

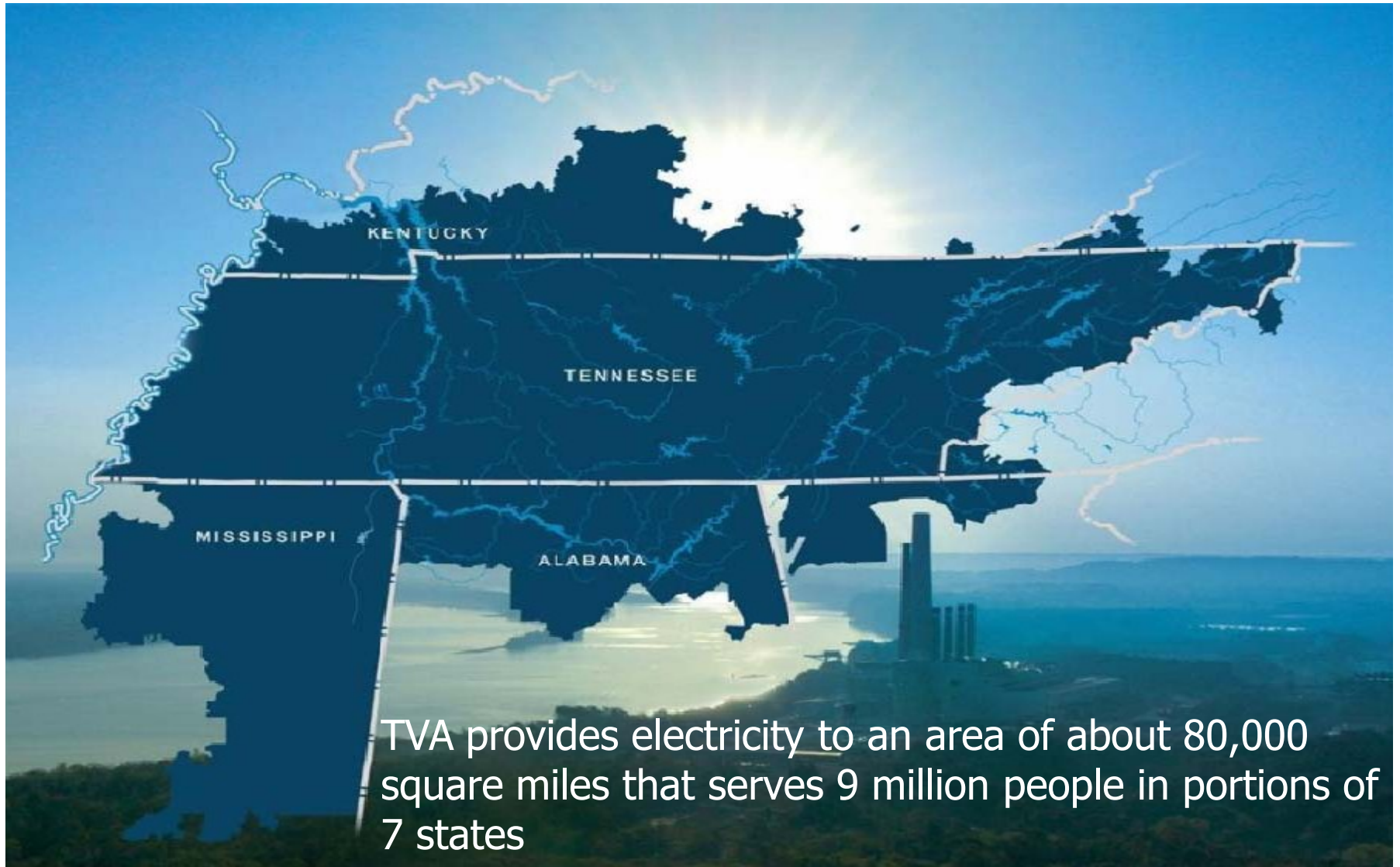


Distributed Generation & Renewable Energy

Matt Brown
TVA Renewables

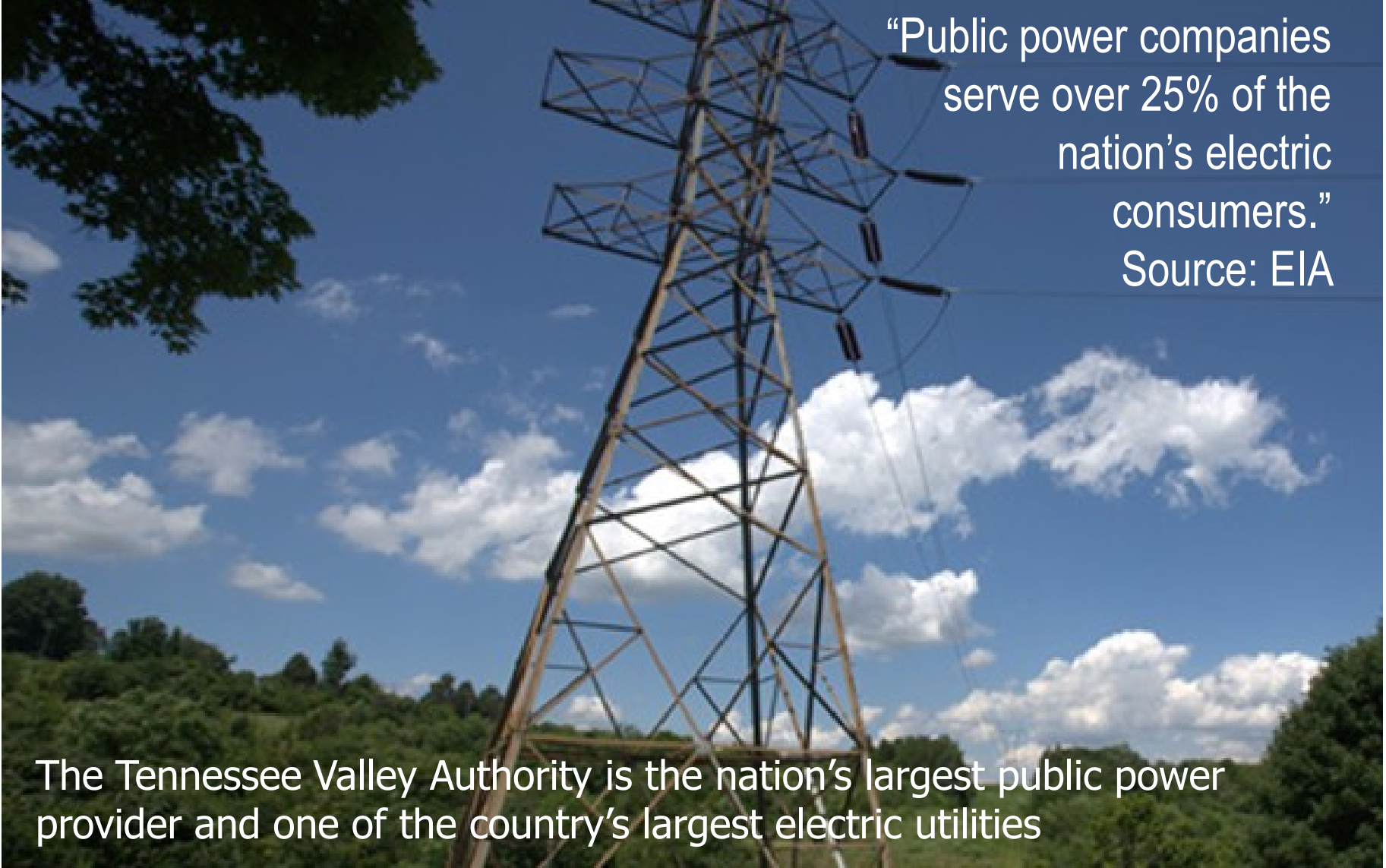


