A vertical strip on the left side of the slide shows a close-up of solar panels under a blue sky.

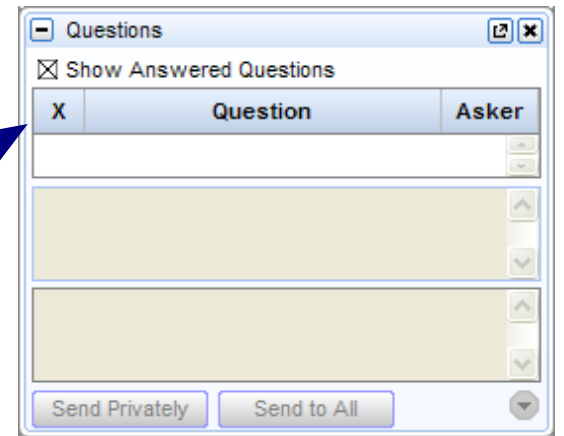
Renewable Energy Purchasing at K-12 Schools: Aggregated REC Procurement through the Green Schools Alliance



U.S. EPA Green Power Partnership
May 6, 2015

Webinar Logistics

- Attendees are muted to reduce background noise.
- Submit questions in writing via the online control panel.
- To minimize or maximize the control panel, click on the button at the top left of the tool bar.
- Post-webinar survey on this webinar and topics for future sessions.
- Presentations are posted to EPA's GPP website:
http://epa.gov/greenpower/events/15apr15_webinar.htm

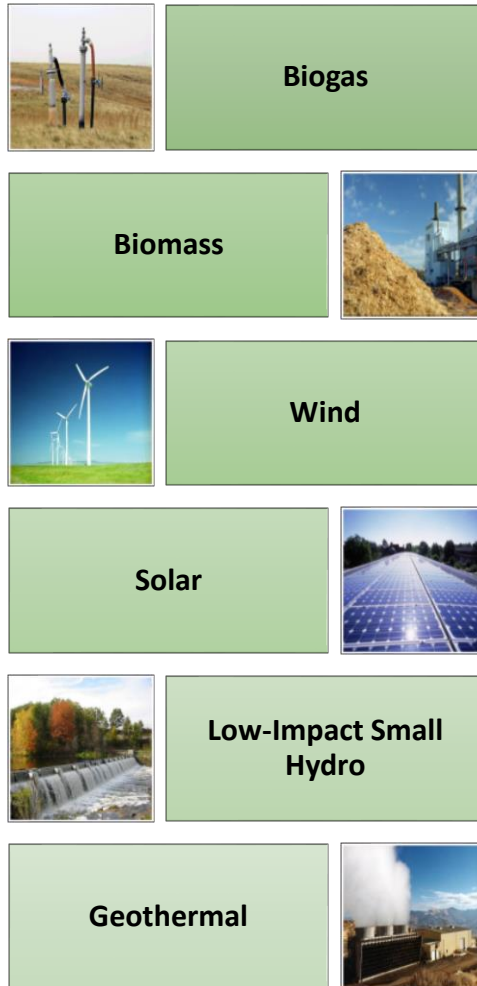


A vertical strip on the left side of the slide shows a close-up of a white wind turbine against a blue sky with light clouds. The turbine's blades are partially visible, and the base of the tower is seen. Below the turbine, a patch of green grass is visible.

Speaker & Agenda

- **Topic:** Renewable Energy Purchasing at K-12 Schools:
Aggregated REC Procurement through the Green Schools Alliance
- **Speakers**
 - **Christopher Kent**
 - Overview of GPP and RECs
 - **Steve Lux**
 - Perspective from past collaborative procurement
- Q & A
- Post webinar survey

What is green power?



