Stranded costs, legacy contracts and LT PPAs in competitive markets

May 2022
Agenda

• Need for competitive markets and issue of stranded costs
• Dealing with stranded cost and legacy PPAs
  ➢ International case study – United States
  ➢ International case study – United Kingdom
• Alternatives such as CfD
• Avoidance of stranded costs
Competitive markets and stranded costs
A vibrant wholesale power market aims to offer multiple avenues for power procurement and ensure competition

**Objectives of a competitive wholesale power market**

1. **Providing multiple avenues to market participants**
   Provide multiple options to sellers / buyers to transact in selling / buying power as per their needs:

2. **Productive & Allocative Efficiency**
   Enables production of output at least cost; Resources allocated to maximize overall benefit

3. **Dynamic efficiency**
   Incentives to make optimal decision of capacity and resource mix

4. Provide sellers an avenue to earn revenues over and above what they can earn through rigid long-term contracts
It is important to consider any expected under-recoveries of LT PPAs when they transition to competitive markets from regulated cost recovery.

**Transitioning from regulated to competitive markets require identification of unrecoverable costs from legacy contracts which would participate in markets**

**Generation costs**
- Electricity generating firms make different expenditures that are considered sunk or fixed.
- Some fixed or sunk costs are typical for a firm operating in a regulated market. These are either approved / imposed by the regulator or incurred as a result of competitive auctions.

**Reasons for ineffective markets**
- Since these costs are fixed or sunk, it is arguable that the power generation firm be allowed to recoup these costs, whatever the market structure is.
- These costs are called as **strandable costs**.

**Categories of fixed or sunk costs**

<table>
<thead>
<tr>
<th>Recoverable via the market</th>
<th>Approved by Regulator / incurred as a result of competitive auctions</th>
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<tbody>
<tr>
<td></td>
<td>Yes -&gt; Strandable</td>
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<tr>
<td><strong>Full recovery</strong></td>
<td>Not stranded</td>
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<tr>
<td><strong>Partial recovery</strong></td>
<td>Non-recoverable part is stranded</td>
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<tr>
<td><strong>No recovery</strong></td>
<td>Stranded</td>
</tr>
</tbody>
</table>
Why competitive markets may lead to stranded costs

Increasing entrants in the market lead to efficient price discovery; may lead to non-recovery of certain costs of legacy contracts

- **Regulated market**
  - It is compulsory in the regulated market to meet the market demand
  - Price is either approved by regulator or set through competitive auctions
  - **Demand is met at approved rates**

- **Liberalized market**
  - More no of low-cost entrants participate
  - Supply curve shifts to the right
  - Demand is constant and more suppliers are willing to sell in the market
  - Supply side competition goes up and hence **Market price goes down**
  - The market price may not cover all of the costs

**FC**
- Amount of money a firm has to spend to produce something irrespective of the amount produced.

**VC**
- Cost that changes with respect to the quantity produced.

Total Cost
- Total Cost = Fixed Cost + Variable Cost.

**Cost**
- Total Cost = FC + VC

**P1**
- Demand is met at approved rates

**P2**
- Market price goes down

**Q1**
- More no of low-cost entrants participate

**Q2**
- Supply side competition goes up

Difference in prices \( P1 - P2 \) represents the loss per unit of output

Legacy generators might be willing to stay in the market as stopping activity may result in bigger losses

If \( VC < P2 < FC \), there would be some stranded costs for incumbent generators
Legacy PPAs need to be given adequate protection to ensure recovery of such stranded costs.
International case study – United States
Transitioning of long-term contracts to markets – US example

*Shift to market-based operations was enabled through grandfathering of legacy PPAs*

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<tr>
<td>• PURPA act of 1978 created new market entrants viz. IPPs and QFs</td>
<td>FERC Order No. 888 marked shift to organized electricity markets</td>
<td>FERC Order No. 2000 – allowed formation of Regional Transmission Operators (RTOs)</td>
<td>States mechanism to transit LT PPAs</td>
<td>Need was felt for adequacy of generation contracting and price hedging to avoid reliability concerns or over-contracting by utilities</td>
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<tr>
<td>• 1992 Energy Policy Act – allowed emergence of non-utility / merchant generators.</td>
<td>ISOs were starting to get organized voluntarily</td>
<td>California market crisis due to high fluctuations in wholesale prices;</td>
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<td>• Emergence of private generators</td>
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- **Substantially private owned generation in US due to regulatory provisions**
- **Transition was undertaken through lengthy re-negotiations and price adders on consumer bills**

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**Components of electric charges billed to consumers**

<table>
<thead>
<tr>
<th>CTC Enacted</th>
<th>Deadline for CTC recovery*</th>
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<td>1998</td>
<td>2004</td>
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- California adopted **Competition Transition Charge** (CTC) to cover above market costs of generation assets
- Gencos received difference of Total Authorized revenues and revenue received from market

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Capacity building for ERRA 9
Electricity Regulators were mandated by policy frameworks to identify the categories of stranded assets to be recovered

**Excerpts from California Assembly Bill 1890**

Commission shall identify and determine those costs and categories of costs for generation related assets and obligations, consisting of generation facilities, generation-related regulatory assets, nuclear settlements, and power purchase contracts, including, but not limited to, restructurings, renegotiations or terminations thereof approved by the commission, that were being collected in commission-approved rates on December 20, 1995, and that may become uneconomic as a result of a competitive generation market