About TVA





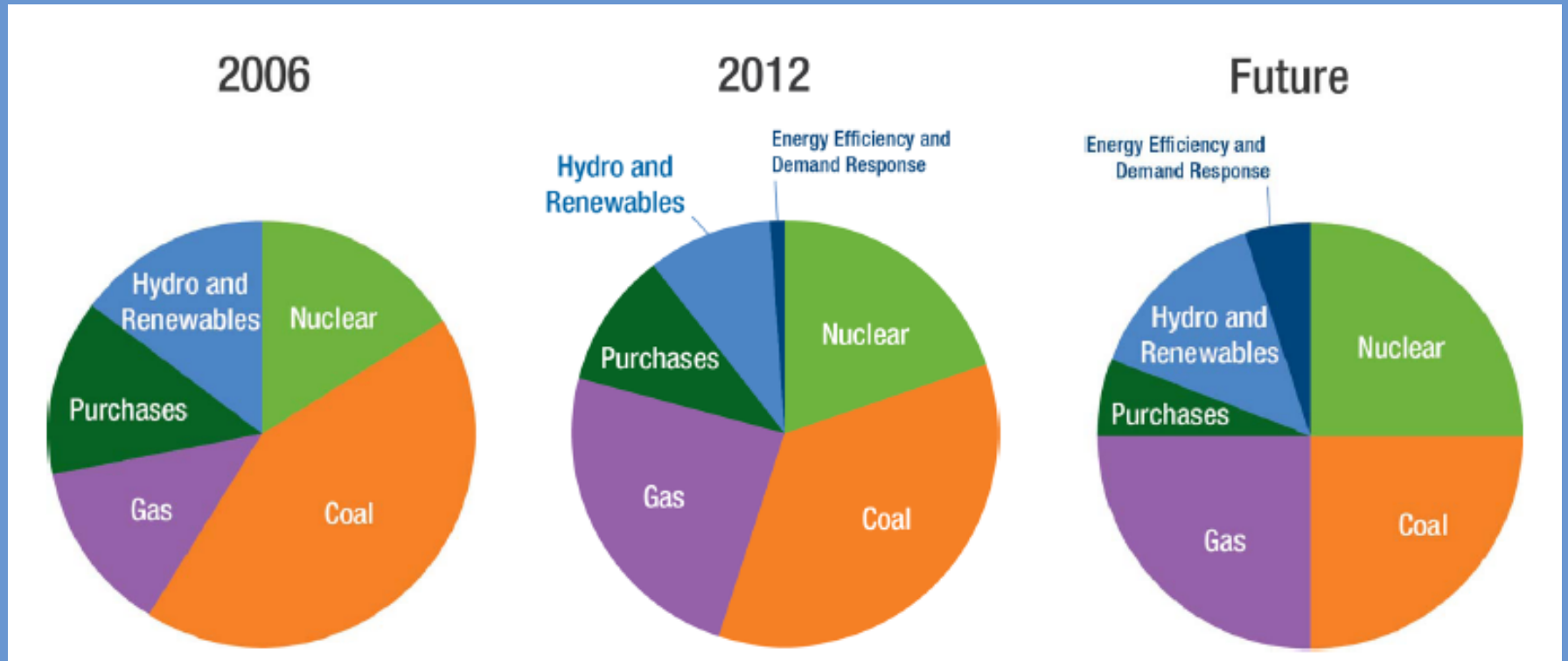
Public Power and TVA



“Public power companies serve over 25% of the nation’s electric consumers.”
Source: EIA

The Tennessee Valley Authority is the nation’s largest public power provider and one of the country’s largest electric utilities

