



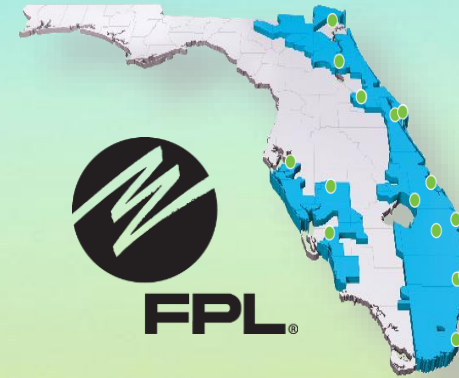
# Florida Power & Light Company's Biodiesel Program – It's All About Quality

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# NEXtera<sup>®</sup> ENERGY



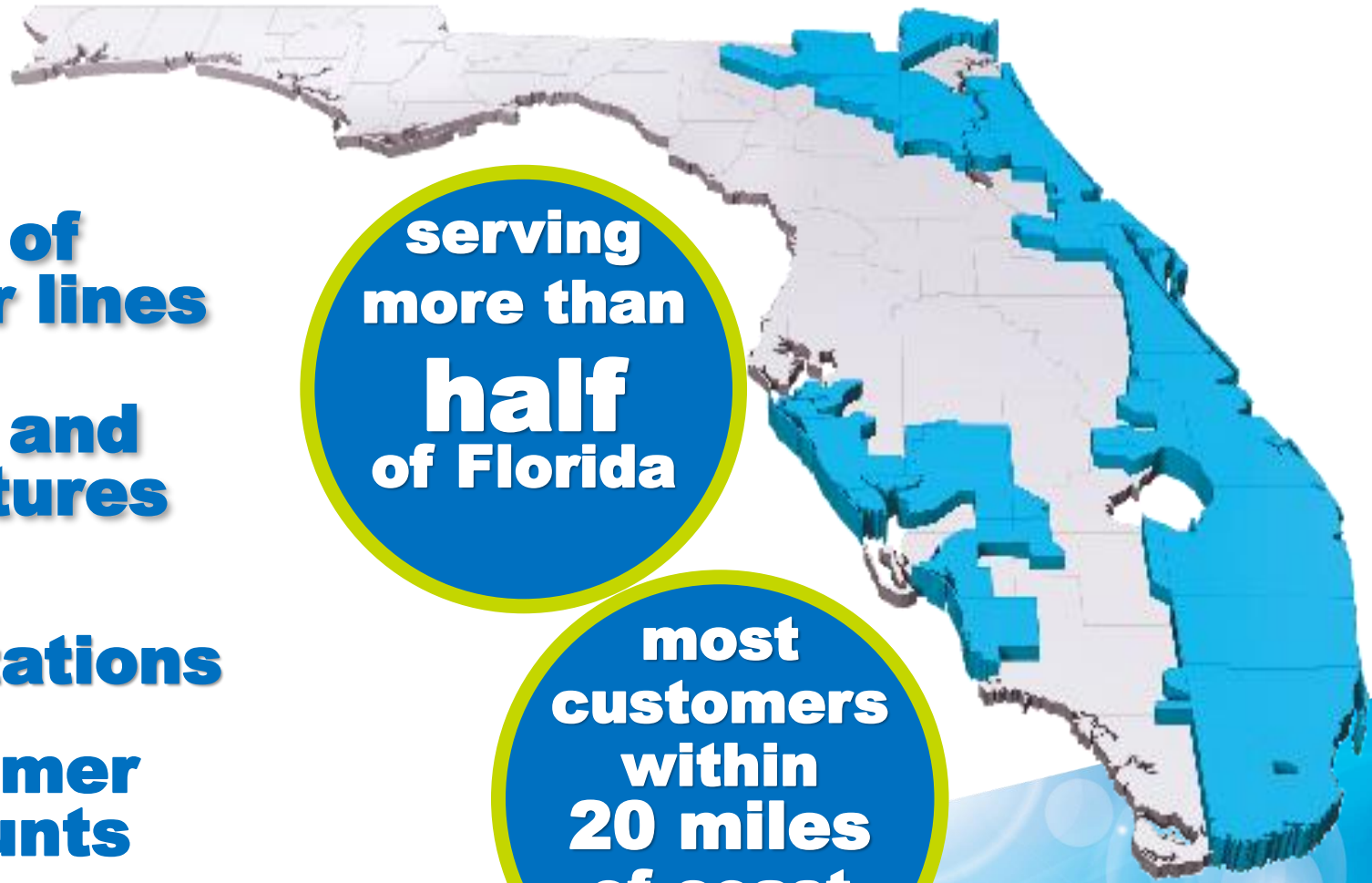
- » Ranked No. 1 in electric and gas utilities industry on Fortune magazine's 'World's Most Admired Companies' list
- » Headquartered in Florida, operates in 37 states and 4 Canadian provinces
- » World's No. 1 generator of renewable energy from the wind and sun

