

# Short Run Marginal Costs and VOM Costs

MIC

June 28, 2017

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# Market Power Mitigation

- **Market power mitigation is the sole purpose of cost-based offers in PJM.**
- **Competitive prices are the goal of market power mitigation.**
- **Competitive prices = short run marginal cost.**

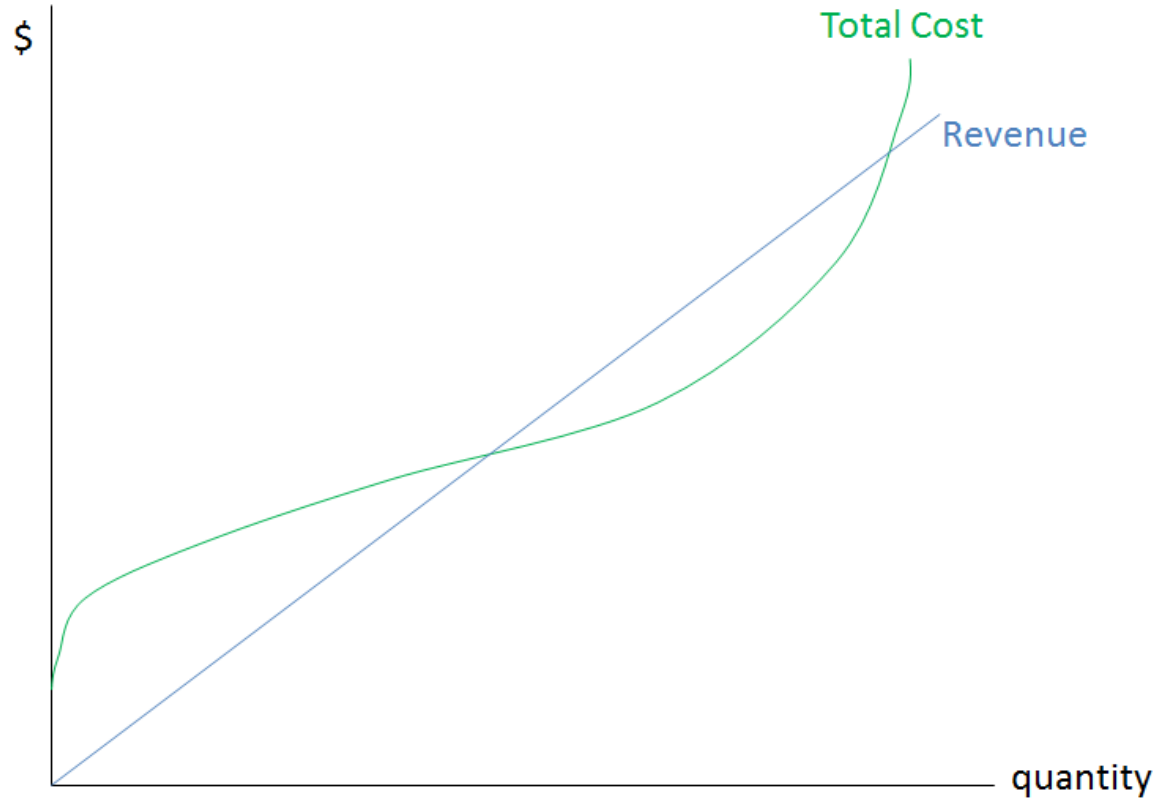


# Short Run Marginal Cost

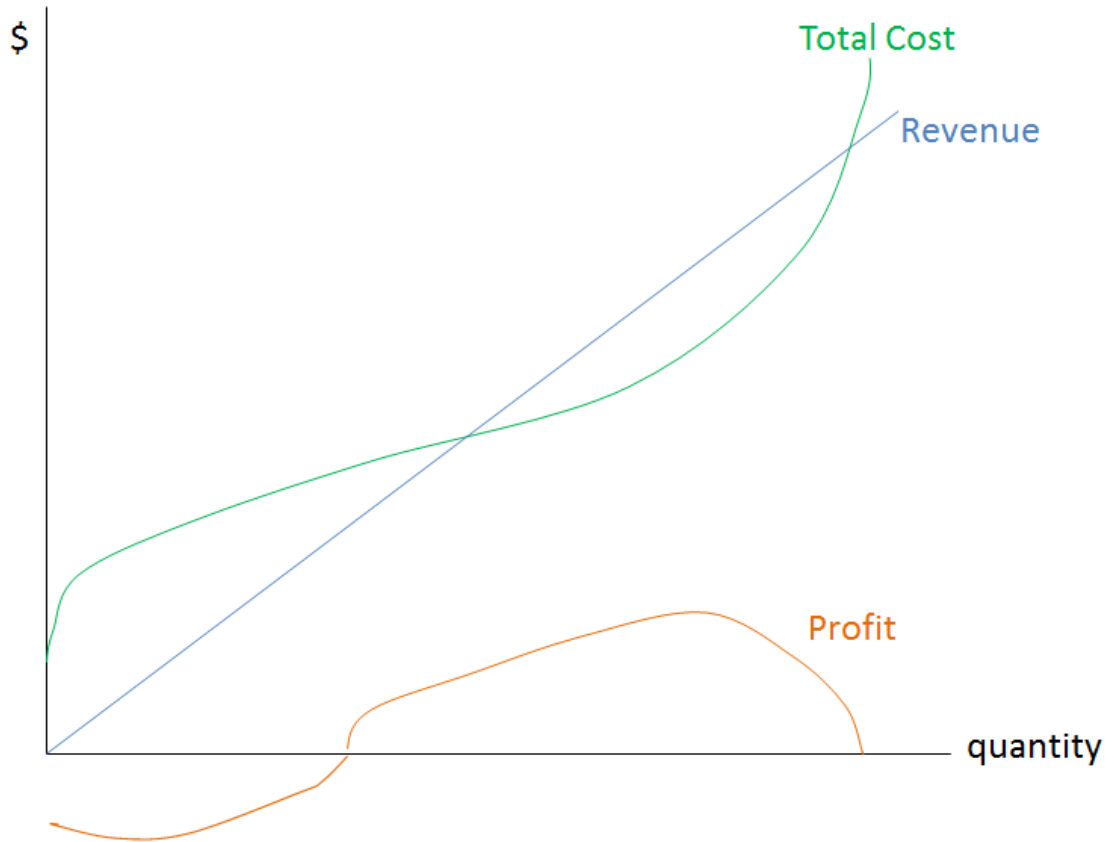
- **In a competitive market,**
  - **Sellers cannot strategically change the market price,**
  - **Sellers are always most profitable when selling all output with  $SRMC < Price$ ,**
  - **Any deviation, more or less, reduces profitability.**