- Subset of renewable energy - representative of resources and technologies that offer the highest environmental benefit
- Electricity generated from natural resources that replenish themselves over short periods of time, including the sun, wind, moving water, organic plant and waste material (biomass), and the Earth's heat (geothermal)
- Must be from “new” facilities placed into service within last 15 years or those that have been repowered
- Must be of the “voluntary” market
 - Incremental to or Above-and-beyond compliance market requirements (e.g., cannot be used for regulatory requirements)

Green Power Partnership

○ Recognition

- Top Partner Lists
- Use of the Partner mark →
- Green Power Leadership Awards
- Promotional opportunities

○ Credible Benchmarks & GHG Quantification

- Metrics for “How much green power is enough?”
- Definition of eligible renewables & products
- GHG reduction guidance and calculations

○ Planning & Implementation Resources

- Green power locator →
- Purchasing strategy guidance
- Marketing and communications support

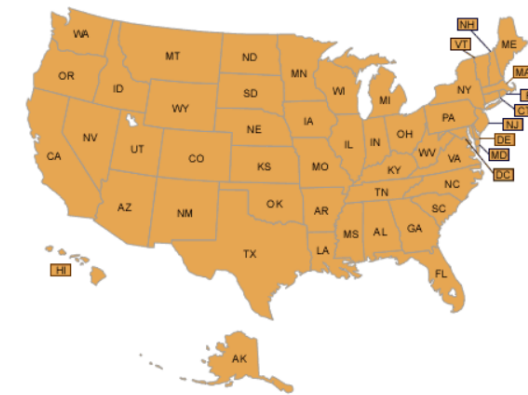
○ Best Practices & Innovation

- Collaborative procurement
- Aligning Partners with new RE projects



Green Power Locator

Click on your state to find information about green power options available to you.

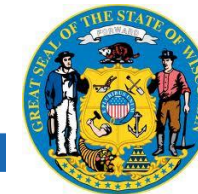
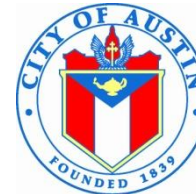
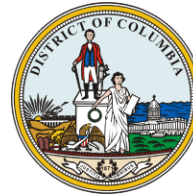


Publications & Resources

- Partnership Documents
- Tools & Calculators
- Resource Library
- Green Power Incentives
- Glossary
- Related Links
- Communications Support
- Green Power Partner Mark

Or, select your state from the drop-down menu, or the list below.

1,500+ Green Power Partners



Managing McCormick Place Complex and Navy Pier



GPP and GSA

- The RECS Consortium - collaboration between the Green Schools Alliance and EPA's GPP
- Created by schools, for schools
- Help promote and accelerate the adoption of renewable energy by all schools -- primary and secondary schools, and colleges and universities.
- Collectively purchasing renewable energy for their facilities
- Enables participating schools to purchase renewable energy in a simple and efficient manner by aggregating demand and reducing administrative burdens.
- RFP developed by GSA and EPA in 12/13



Aggregated/Collaborative Procurement

In collaborative/aggregated procurement, two or more entities with a similar need agree to purchase (in this case, RECs) renewable energy together and they share the administrative, development and upfront cost barriers associated with clean technology procurement

- Help achieve best value for your money by purchasing in bulk
- Secure additional benefits from increased economies of scale
- Reduced administrative costs by securing one time purchase and spreads workload over multiple entities
- Can help build longer-lasting partnerships with suppliers



What is a Renewable Energy Certificate (REC)?

- A Renewable Energy Certificate is the legal instrument that conveys to its owner, the right to claim the associated environmental attributes of its generating resource.
- A REC is created for every Megawatt-hour of renewable electricity generated and delivered to the utility grid
- A REC includes the following information:
 - Type of renewable resource
 - Location of renewable resource
 - Date stamp or vintage of generation
 - Emissions profile of the generating resource
 - Unique identification number

REC Video





Why are RECs important?

- RECs are the currency of renewable energy markets
 - Both compliance & voluntary markets
 - Allow access to, allocate, and claim use of renewable generation on a shared grid
- Influence electricity market dynamics by allowing the expression and aggregation of consumer preferences for specific forms of electricity generated from renewables
 - REC procurement reduces available REC supply sending a demand signal to the market to develop more supply
- Incent new renewable energy project development
 - Voluntary users can qualify their preference for specific renewable technologies
 - States can spur development through mandated programs (SREC programs)
- Instrument through which renewable energy and environmental claims are substantiated
- Tool used for meeting corporate goals for greenhouse gas reporting as well as for state policy mandates under Renewable Energy Portfolio (RPS) standards

A vertical image on the left side of the slide shows several white wind turbines in a green field under a blue sky with light clouds. The turbines are positioned at different heights, creating a sense of depth.

