The Future Of Independent Power Producers

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PURPA: The beginning of independent power

- Independent power can be traced to the federal Public Utilities Regulatory Policy Act (PURPA) enacted by Congress in 1978.
- The Act was prompted in large part by national security concerns brought on by the first Arab Oil Embargo.
- PURPA's authors sought to diversify the nation's energy sources and increase energy efficiencies.
- PURPA also ended regulated electric utilities' monopoly over power generation. It created a new category of actors, enabling private businesses to produce electricity independently of traditional utilities.
- The utilities were directed to purchase what the independents produced at prices based on the marginal cost of new generation as established by state utility commissions

Energy Policy Act

- The Energy Policy Act of 1992 (EPAct) filled in the competitive outline sketched out in PURPA.
- EPAct further unraveled the vertically integrated utility, lowering electric utility service costs throughout most of the country.
- The federal initiative launched an open wholesale power market, authorized transparent transmission service, and spurred private investment in wind power.
- EPAct's impact has been profound although features of its vision remain unfulfilled.

What is an IPP?

- Before discussing the future, the question to be asked is: What is an Independent Power Producer (IPP)?
- Wikipedia defines and IPP as:
  - An **Independent Power Producer** (IPP; also: **Non-utility generator** (NUG)) is an entity, which is not a public utility, but which owns facilities to generate electric power for sale to utilities and end users.[1] NUGs may be privately held facilities, corporations, cooperatives such as rural solar or wind energy producers, and non-energy industrial concerns capable of feeding excess energy into the system.[2]

Growth of IPPS

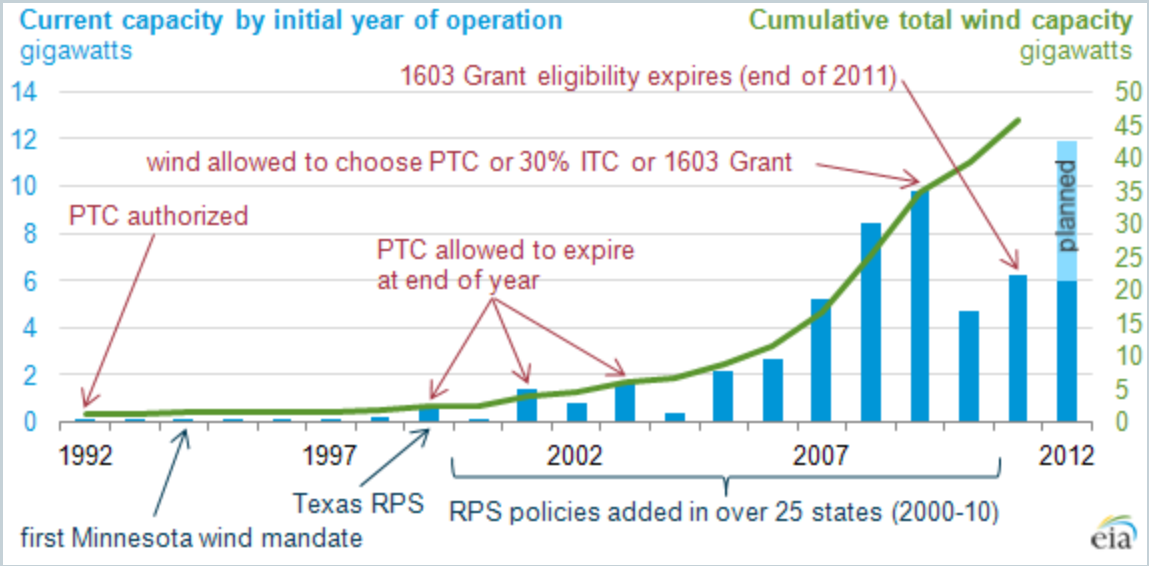
- Under EPAct, the independent energy industry grew dramatically. By 2002, ten years following passage, independent producers operate roughly one-third of the nation's power plants. The output from these facilities is either sold to utilities under long term, bi-lateral contracts or sold directly onto the wholesale market.
  - Independent power producers built their market share by developing power plants for less than the utilities could. When state utility commissions opened development to authentic competition, IPPs bid intensively against one another and against the local utility.
  - The IPPs put all types of fuel to use, including renewable energy sources, especially favoring the cleanest and most efficient form of thermal electric conversion: combined cycle combustion turbines (CCCTs) fired with natural gas.
    - IPPs were responsible for commercializing wind energy and making it what it is today: the leading new source of power generation in the world.
    - IPPs were responsible for the early efforts in solar energy.

