Investing in the Future
Business Innovation, Transformation & Disruptions in Asia’s Energy Sector

Singapore-IEA Forum, Singapore International Energy Week

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Total energy investment was $1.7 trillion in 2016. Electricity sector investment overtook oil and gas for the first time, led by renewables, while energy efficiency was the biggest growth sector.
Grid spending is dominated by traditional lines and equipment, but digital smart grid infrastructure – with advanced connectivity and communication - now accounts for over 10% of networks investment.
35% of renewable investments now driven by competitive mechanisms, with attention to system integration, but largely have fixed pricing. Batteries (<1% grid investment) hinge on policies to reward capacity, flexibility & avoided grid costs.
Power company moves in 2017 illustrate range of strategic approaches

- **Economic stabilization and diversification** of supply
  - **Merger** CHINA SHENHUA + CHINA GUODIAN → Sembcorp → Solar C&I Holdings
  - **Transformation** Dong Energy → Ørsted
  - **Joint venture** ENGIE → UNISUN

- **Fundamental shifts** in supply towards renewables
  - **Acquisition** Enel → ENERNOC
  - **Acquisition** NEW ENERG etech → New Energy Automobiles

- **Integration** of supply with networks, flexibility, demand management and new services
Grid modernization underpinned by regulatory framework & market design

Electricity grid investment per capita versus system cost recovery ratio (most recent five years)

60% of 2016 grid investment was made in single buyer markets (e.g. China, India, SE Asia). Investment depends on regulatory models that address cost recovery, tariff design and key performance metrics.
We've tracked a steady $37 billion/year of clean energy and electricity networks R&D spending, with room for growth from the private sector. As a share of GDP, China now spends most on energy R&D.