Green Power Options

- Your choices:
 - Buy unbundled RECs
 - Buy a green power product from an electricity service provider (bundled REC product)
 - Own, operate, generate and consume green power from an onsite project (with RECs)
 - Buy green power through a power purchase agreement (with RECs) with an onsite project
 - Buy green power through a power purchase agreement (with RECs) with an offsite project
- All green power supply options involve RECs
 - A REC generated from an onsite project is no different than a REC generated from an offsite project
 - Buying RECs alone may be the only reasonable option in some situations
 - National footprint
 - Leased space situations
 - Poor market conditions for developing projects
- Electricity use from a renewable resource in the absence of owning the associated RECs is not considered renewable electricity (referred to as “null power”) and has the same environment profile as the residual grid electricity mix – RECs make it renewable!

Does purchasing RECs send clean renewable electricity directly to a school?



VS



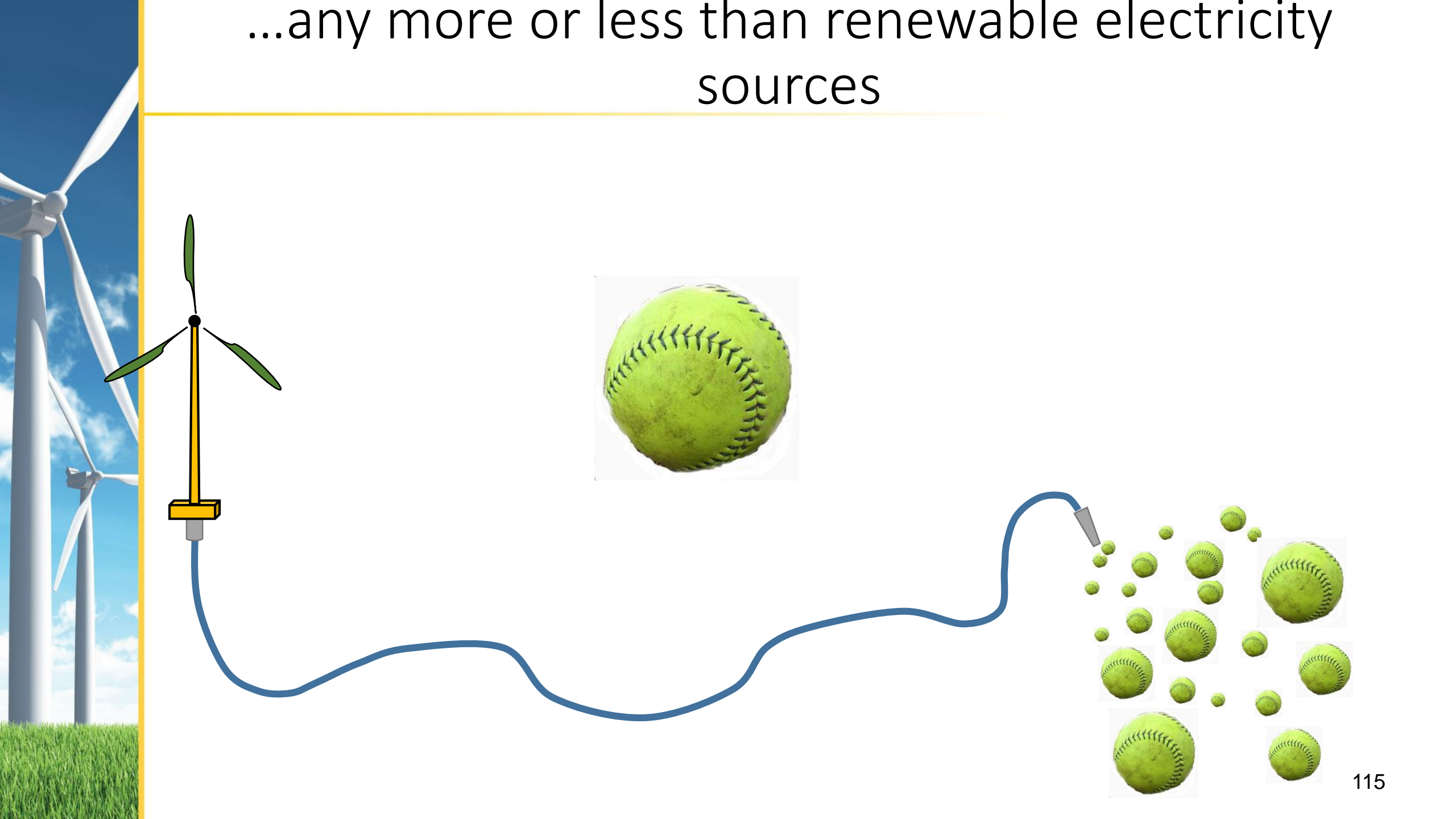
VS



Conventional electricity sources don't flow like water through a hose...



...any more or less than renewable electricity sources



All electricity is indistinguishable from itself and its source



VS

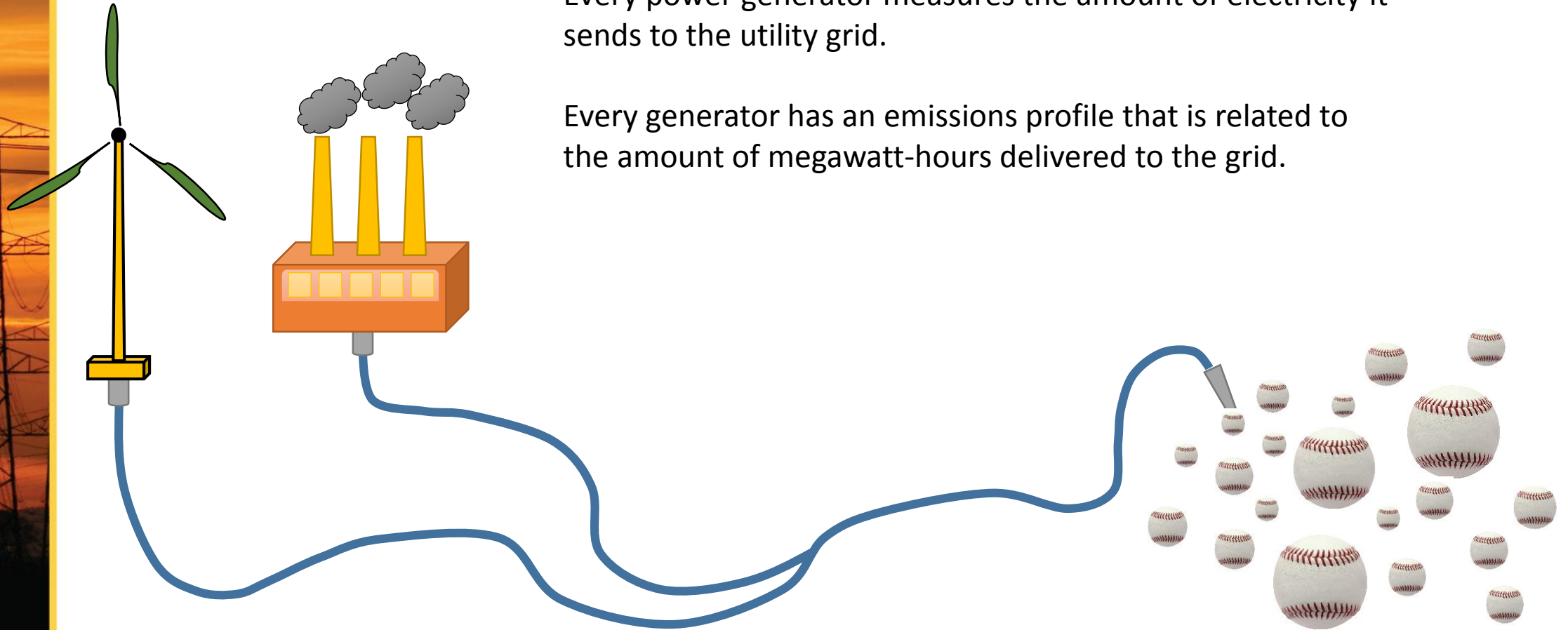


So if the electricity sent to my building doesn't say anything about its source,
how can I know that my electricity came from renewable resources?