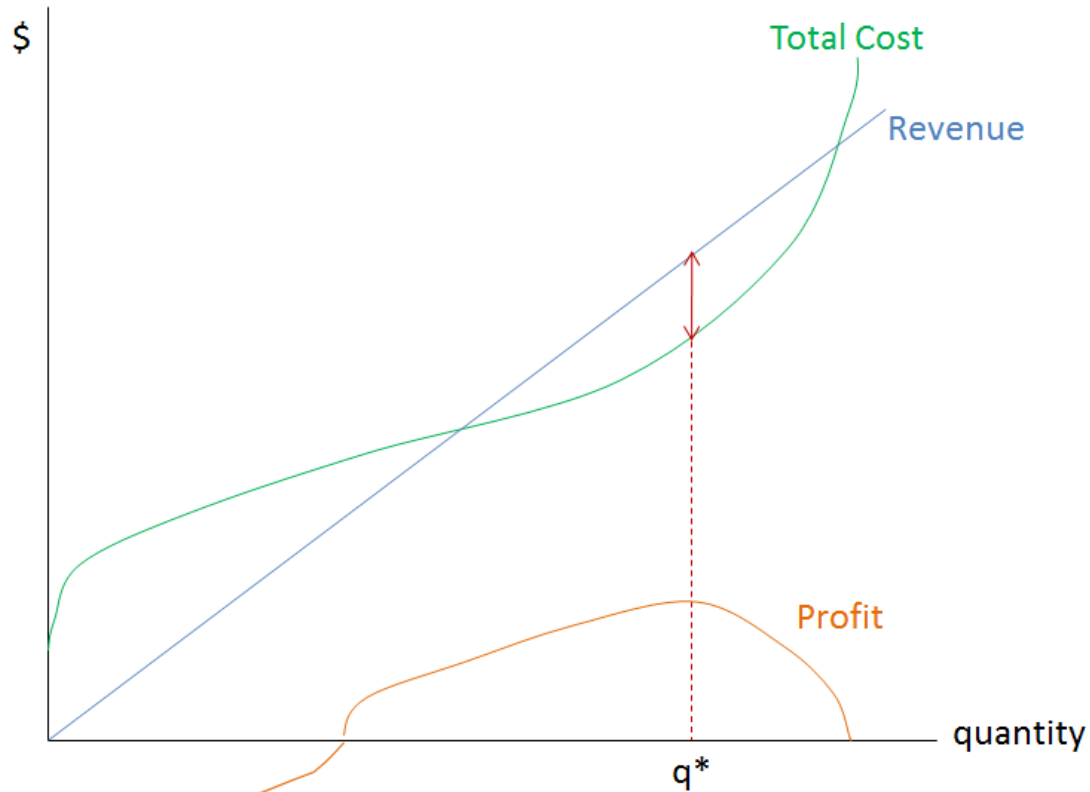
# Profit Max Graphically



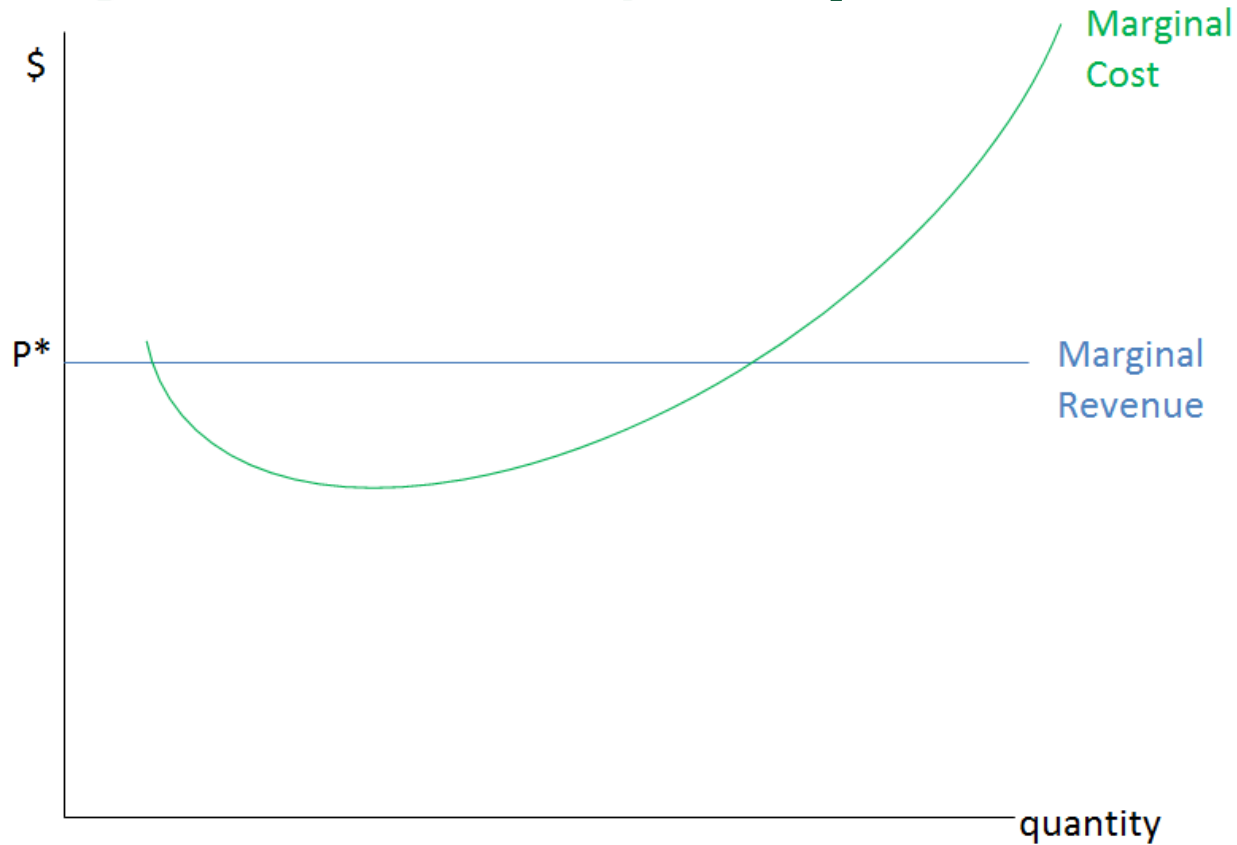
# Profit Max Graphically



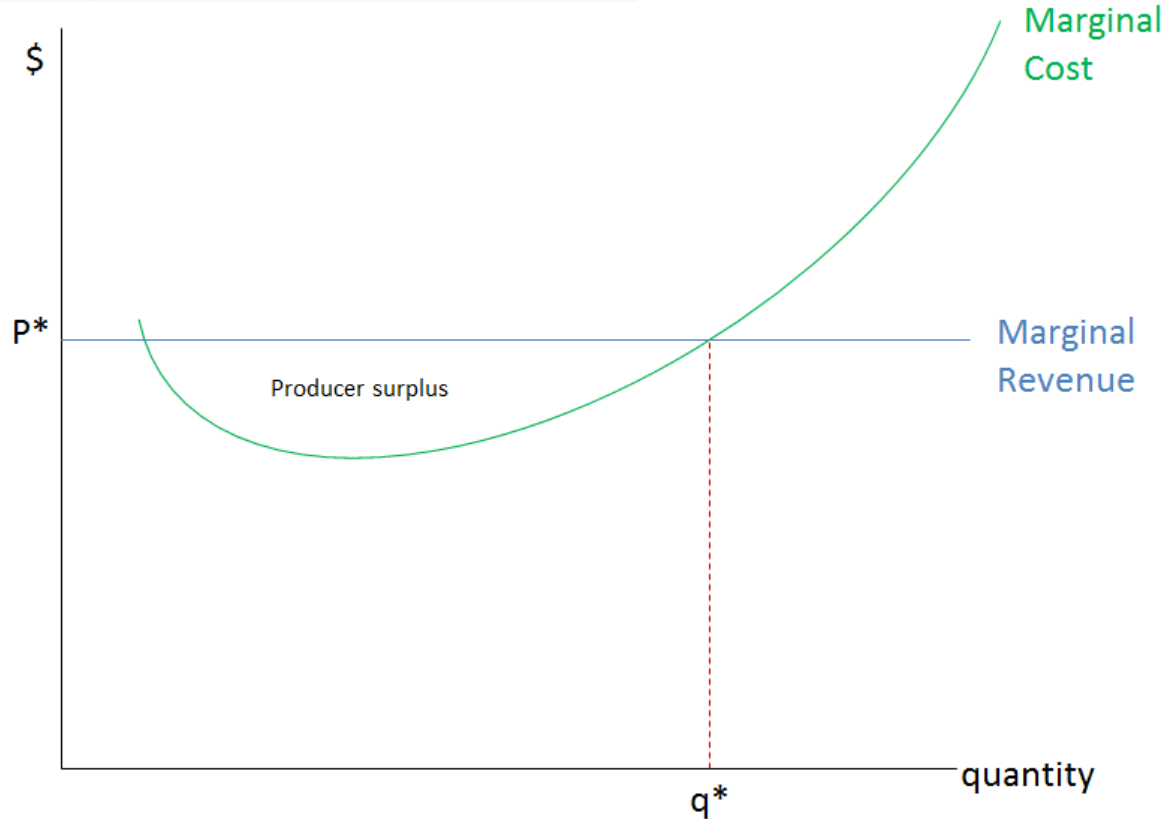
