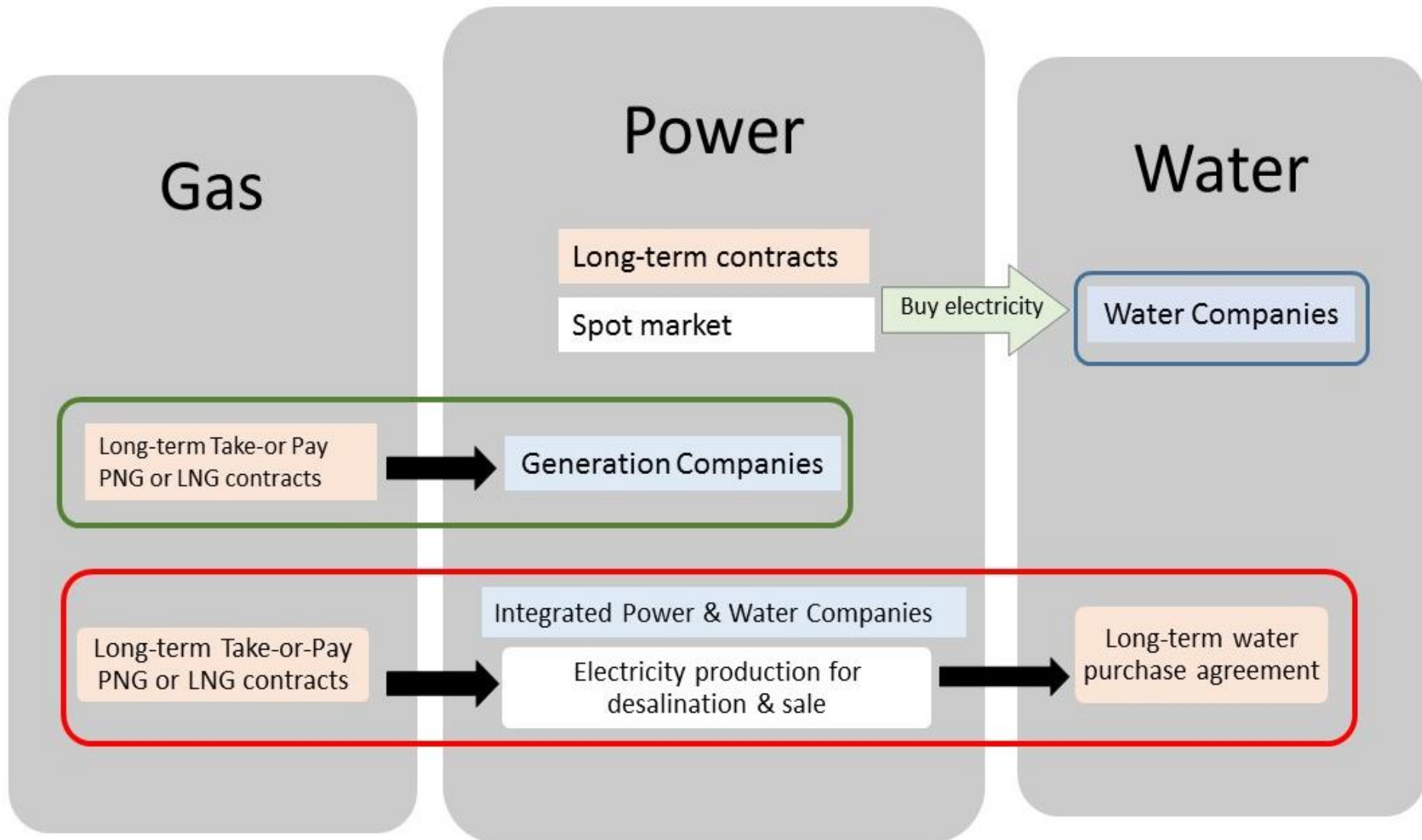
- Nearly 10,000 retail investors losing most or all of their investments, totalling around S\$520 million (*The Straits Times*, 31 March 2019)
- Bank to take over power plant; Water agency to take over desalination plant (*The Straits Times*, 15 May 2019)
- Lenders to restart process to put firm under judicial management (*The Straits Times*, 11 June 2020)

Technology: Integrating power and desalination plants has several potential benefits