Renewables – Wind Energy

The IPPs pushed for incentives for certain types of power (Renewable Energy Credits (State Level) and Federal Level (PTC or Grants)).

Wind Energy is a prime example!

The Incentives Allowed for the Market Expansion of Wind Energy



- **Source:** U.S. Energy Information Administration, Annual and Monthly Electric Generator Report.
  Note: Click to enlarge.
  Note: Data for 2012 planned additions are based on industry data submissions and monthly updates on planned wind facilities. Left-hand axis plots current capacity of existing generators by their initial date of operation. Capacity may change over time as generators are altered. For recent years, these data are synonymous with capacity additions. Early in the time period, this data series may be missing generators that have since retired.

IPPS

- Power plant development is a risky business.
  - It is not unusual for an independent power plant developer to invest millions of dollars before receiving the permits required for the project's construction and operation.
  - And if the project isn't built either because the developer failed to secure the necessary permits, or because the project can't secure
- The IPPs' unique role is to accept the development, permitting, financing, and operational risks of power generation.
  - By taking these risks, IPPs
    - funded by private investment dollars
    - relieve utility ratepayers from assuming them.
  - The result has been that the costs of electric power have declined by 35 percent as a result of EPACT.(2)
  - The independent power industry has made -- and continues to make -- its contribution financing, then the developer has nowhere to turn to recover costs.

(The above points were made by EIA.)

The Future

- The Future is tied to having a non-regulated electric generation market. Ideally, a truly free market place!!!!
- The Future has two basic components:
  - New Generation
  - Existing Generation
- Since a truly free market place is not going to happen, the future will be tied to a combination of a “market place generation” and a “market mandated generation” via statue and regulation.

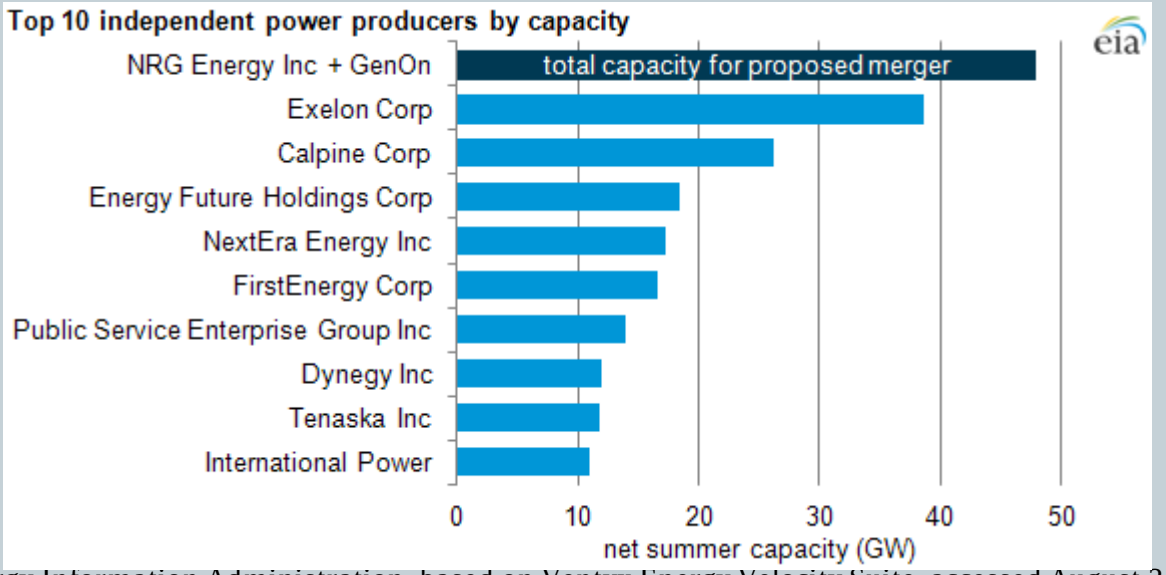
Why?

- Federal and State Laws establishing requirements for
  - renewable energy credits
  - tax credits or economic incentives for specific types of power generation
  - access to the grid (at reasonable costs)
  - environmental performance/requirements

Impacts

- The legislative and regulatory requirements provides incentives that provides certain types of power generation economic advantages over others (picking winners and losers by default)
- The Environmental regulations will have significant impacts on existing and future generation
  - determining if a plant continues to operate or closes
  - determining the energy source of new plants
- These impacts will determine new generation as well as what existing generation remains

Who are the top 10 independent power producers by capacity?