# Profit Max Graphically



# Profit Max in Slopes

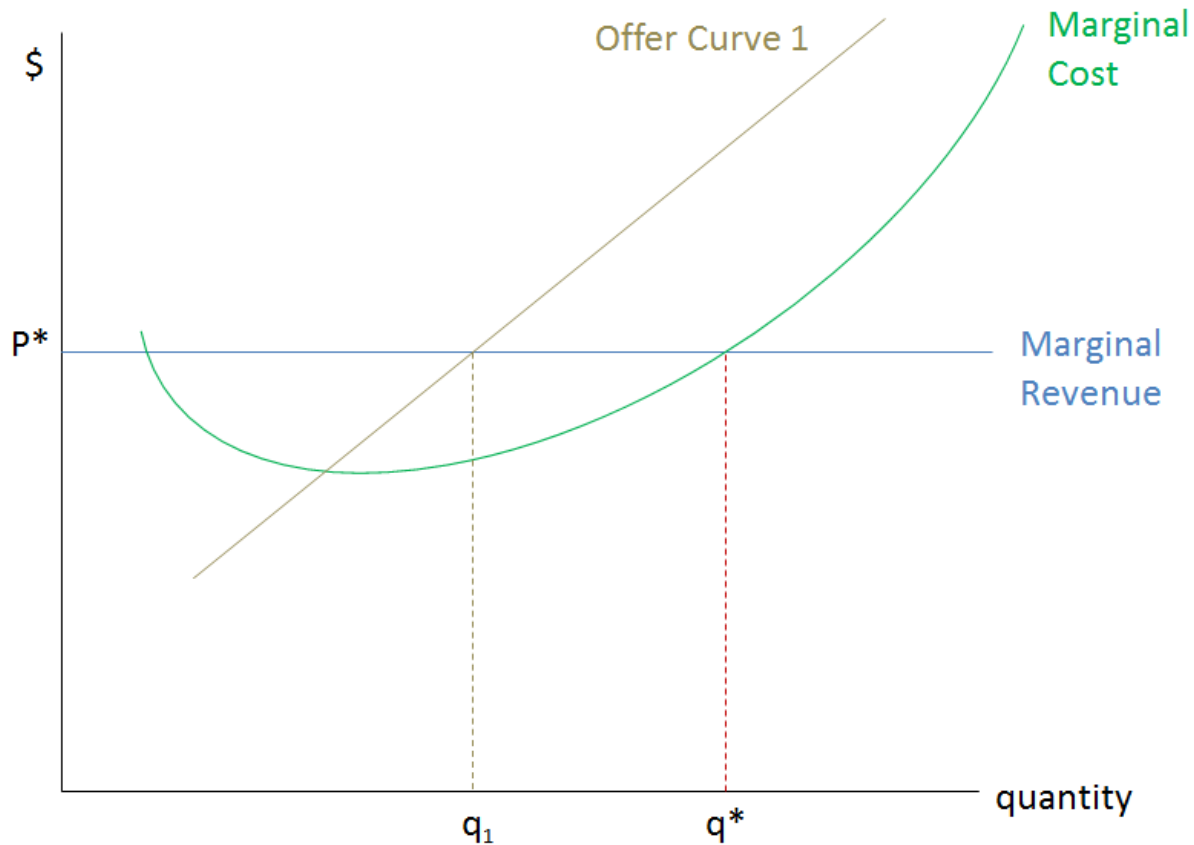


# Profit Max in Slopes

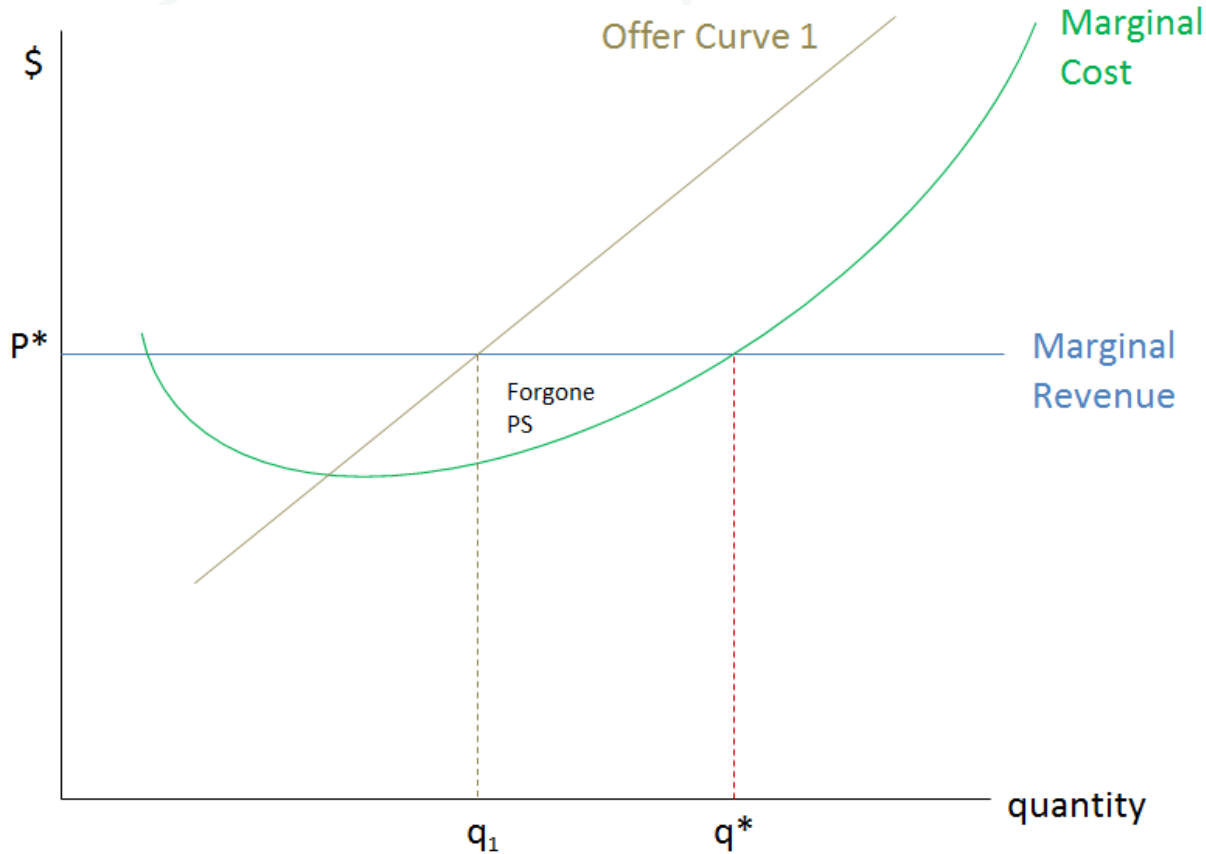