You have to look to the generator and its relative “dirtiness” as it produces your electricity

Every power generator measures the amount of electricity it sends to the utility grid.

Every generator has an emissions profile that is related to the amount of megawatt-hours delivered to the grid.



By measuring the amount of electricity at the point of generation, renewable energy certificates provide the most transparent and direct way for supporting renewable energy resources.

To answer the question....

Does purchasing RECs send clean renewable electricity directly to a school?

No, since all electricity is indistinguishable one must account for its relative “dirtiness” **at the point of generation.**

RECs become the only way to know and legally claim that your electricity was produced by zero emitting renewable resources.



RECs describe how electricity is generated and what impact it had on the environment



- A REC describes 1 megawatt-hour of electricity
- RECs disclose the type of renewable fuel source
- They identify the related emissions of the renewable generation (zero emissions)
- They distinguish the geographic location of the generator
- And like a fine wine, you can also identify the vintage of the generation

Think that your utility bill is a “Conventional Energy Certificate”

- What your electric bill tells you:
 - Kilowatt-hours used
 - Cost per kilowatt-hour
 - Vintage (billing period) of your electricity
- What your electric bill doesn't tell you:
 - How your electricity was generated
 - The resource mix used to produce your electricity
 - The emissions profile of the conventional resources
 - The location of the generator
- Nobody ever asks these questions

Your electric statement
 For: Oct 05 2009 to Nov 03 2009 (29 days)
 Customer name: JANE CUSTOMER
 Service address: 111 NW 9TH ST

Account number: 11111-11111
 Statement date: Nov 03 2009
 Next meter reading: Dec 04 2009

Amount of your last bill	Payments (-)	Additional activity (+ or -)	Balance before new charges (=)	New charges (+)	Total amount you owe (=)	New charges due by
0.00	0.00	0.00	0.00	610.08	\$610.08	Nov 24 2009

Meter reading - Meter 6J12333
 Current reading 10000
 Previous reading - 05905
kWh used 4095
 Demand reading 19.22
 Demand kW 19

Energy usage

	Last Year	This Year
kWh this month	4224	4095
Service days	31	29
kWh per day	136	141

****The electric service amount includes the following charges:**
 Customer charge: \$33.10
 Fuel: \$260.36
 (\$0.063580 per kWh)
 Non-fuel: \$63.31
 (\$0.015630 per kWh)
 Demand: \$127.87
 (\$6.73 per kW)

Balance before new charges \$0.00
New charges (Rate: GSD-1 GENERAL SERVICE DEMAND)
 Electric service amount 484.64**
 Storm charge 6.71
 Gross receipts tax 12.60
 Franchise charge 30.24
 Utility tax 33.15
 Florida sales tax 37.40
 Discretionary sales surtax 5.34
Total new charges \$610.08

Total amount you owe \$610.08

- Payment received after **November 24, 2009** is considered **LATE**; a late payment charge of **0%** will apply and your account may be subject to an adjusted deposit billing.

