

Green Power Products

IRMA Energy Summit

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Types of Products

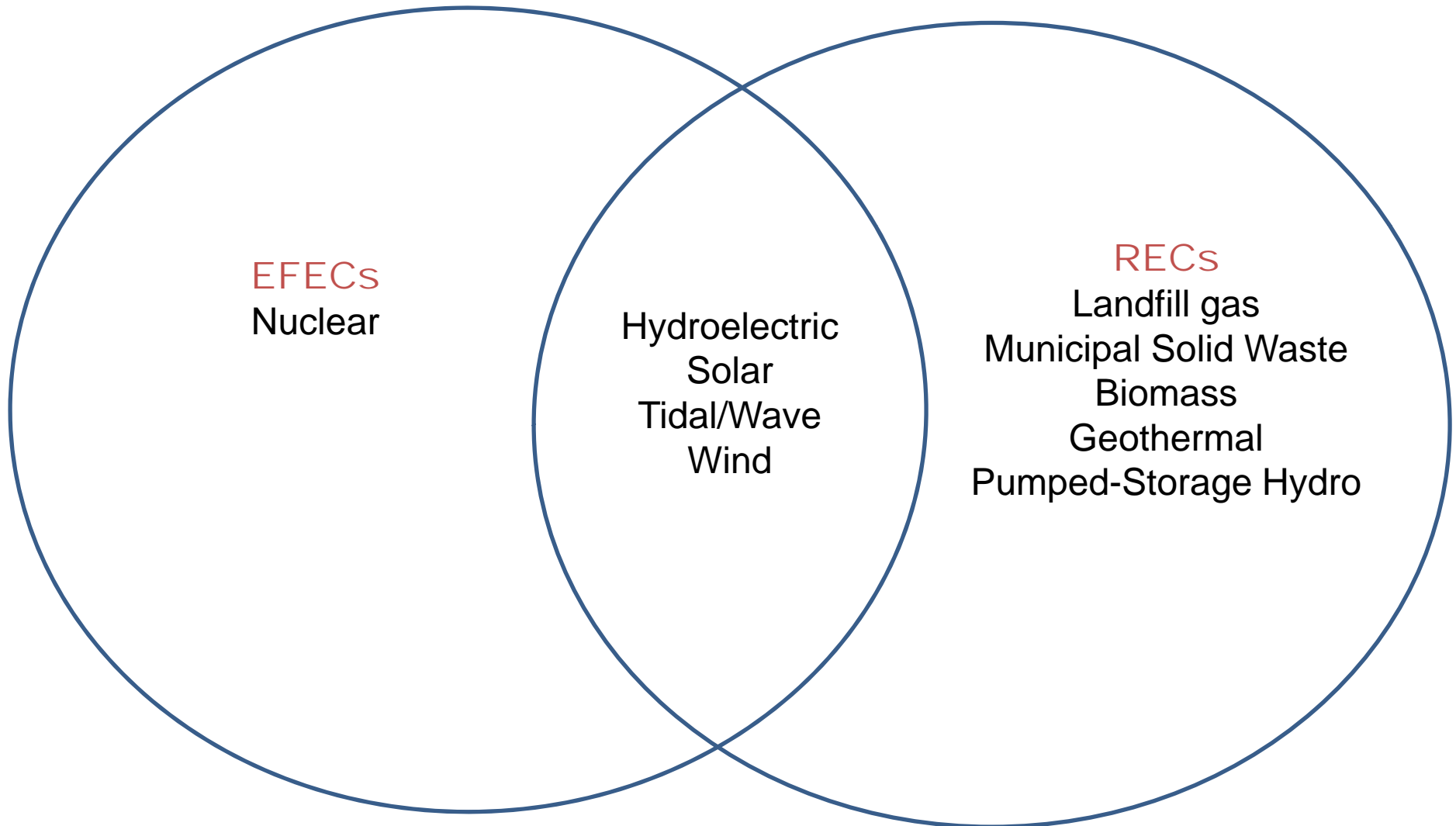
- Renewable Energy Certificates (RECs)
 - Voluntary market
 - Involuntary market
- Emission Free Energy Certificates (EFECs)
 - Voluntary market

Definition of a REC

- Renewable Energy Certificate (REC): A certificate from an electric generating unit that produces power from a renewable source. Eligible fuel types include new and existing: Solar Photovoltaic, Solar Thermal, Wind, Hydro, Landfill Gas, Geothermal, Biomass, Tidal Energy and Wave Energy. One REC represents the environmental attributes made available by the generation of one MWh of electricity from a renewable source.