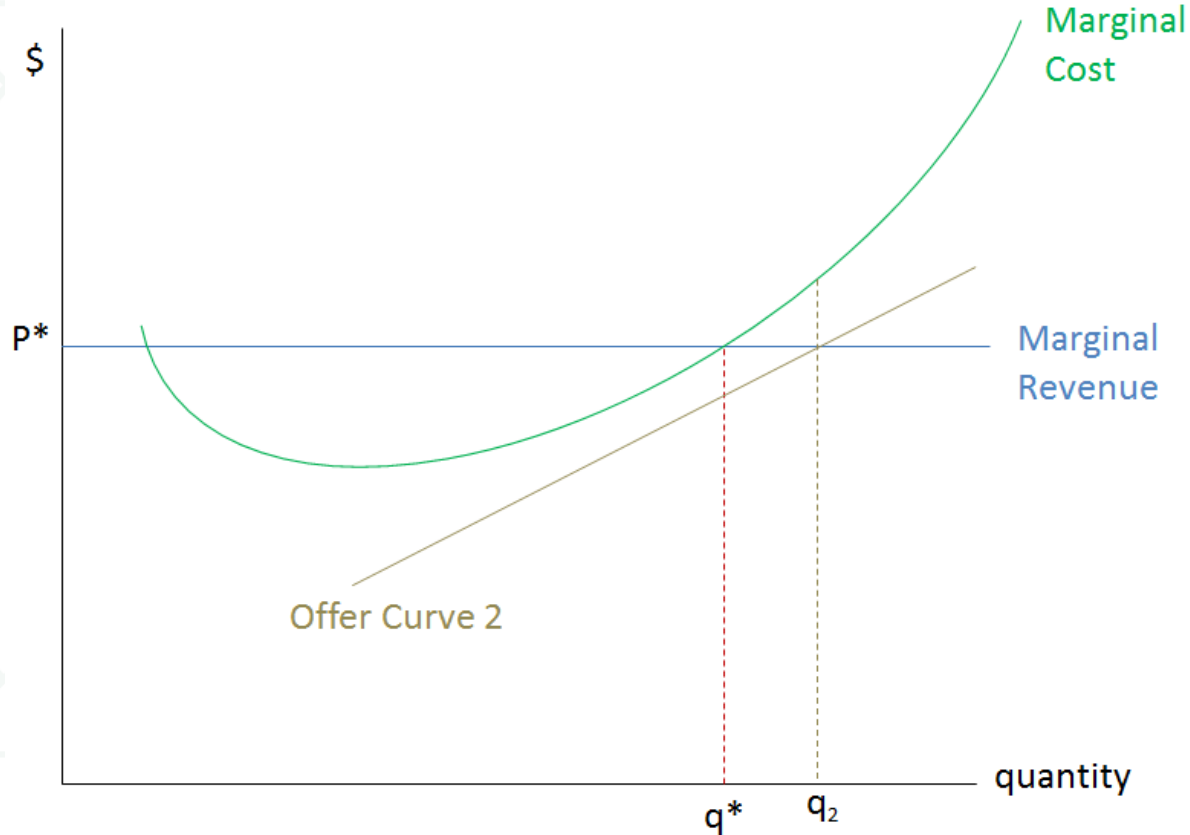
# Deviation from Profit Max Solution



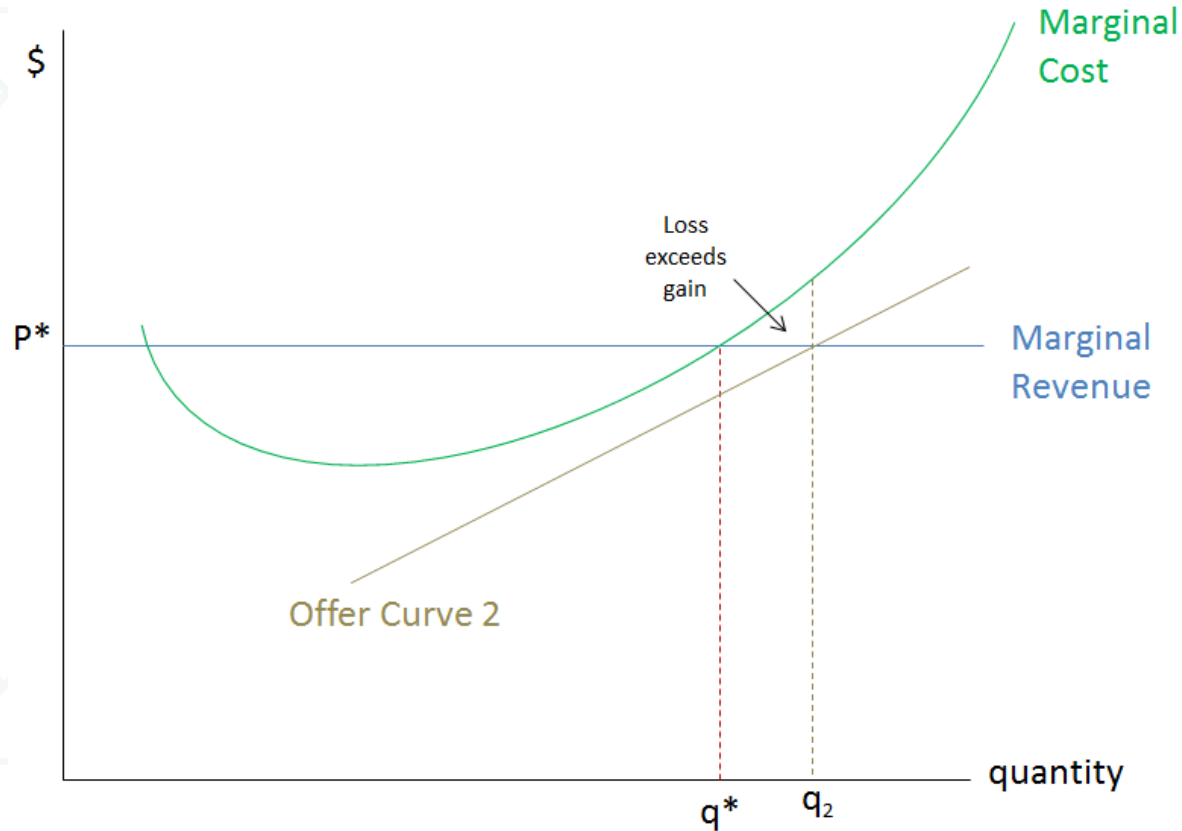
# Deviation from Profit Max Solution



# Deviation from Profit Max Solution



# Deviation from Profit Max Solution



# Short Run

- **Most costs are fixed, not marginal, in the short run.**
- **In the market time frame, day to day, hour to hour, a generator cannot**
  - **build a plant,**
  - **arrange firm fuel delivery contracts,**
  - **hire a new worker,**
  - **repair a tube leak,**
  - **change a turbine blade.**