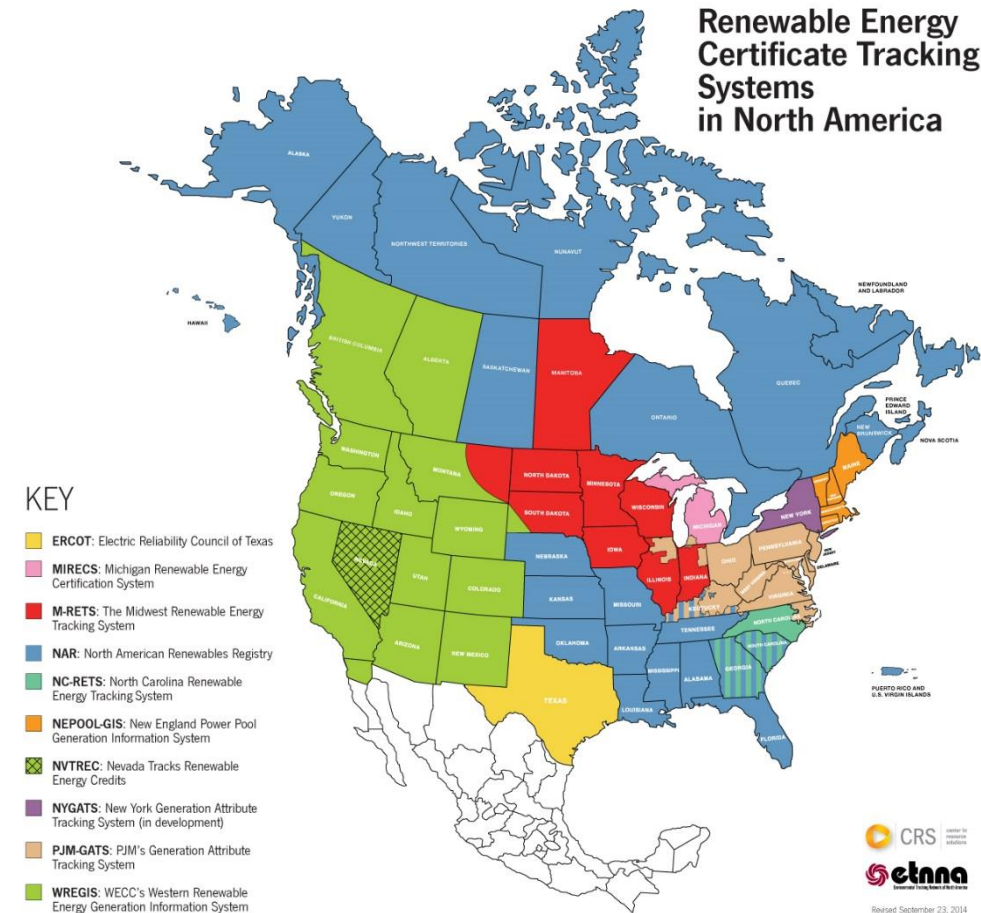
FPL Florida Power & Light Company
 PO Box 025576
 Miami, FL 33102

Please have your account number ready when contacting FPL.
 Customer service: (305) 442-0388
 Outside Florida: 1-800-226-3545
 To report power outages: 1-800-4OUTAGE (468-8243)
 Hearing/speech impaired: 711 (Relay Service)
 Online at: www.FPL.com

Print date: Oct 29, 2008

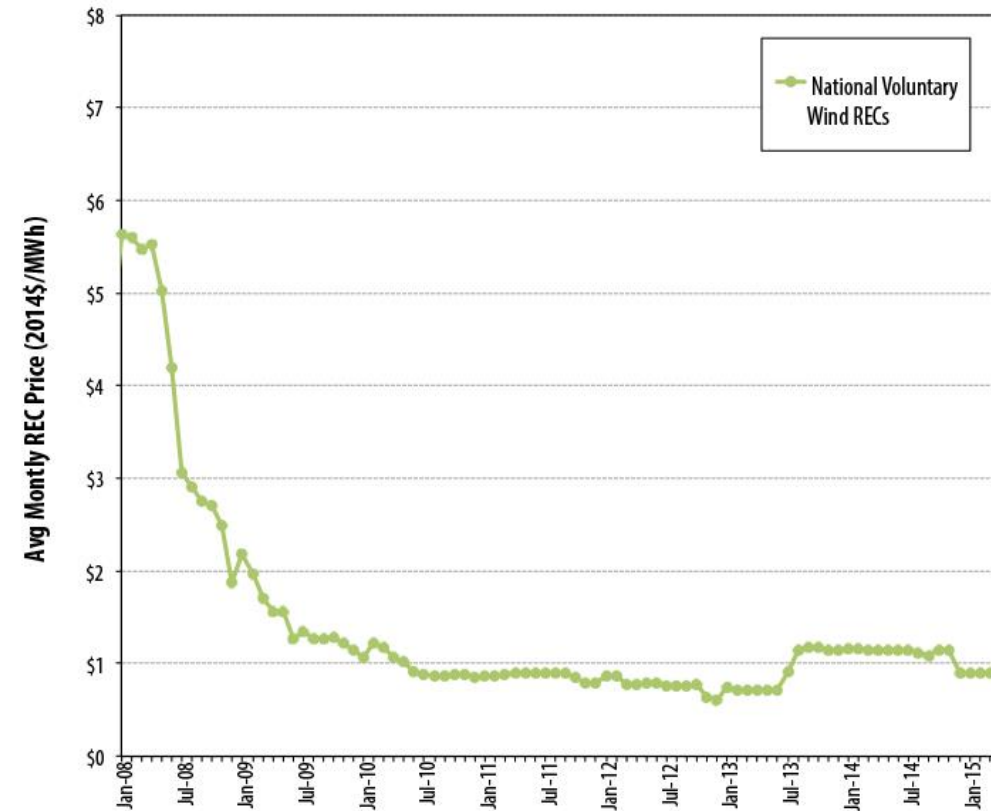
Most RECs are accounted for through regional tracking systems

