
COMAR 26.11.36
Distributed Generation
Maryland Department of the
Environment

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Distributed Generation in MD

- Upwards of 3,000 BUG installations in MD per Exeter report 2008.
 - Most are diesel-fired and uncontrolled
 - Most used only for true emergencies
- Approx. 1,100 BUG registered in MDE permit system
 - 5% run on Natural Gas



Electricity Market

PJM is the RTO –
Regional Transmission
Organization - that
coordinates the movement
of wholesale electricity

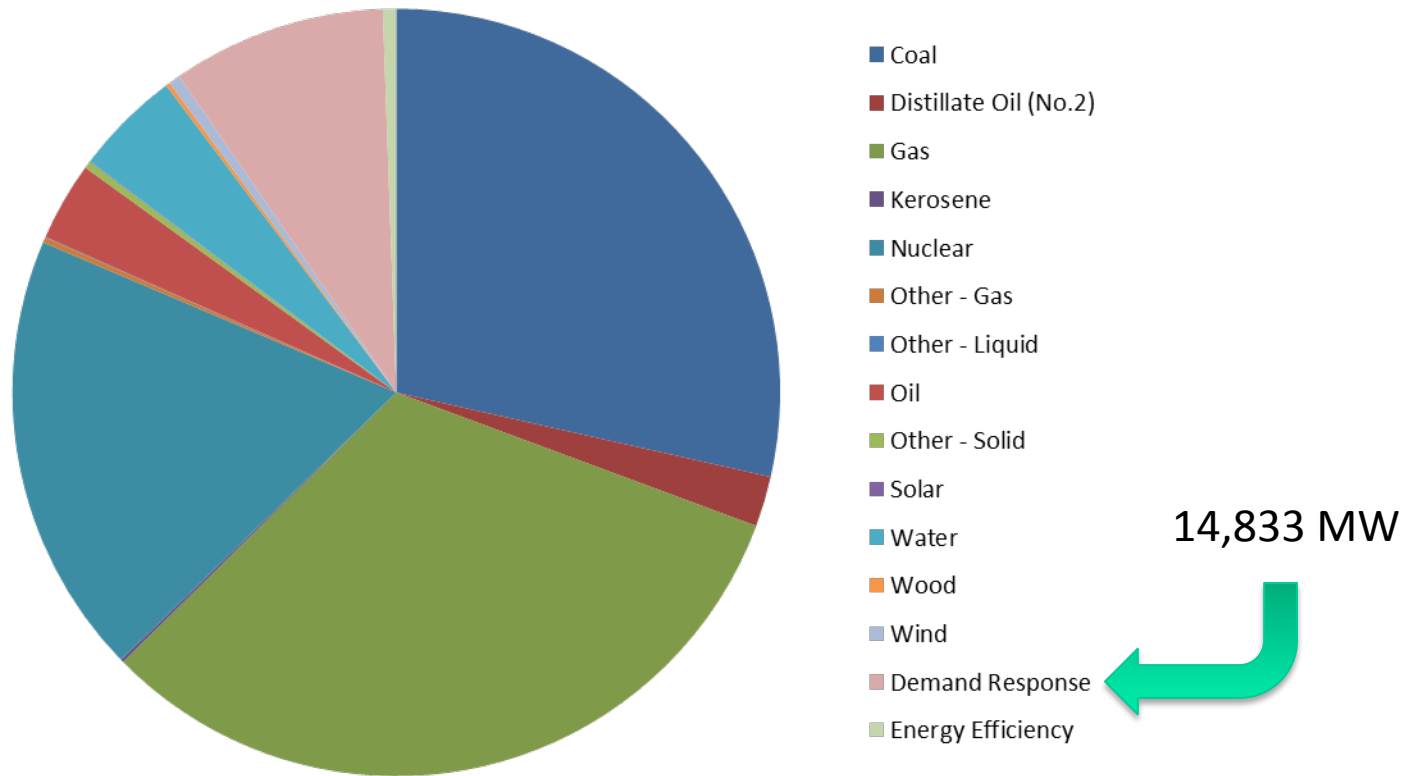


CSPs are PJM members which enable facilities to participate in the energy market, through demand response programs.

Maryland supports EE, Renewable Energy Sources, DR but needs to understand full impact on the future air quality and electricity reliability.