# Market Power Incentives

- **Market power creates the ability and incentive to raise price above SRMC.**
- **Market power mitigation uses SRMC to replace the price offer in the presence of market power.**
- **A competitive outcome cannot be expected with market power unless cost offer = SRMC.**
- **Every generator in PJM has an incentive to define cost offers exceeding SRMC to create offer flexibility for the scenario where they have market power.**



# Inefficient Consequences

**Exercises of market power have unnecessary, inefficient market consequences relative to an efficient market outcome:**

- **Higher prices**
- **Higher congestion costs**
- **Higher uplift costs**
  - **Higher make whole payments**
  - **Uneconomic commitments to relieve constraints**
- **Lower prices on the opposite side of constraints**

# VOM Costs

- **Only short run marginal costs should be included in cost offers.**
- **Some operating costs are short run marginal costs. Examples of eligible short run marginal operating costs are water, water chemistry, emission control reagents and lubricants.**
- **Maintenance costs are avoidable costs, and not marginal costs, including repairs, inspections, overhauls, or routine maintenance.**





# VOM Costs

- **The method used by maintenance providers and manufacturers to charge for maintenance related services does not change the nature of the cost.**
- **For example, LTSA costs charged in \$ per hour or \$ per peak fired hours**
- **The costs remain not short run marginal costs. The costs are incurred to maintain the availability of the unit.**



# VOM Costs

- **This issue is exacerbated by the lack of clarity in the tariff regarding the inclusion of these costs in avoidable costs (ACR) in the capacity market and the lack of a clear definitions of operating and maintenance costs in Manual 15.**



# O&M Related Rules

- **RPM ACR Components:**
  - AOML (Avoidable Operations and Maintenance Labor): Avoidable labor expenses related directly to operations and maintenance of the generating unit.
  - AME (Avoidable Maintenance Expenses): Avoidable maintenance expenses (other than expenses included in AOML) related directly to the generating unit
- **ACR excludes costs recoverable via cost-based offers.**



# O&M Related Rules

- **Schedule 2 of the OA lists:**
  - **Incremental maintenance costs**
  - **Incremental labor costs**
  - **Other incremental operating costs**
  - **Maintenance adder (Added in PJM's hourly offer compliance filing.)**



# O&M Related Rules

- **PJM compliance filing defined maintenance adder as “an adder that may be included to account for variable operation and maintenance expenses in a Market Seller’s Fuel Cost Policy. The Maintenance Adder is calculated in accordance with the applicable provisions of PJM Manual 15, and may only include expenses incurred as a result of electric production.”**

# O&M Related Rules

- **Manual 15:**
  - **Variable maintenance cost is the parts and labor expenses of maintaining equipment and facilities in satisfactory operating condition.**
  - **Some sections of the manual refer to incremental costs and some sections do not.**
  - **Long Term Maintenance Expenses - Combined Cycle Plant major inspection and overhaul expenses are not includable in cost-based offers.**
  - **Operating costs are not mentioned.**



# Manual 15

- **Manual 15 defines cost offers for PJM resources.**
- **Manual 15 was not written with competitive markets in mind.**
- **Manual 15 lacks key information required to develop cost offers.**
- **Manual 15 should be rewritten to support cost offer development based on competitive market economics and current best practices.**



# VOM in Manual 15

- **The M15 cost calculations primarily use FERC accounting cost categories that do not correspond to SRMC or the best cost calculation practices of PJM generators .**
- **Even though long term maintenance is correctly not includable in cost offers for CCs and CTs, the VOM calculations in M15 use cyclic starting and peaking factors for CTs that were designed by OEMs for allocating maintenance costs.**



# VOM in Manual 15

- **Operating costs that qualify as short run marginal costs are not explicitly addressed. For example, fuel handling, ash disposal, chemicals, lubricants and consumables in general.**
- **M15 should include provisions that specifically discuss operating costs for consumables other than fuel.**



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