# FPL Service Territory

**75,000+** miles of power lines  
**1.3 million** poles and structures  
**661** substations  
**5 million+** customer accounts

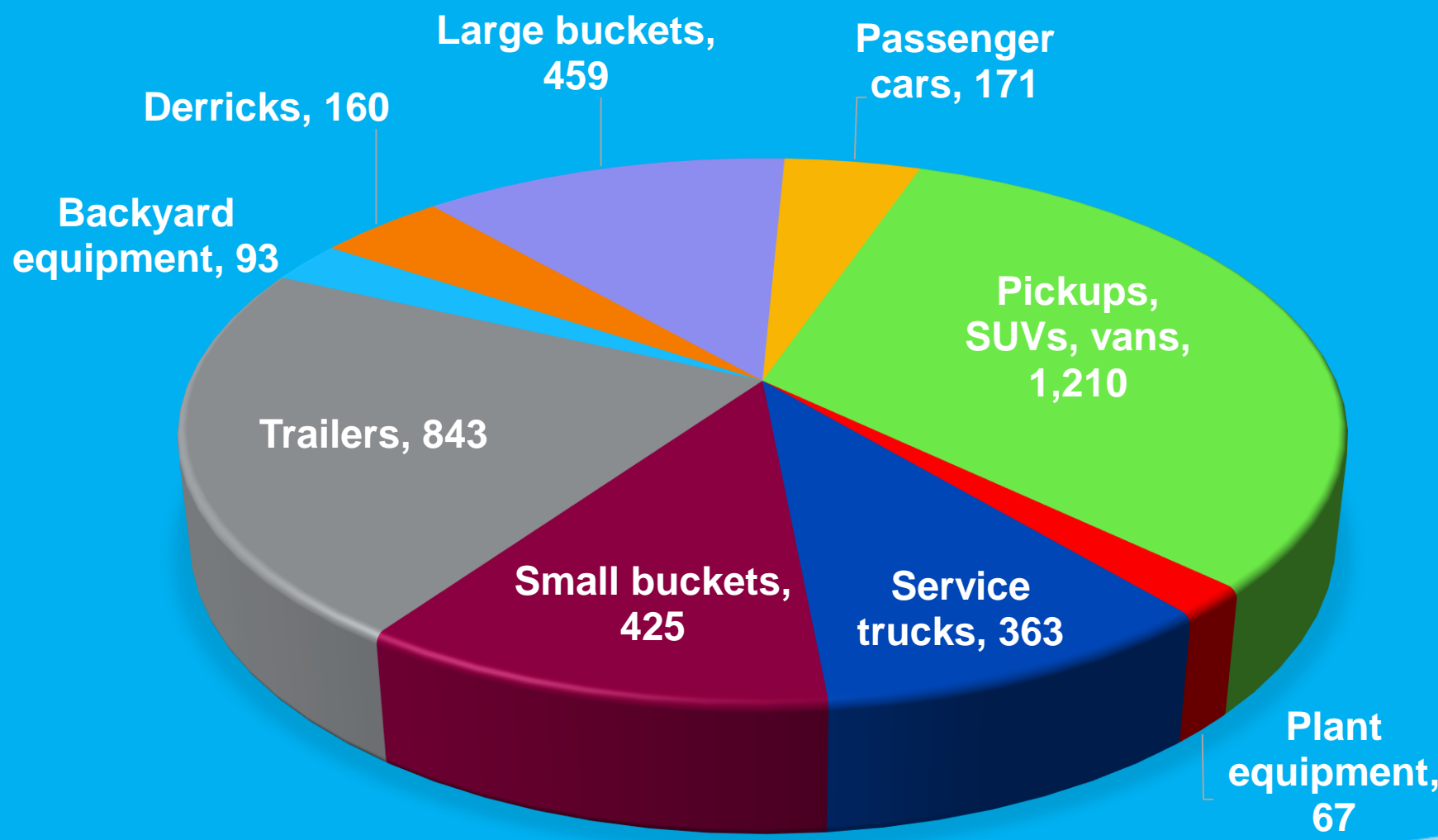
serving more than  
**half**  
of Florida