Forward Capacity Example – Peak Demand Hour

**Cleared Capacity for 2015/2016 in the
Most Recent PJM Auction**



Total 164,561 MW

Demand Response

PJM describes DR as:

"Demand Response is a consumer's ability to reduce electricity consumption at their location when wholesale prices are high or the reliability of the electric grid is threatened.

Common examples of demand response:

- raising the temperature of the thermostat so the air conditioner does not run as frequently...
- slowing down or stopping production at an industrial operation or dimming/shutting off lights...
- basically any explicit action taken to reduce load in response to short-term high prices or a signal from PJM."
- **Run a generator behind the meter to support facility operations.**

Curtailment Service Providers

CSPs are PJM members which enable facilities to participate in the energy market, through demand response programs.

Demand Response can be an through an economic or emergency program, registered through a CSP in an energy or capacity market.

- The Maryland PSC has new requirement for CSP license by Nov. 8, 2012.



Maryland DG Regulations

- COMAR 26.11.36 NO_x limitations on generators running for other than emergency = load shaving.
- 1.4 g/bhp-hr for load shaving.
- Can replace an old engine with a new.
- Can limit run time to 10 hours maximum.
- Can purchase NO_x allowances to offset emissions.
- PJM Emergency = emergency and excluded from load shaving.
- COMAR 26.11.02 – Permit required for engines 500 hp or above.

CSP Programs

- Emergency follows PJM Manual 13, avoid black-out. MDE supports BUG use for emergency.
- All extended emergency programs, economic programs using terms such as synchronized reserves and day ahead energy, peak shaving, load shaving ect. should be controlled as other power sources in the market.
- Some States have chosen no DR program without controls.





CSP Regulation Overview

- MDE requires distributed generator activity to support emission modeling.
- MDE desires curtailment activities for energy efficiency planning.
- PJM identifies 51 CSPs that are licensed to operate in Maryland.
- MDE regulates CSP for report information, and facilities, that own and operate generators, are responsible for permits and emissions

CSP Regulation

Annual Report

- (1) The name and address of each participating facility and the telephone number and name of a contact person;
- (2) The identification of each participating engine at the facility including:
 - (a) The registration number assigned by the Department for each engine and its rated capacity in horsepower and kilowatts;
 - (b) The manufacturer and model;
 - (c) The installation date;
 - (d) The type of fuel used in each engine;
 - (e) A copy of or the mail log number associated with The Public Service Commission of Maryland Certificate of Public Convenience and Necessity (CPCN) Exemption; and
 - (f) The PJM Interconnection, LLC utility zone for the participating facility;

CSP Regulation

- (3) A description of the demand response program for each participating engine, i.e. whether it is an economic response program or an emergency response program;
- (4) The date(s) on which each engine was requested to operate during the year and the hours of operation on each date including:
 - (a) The reason for operating the engine under a demand response program i.e. whether it is an economic response program or an emergency response program;
 - (b) The starting and ending times when each engine was requested to operate as called for by the CSP; and
 - (c) The total kilowatt hours of generation during each demand response operation;
- (5) A list of curtailment activities at each participating facility and the total hours of curtailment as called for by the CSP; and
- (6) A brief description of any significant increase or decrease in the total hours of demand response operation compared to total operation during the previous year.

CSP April 2012 Reports

- Six companies submitted a report
- 900 Facilities
- 400 engines, approximately $\frac{1}{2}$ have identified a MD registration number
- Approx. 26% of facilities used BUG
- Approx. 1% of contracts were for Economic therefore 99% Emergency DR = Limited PJM program





CSP 2011 Data

- One emergency event across all zones on May 31, 2011. Second event in BGE zone (and outside MD) July 22, 2011.
- 400 engines, average size 750KW running for 6 hour event = 20 Tons of NO_x (for one day event, remainder of the year only maint. & test)
- Use 21.8 lb/MW_{hr} = 7.4 g/bhphr
- Potential for 3,000 engines in all of the State to run = 150 Tons [extreme in Maryland]

Range in ICE emissions

- Existing engines – interim emission rate proposed by OTC
1.36 g/hp-hr NO_x, 0.65 g/hp-hr HC, 3.5 g/hp-hr CO, 0.24 g/hp-hr PM
- New engines – meet Tier 4ii EPA rates
0.67 g/hp-hr NO_x, 0.19 g/hp-hr HC, 3.5 g/hp-hr CO, 0.015 g/hp-hr PM
- New engines using waste, landfill or digester gases
0.75 g/hp-hr NO_x, 0.24 g/hp-hr HC, 3.4 g/hp-hr CO

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