- **Source:** U.S. Energy Information Administration, based on Ventyx Energy Velocity Suite, accessed August 2012.

The Top 10 vs. The Other IPPs

- The Top 10 is a mix of Utility developed Power Plants and Non-Utility developed Generation.
- However, the IPP Industry was developed based on either being a cogeneration facility or a small power production facilities. These Plants were limited in size by FERC. In addition, the small power production facilities were limited to what fuel they could use or not use.

What does the future hold?

- Without economic growth, the demand for power is relatively flat.
- The potential loss of tax incentives for alternative energy lessens the probability of new generation in these areas.
- Without Power Purchase Agreements, the capital needed to finance new projects is significant. (Thus putting more money at risk if the facility is not economically viable.)

Future for existing facilities

- The future is uncertain.
- These plants are small in terms of electrical output.
- Demand and Pricing are (in most cases) significantly lower than what was anticipated when these plants were developed.
- Regulatory risks have increased significantly imposing significant costs.

Future

- The forward curves developed to project the cost of power and costs of fuel represent educated projections (but are projections!).
- The power market is controlled to a large extent by the Utility.
- Power Marketers have made some in roads into the Utility Sectors market.
- But the **“Power Marketers”** have become the non-regulated arms of Utilities and Generators.

Future

- Equity requirements for FINANCING new projects are now significant.
  - In the past, the equity and financing were tied to PPA
  - Today, a PPAs are few and far between. Thus, IPPs are operating in the day-ahead markets (bidding their power/price).
  - The Renewable Energy Power Producers are more likely to obtain a PPA from a Utility than other power producers

Future Uncertainties

- Regulatory Impacts
  - Air
    - MATS/Boiler MACT
    - CSAPR (future)
    - NAAQS
    - NSPS
    - GHG
  - Water
  - Waste Management
- Taxes
  - Carbon Tax
  - Tax Incentives
  - Renewable Energy
- Other
  - Carbon Tax
  - Tax Incentives
  - Renewable Energy
  - Regulated-Deregulated- and maybe back to Regulated?
  - Grants

Future Uncertainties

- Fuel Costs
  - Natural Gas
    - Increased regulatory impacts on fuel development and delivery
    - Consolidation of the Industry (Shale Gas and Oil)
    - Depressed natural gas pricing for short term
    - Expansion of gas market
  - Coal
    - Coal Plants being decommissioned represents lost market share
    - Increased costs for new coal fired plants
    - Cost of coal ($/MMBTUs)
    - With decommissioning/retiring of the coal generation fleet, demand for coal will decreased (especially steam coal)
    - If gas prices approach or exceed $5 MCF, coal could be come a viable fuel option, but the cost of coal could increase significantly!
- Trained Manpower
- Power Pricing and Demand

Another Type of IPP

- The concept of “TOLLING” has created a slightly different approach to power generation.
- An IPP Facility is developed, financed, constructed, and operated based on a concept of “Tolling” by which a 3rd Party takes the energy risk associated with the fuel and the sell of the power.
- IPP facility makes a guaranteed return on its investment and must be in a position to operate on demand!

Who is contracting for the tolling?

- Oil and Gas Industry
  - With the consolidation of the oil and gas shale industry, these Companies are seeking short and long term markets for their gas.
  - A Tolling arrangement allows the Company to distribute their gas in the form of electricity with the sales going to the themselves, the grid, or other end users.
  - Tolling can allow for indirect control over power generation from sources not generating with gas and are not renewables.

Summary

- The near term future is subject to a wide range of issues that create uncertainty.
- The issues are tied to legislation and regulations.
- Ultimately, there needs to be a period of stability and certainty insuring economic growth which may only be achievable thought legislative change!
- The legislation and regulations will set the playing field for selecting winners and loosers
- There needs to be a real mix of energy sources (fuel) to prevent significant increases in long-term pricing of power (electrical). [Prior to deregulation, this was accomplished through the State Public Service/Utility Commissions.]

Summary (continued)

- There will be opportunities for new IPP facilities.
- In some cases, the developers of these projects will be placing educated bets on the success by predicting more accurately how the energy markets will perform based on their forward projections for :
  - The cost of power
  - The cost of fuel/energy to generate the power
  - The cost of future environmental compliance
  - The performance of the technology to be utilized