most customers  
within  
**20 miles**  
of coast





# Our fleet includes nearly 3,800 vehicles



N=3,791

# FPL's biodiesel history began more than 20 years ago

- ▶ **A 6-month B20 pilot program was initiated in 1999**
  - » –Initially only at limited fueling locations
  - » –Vehicle inspections and fuel sampling encouraged broader adoption
- ▶ **We increased use to 200,000 gallons B20 per year through 2003**
  - » –No appreciable change in fuel economy, engine wear, or maintenance parameters
  - » –Transparent to driver (the end user)
- ▶ **Since 2003, ~2.5 million gallons B20 consumed annually**
  - » –Continued satisfactory maintenance, performance, and mileage results
- ▶ **2004 storms changed the way we handled fuel...**

# We've added fuel storage for security during shortages

- ▶ **4.8 million gallons of B20 storage in Riviera Beach**
  - » Gave FPL ability to maintain constant, reliable fuel supply
  - » Ability to blend biodiesel
  - » Price advantage of bulk fuel purchases
  - » Much tighter control over fuel quality
- ▶ **2 million gallon biodiesel blending facility at Port Everglades**





# FPL Specification

Sample Type		Submitted		
Sample Number		062-1603592-01-004		
Method	Test	Result	ASTM Limits	FPL Limits
ASTM D2500	Cloud Point , ° C / ° F	-2 / 28		8°C Max.
ASTM D6584	Free Glycerin , % Mass	0.011	0.020 Max.	
	Total Glycerin , % Mass	0.021	0.240 Max.	0.150 Max.
	Monoglyceride Content , % Mass	0.029		
	Diglyceride Content , % Mass	<0.092		
	Triglyceride Content , % Mass	0.009		
ASTM D2709	Water and Sediment , % V/V	<0.01	0.050 Max.	0.035 Max.
ASTM D6304 Proc. A	Water Content , % Mass / ppm (mg/kg)	0.0369 / 369	Report	350 Max.
ASTM D664	Total Acid Number , mg KOH/g	0.26	0.50 Max.	0.35 Max.
ASTM D4052	API Gravity @ 60°F	28.5		
EN 14538	Density at 15°C , kg/m3	883.9		
	Calcium , ppm (mg/kg)	<1		
	Magnesium , ppm (mg/kg)	<1		
	Ca+Mg , ppm (mg/kg)	<2	5 Max.	
	Sodium , ppm (mg/kg)	<1		
ASTM D4951	Potassium , ppm (mg/kg)	<1		
	Na + K , ppm (mg/kg)	<2	5 Max.	
	Phosphorus , % Mass	<0.001	0.001 Max.	
	Sulfated Ash , % Mass	<0.005	0.02 Max.	
	Sample Volume , mL	300	300 Min.	300 Min.
ASTM D7501	Filtration Time , sec	106	360 Max.	150 Max.
	Heat Treated	Yes		
EN 14112	Oxidation Stability , h	9.6	3 Min.	4 Min.
ASTM D93 Proc. C	Flash Point , °C / °F	>194.5 / >382	93°C Min.	

# We have implemented several quality control strategies

- ▶ **Purchase only from BQ-9000 certified producers**
  - » Require COA before fuel is shipped
  - » In addition to producer Certificate of Analysis, product acceptance procedures require point-of-shipment and point-of-receipt sampling and analysis
- ▶ **Require specifications that meet or exceed all ASTM D6751 requirements**
  - » Additives mixed at point of production to ensure consistent and continued quality of stored inventory
- ▶ **Anti-oxidant and biocide additives ensure long shelf-life and performance**
- ▶ **Regular mixing and sampling of fuel inventory to ensure consistent product**



# Our biodiesel program has achieved significant results

- ▶ **200+ million miles driven**
  - » No biodiesel related issues
  - » Higher blends
- ▶ **Over 600,000 gallons (B100/B99) purchased annually**
- ▶ **Testing results**
  - » No appreciable change in fuel economy, engine wear or PM parameters
  - » Adds lubricity lost in ULSD
- ▶ **Transparent to driver – end user**
- ▶ **Used after Super Storm Sandy**
- ▶ **Pumped 200,000+ gallons per night after Hurricane Irma**
- ▶ **In 2019, FPL reduced CO<sub>2</sub> output by 4,800 tons through the use of biodiesel**

# Questions?