Definition of an EFEC

- Emission-Free Energy Certificate (EFEC): A certificate from an electric generating unit that does not directly produce any air emissions (sulfur dioxide, nitrogen oxide, or carbon dioxide) as reported in the PJM Environmental Information Services - Generation Attribute Tracking System. Eligible fuel types include new and existing: Solar Photovoltaic, Solar Thermal, Wind, Hydro, Nuclear, Tidal Energy and Wave Energy. One EFEC represents the environmental attributes made available by the generation of one metered MWh of electricity from an emission-free source.



REC or EFEC

- Produced from a renewable source and an emission-free source
 - Hydroelectric, Wind, Solar, Tidal/Wave
- Produced from a renewable source, but not an emission-free source
 - Landfill gas, Biomass, Geothermal, Municipal Waste, Pumped Storage Hydro
- Produced from an emission-free source , but not a renewable source
 - Nuclear

- A certificate may qualify for both an EFEC and a REC. However, the attributes of each MWh are inseparable and can only be counted once.

- The holder decides how the certificate will be claimed.

Green Product Tracking in PJM

- RECs and EFECs are tracked by the Generation Attribute Tracking Systems (GATS). The GATS is a regional information system, owned and managed by PJM-Environment Information Services, that tracks the environmental attributes of generation and supports reporting, compliance and verification requirements related to environmental compliance and related markets. The GATS also provides state agencies with verification for Renewable Portfolio Standard (RPS) policies.

REC Classification

- Geographic location of production
 - Ex. PJM, MISO, ERCOT, Illinois, Iowa, South Dakota
- Renewable source
 - Ex. Hydro, Wind, Solar, Landfill Gas
- Tracking System
 - Ex. PJM GATS, MISO MRETS
 - Green-e (not affiliated with an RTO)
- Vintage
 - Ex. Produced in the 2009 planning year
- Renewable Portfolio Standard (RPS) laws will specify criteria

Involuntary REC Market in Illinois

- Illinois Clean Coal Portfolio Standard Law was signed in 2009
- 4% of load beginning in June 2009
- Ramping up to 25% by 2025
- RECs must be produced in PJM or MISO
- Minimum 60% wind in 2009, 6% solar in 2015
- Procurement and reporting of RECs are responsibility of the Load Serving Entity

Direct vs. Life-Cycle Emissions

- Only the direct generation process of a generation facility is considered when applying the “Emission Free” designation. All generating facilities (including wind and hydro) produce greenhouse gases when considering the entire life-cycle of the plant. Life-cycle emissions include emissions associated with the construction of the plant, mining and processing the fuel, routine operation of the plant, disposal of waste byproducts, and decommissioning.

Exelon Energy Green Products (Voluntary)

- Offer RECs and EFECs based on a percentage of actual usage
- Paper certificate provided up-front based on estimated load
- Actual certificates are retired in GATS under customer's name

Annual Benefit for a Customer that Purchases EFECs for 100% of Their Facility's Load

Facility Size	100 kW	500 kW	1 MW
CO ₂ Avoided (tons)	291	1,457	2,914
Equivalent Acres of Trees	66	331	662
Equivalent Passenger Vehicles Removed	53	267	534

- Value shows the acres of trees and vehicles removed to achieve an equivalent annual CO₂ benefit as the EFECs for the specific customer size.
- Customer usage is based on a 60% load factor. CO₂ Avoided is based on 2008 PJM system fuel mix.
- Equivalent Acres of Trees is based on average annual carbon sequestered by US Pine and Fir forests.
- Equivalent Passenger Vehicles Removed is based on a fuel efficiency rating of 19.7 mpg and 11,856 miles driven per year.
- Source: US EPA