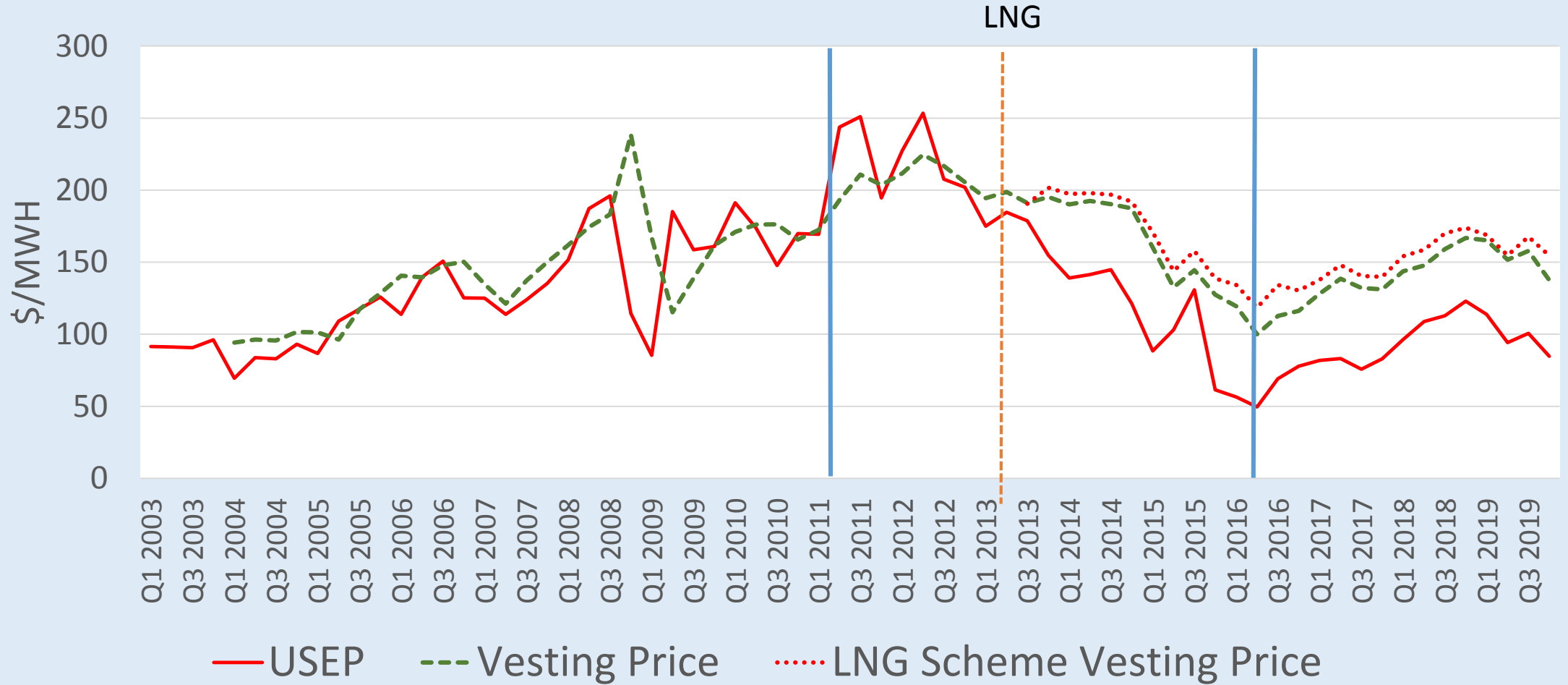
- Water intake infrastructure can be shared
- Lower emissions intensity for desalination
- Lower energy costs for desalination plus
- Revenue can be supplemented through electricity sales

Source: Andrew Reimers (2017) Technical and economic analysis of an integrated power and desalination plant in Texas <https://www.texasdesal.com/wp-content/uploads/2017/09/ReimersAndrew.pdf>

Single and multi-product firms operating in converging utility sectors



Wholesale & Vesting Prices (\$/MWH)



Source for data: <https://www.ema.gov.sg/Statistics.aspx>

Implications for

- **Multi-product integrated firms**
 - Risks of increased competition and over-capacity
 - Risks of long term take-or-pay contracts
 - Cross-subsidization risks
- **Water PPP design**
 - Multi-sector risk assessment in procurement
 - Temerity rules
 - Cross-subsidization risks
- **Energy regulators**
 - Vesting contracts as interim tool
 - Development of liquid futures market
 - Reform of NG take-or-pay contracts