

Experiences from the UK – clean energy education, and market reform

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- **120 academics, 250+ PhD students**
- **Policy + commercial expertise**
- **One of largest energy research institutes**



- Programme Director
- Over 12 years in UK Government
- Policies for clean energy generation, low carbon vehicles

- **Increasing electricity demand**
- **Old energy infrastructure:**
 - 20% of UK power stations closing by 2020
- **Clean energy targets:**
 - 15% renewable energy by 2020
 - 40% reduction of GHG emissions by 2030 [EU target]
 - 80% reduction of GHG emissions by 2050 [UK target]
- **Deregulated market, no state-owned utilities**
- **Need c\$150bn investment by 2020**

Current action – Electricity Market Reform

- Most radical change to UK energy market since 1980s
- Legislation: Energy Act 2013 in UK parliament
- **Why?** Pre-2013 market framework not attracting investment & finance to clean energy
- **Aim:**
 - Certainty of investment return
 - Use competition to force down clean energy cost
- **How? FiT Contract-for Difference**

Current action – Electricity Market Reform

- **All low carbon energy, not just renewables**

Today

[Wholesale electricity price: \$62-75/MWh]

- **Contract auction [Feb2015]**

Onshore wind \$125/Mwh

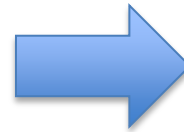
Offshore wind \$185/MWh

Solar \$77-125/MWh

- **Govn+Developer negotiation**

New Nuclear - \$145/MWh

CCS - \$tbc /MWh



2020s

**“Clean energy” contract
auctions**

i.e. technology neutral

Current action – Education + Awareness

- New CfD paid for by consumers
- Annual cost: c\$3.5bn (2014) to c\$12bn by 2020
- **2050 Pathways (DECC)** <http://my2050.decc.gov.uk/>
- UK, China, Taiwan, Thailand versions



Summary

- UK energy challenges
 - Demand
 - Old energy infrastructure
 - 80% GHG reduction by 2050
 - **Need c\$150bn investment by 2020**
- Since 2013, huge electricity market reforms
- Educating consumers on choice and need for clean energy investment