**Key stranded costs allowed by Commission to be recovered**

1. **Utility specific assets**
   - Net negative value of above-market assets

2. **Long-term contracts with Qualifying facilities***
   - Difference between the long-term contract price and the market price

3. **Regulatory asset**
   - Stranded costs due to accounting procedures not included in rates

4. **PX and ISO set-up costs**
   - To set up direct access, the PX and the ISO

5. **Decommissioning costs**
   - Costs of nuclear plants which were decommissioned

**Qualifying facilities:**
- Certain class of generating facilities receive special rate and regulatory treatment
- Include geothermal, renewable, installations less than a specific size as notified by appropriate Commissions and qualifying cogeneration facilities.
- Could sell energy and capacity to a utility either at the utility's avoided cost or at a negotiated rate.
Overview of Competition Transition Charge (CTC)

Price adders on retail tariffs enabled recovery of stranded costs

Recovery of stranded costs during the transition from regulated environment to market environment was done through levy of adders on consumer bills.

• Retail tariffs were frozen and no rate increase was allowed to ensure full recovery of stranded costs
• Assembly Bill AB 1890 introduced a pass-through Competition Transition Charge (CTC)
• Total stranded costs were calculated which were expected to be recovered through electricity consumers
• CTC ($ / MWh) is added as an adder in consumer bills
  ➢ CTC would change each year and the amount paid per month will vary according to electricity consumption.
  ➢ CTC will be adjusted each year to reflect disposition of utility assets and repayment of various accounts. For example, if a utility sells a power plant at a price greater than its book value, the CTC will be reduced.

Calculation of Competition Transition Charge (CTC)

\[
\text{CTC for a year ($ / MWh)} = \frac{\text{Total stranded costs}}{\text{Electricity consumption for the year}}
\]

\[
\text{Total CTC payable by a consumer} = \text{Consumption (MWh)} \times \text{CTC for the year ($ / MWh)}
\]
International case study - UK
Transitioning of long-term contracts to markets – UK example

Vesting contracts enabled protection to generators from spot price volatility

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<td>Electricity</td>
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<td>Generating</td>
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<td><strong>Electricity Act</strong></td>
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<td>for privatization and pool based market operations</td>
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<td><strong>CEGB split</strong></td>
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<td>ion Vesting Day:</td>
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<td>• National Power &amp; PowerGen – fossil fuel based</td>
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<td>• Transmission company</td>
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<td>• 12 Regional Electricity Companies (RECs)</td>
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<td>• Nuclear plants remained state owned</td>
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<td>E&amp;W pool created for mandatory participation</td>
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<td><strong>Distribution completely privatized by 1993, generators forced to divest holding to reduce market power</strong></td>
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<td><strong>Supply of electricity made fully competitive</strong></td>
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- Vertically integrated utilities & all generation assets were state owned prior to liberalization and introduction of WEMs

- Contracts for Differences signed between generators and suppliers provided for hedging of above market costs

- Generators (PowerGen and National Power) were protected through Vesting CFD contracts with electricity companies.
  - Provided **price hedges** for a fixed period (7-10 years) to protect generator margins.
  - Strike price allowed **costs of coal contracts to be passed** onto RECs
  - Ensured that **expected output** of each of the generators was **covered through contracts** with electricity suppliers
  - Ensured **difference payments** to gencos if spot prices were lower
Working of Contracts for Differences
Market based framework for protecting RE from spot price volatility - UK

**Contract for Difference (CfD) offers protection from volatility in market prices**

### Description of CfD model

- Provides **direct protection** from volatile wholesale prices
- RE power is traded/settled as usual at market prices
- Fixed “strike price” is determined through competitive auction
- Difference between “Reference Price” (average market price) and “Strike Price” is paid to/by the generator from/into a **CFD pool**
- CFD pool is funded through a **surcharge on tariff**

### How framework operates

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<td>Holds auctions and signs 15 yr CFD agreement with generators</td>
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<td>Settlement of payments by generators and suppliers</td>
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<th>Determination of Surcharge</th>
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<tr>
<td><strong>Supplier obligation levy</strong></td>
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<td>• CFD levy rate on all suppliers, in relation to their market share based on energy volumes sold</td>
</tr>
<tr>
<td><strong>Operational costs levy</strong></td>
</tr>
<tr>
<td>• Administrative Expenses of auctions are recovered through separate Operational Costs Levy on suppliers</td>
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<thead>
<tr>
<th>CFD Pool</th>
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<td>Payment to Genco from pool</td>
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<td>Payment by Genco to pool</td>
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### Description of Cfd model

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How can stranded assets be avoided?
A robust market structure with contracting flexibility and integrated resource planning can enable avoidance of stranded costs

• Market structure should enable contracting to transit away from predominantly long term PPAs to a judicious mix of contracts

• Long term contracts are necessary for new generation assets but the term of such contracts have come down in advanced electricity markets
  – In US, long term contracts have come down to 7-10 years
  – Usually, 10%-40% of procurement by utilities from long term
  – Rest is from short term contracts ranging from 3-4 years to a few days forward

• Most international markets offer multiple options to utilities to flexibly adjust their procurement portfolios through offering capacity contracts on a regular basis

• A Resource Adequacy framework is essential to ensure adequate generation capacities are available to reliably serve demand round-the-clock. An Integrated Resource Planning is the first step in determining a Resource Adequacy plan.

• Distribution companies should prepare IRPs on a rolling basis every year. This should include an optimal mix of LT / MT / ST contracts
Thank you