- Each REC receives a unique identification number
- RECs can only be held in a single tracking system account by its owner
- Once retired in the tracking system, RECs can no longer be traded between accounts
- Tracking systems do not replace third-party certification and verification of products



Which REC should I buy and what does it cost?

- Determine the quality and content of your green power purchase
 - What resource type do you want?
 - What geographical origin do you want your purchase sourced from?
 - How long a procurement commitment do you want to make?
 - What type of supplier/vendor do you want?
- REC price is a function of supply and demand which varies by factors such as resource type, geography, and length of commitment



<http://apps3.eere.energy.gov/greenpower/markets>



Who should I purchase my RECs from?

- GPP recommends you buy a third-party certified and verified product
 - Buying certified and verified green power products is a **consumer best-practice**
 - Certification answers the question "Does this product meet acceptable standards for quality?"
 - Certified products meet widely accepted consumer and environmental standards
 - Certification ensures the quality of a green power product
 - Certification validates the product's environmental attributes
 - Verification answers the question "How do I know I'm getting what I pay for?"
 - Independent verification that the green power generated equals the green power sold
 - Verifies that the green power behind the product was produced and placed on the grid
 - Verification serves as a form of buyer protection against deception or fraud
- Buyers can identify green power suppliers using EPA's Green Power Locator tool: www.epa.gov/greenpower/pubs/gplocator.htm



RECs and the Environment

- Having RECs demonstrates your electricity was generated by a zero emissions resource – reducing your Scope 2 (indirect) emissions
- Purchasing RECs helps develop new renewable energy projects by sending an indirect signal to the market to develop projects

A vertical image on the left side of the slide shows several white wind turbines in a green field under a blue sky with light clouds. The turbines are positioned at different heights, creating a sense of depth.

Educational opportunities connected to RECs

- Locally procured RECs and on site projects provide powerful teaching opportunity
 - opportunity to tie the green power with educating students about physics, energy, climate, construction, and carbon footprints
- Serve as a rallying point for developing a GPP Green Power Community
 - Engage with local government, businesses and residents to collectively buy green power and get recognition
- Positive attention to your environmental and sustainability initiatives
 - Differentiates your school, demonstrates your environmental commitment and leadership

REC Summary



- They are the currency of renewable energy markets
- They are legal instrument that allows one to claim to be using renewable electricity
 - Claims of using renewable electricity must be substantiated
- They are inherent in all green power procurements; from unbundled RECs to investing in your own RE project
 - Green power purchases can be customized based on several criteria (i.e., resource, geography, supplier, term etc.)
 - You must retain the RECs associated with onsite projects in order to claim to be using renewable electricity
- They are used by organizations as a tool to reduce their carbon footprint (scope 2 emissions)
- They are not offsets – different instruments for different applications and claims
- Organizations are looking beyond basic renewable electricity claims are using their procurement to directly build new projects
- EPA recommends buying certified and verified green power products as a best practice

GSA Aggregated Procurement

Steve Lux

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CROSSROADS
SCHOOL FOR ARTS & SCIENCES

Q & A



"There are no stupid questions, so let's also agree there are no stupid answers."

A vertical strip on the left side of the slide shows a close-up of solar panels under a blue sky. The panels are dark with a grid pattern, and the sky is a clear, light blue.

For more information

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