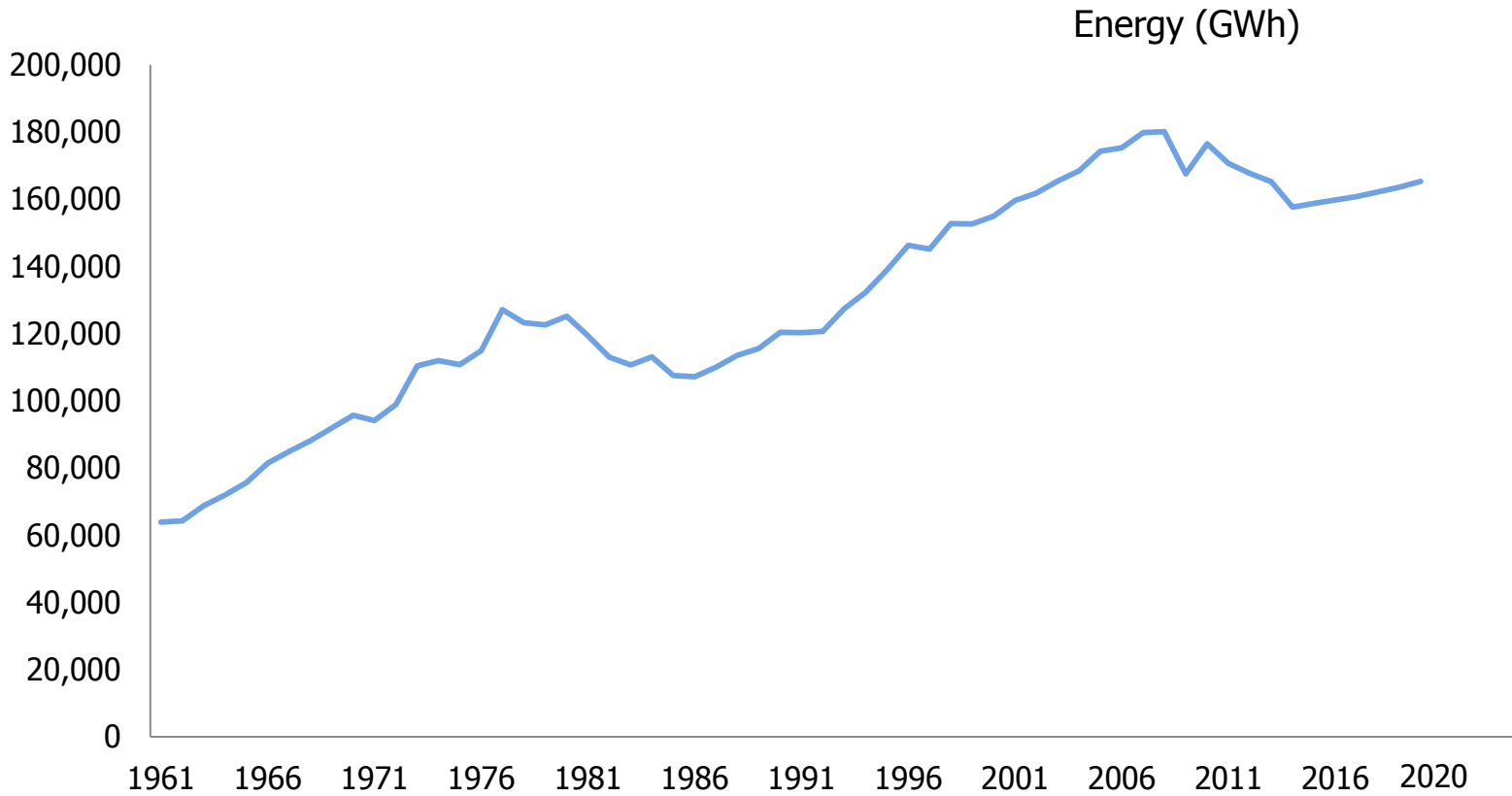
TVA Building A Balanced Portfolio



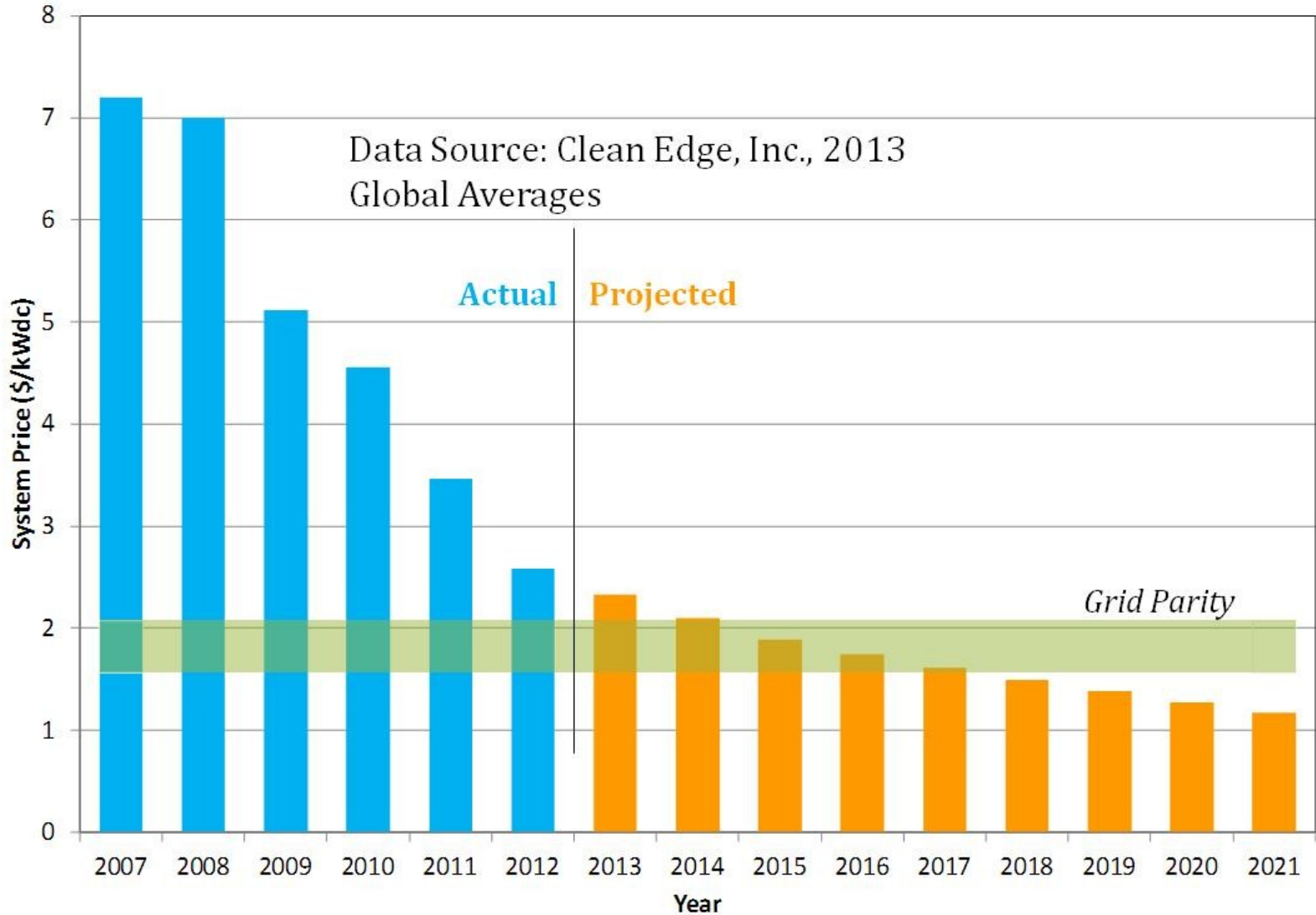
Provides greater flexibility to use sources currently most economical



Past and Future Load Growth



TVA Technological Advances in Solar





IRP provides the framework for the future

Integrated Resource Plan
TVA's Environmental & Energy Future

March 2011



**Currently
updating IRP
process now!
Learn more at
www.tva.com**



IRP Recommendations



Nuclear generation



Coal capacity idled



**Natural gas as an intermediate
supply source**



**Energy efficiency and demand
response**



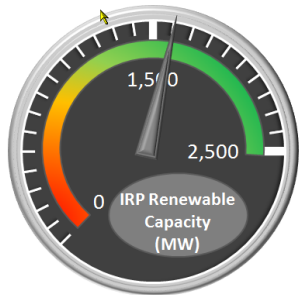
**Add 1500-2500 MW cost-effective
renewable capacity**



Pumped storage hydro capacity



Well positioned in the IRP range



Resource		Nameplate Capacity (MW)
Operating	Hydroelectric	4,659
	Wind*	1,542
	Solar	78
	Biomass	37
	Total Operating	6,316
Resource		Nameplate Capacity (MW)
Committed **	Hydroelectric	5
	Wind	18
	Solar	49
	Biomass	31
	Total Committed	103
Total		6,419
IRP Renewable Operating Capacity ***		1,614

* The owner of a 300 MW facility is retaining the renewable attributes, but TVA has the option to purchase in the future.
 ** Includes contracted and approved projects, including hydromodernization projects included in the current FY budget.
 *** All midwest wind projects. Other renewable projects that began operations beginning in FY 11 and later.



Renewable program offerings vary by size

SUPPLY

Green Power Providers

Up to 50 kW



Renewable Standard Offer

Solar Solutions Initiative

>50 kW – 1 MW



>50 kW - 20 MW



Negotiated Proposals/DPP

> 20 MW



DEMAND



Green Power Switch

Products

- ❖ Original
- ❖ Pure Solar (pilot)
- ❖ Southeastern (pilot)



Companion voluntary programs balance low cost and cleaner energy



- Launched in 2000
- 1st Green Power Program in Southeast
- \$ 4.00/150 KWh block
- Local Supply: solar, wind, methane gas
- ~ 12,000 participants
- Program currently under re-design to increase participation

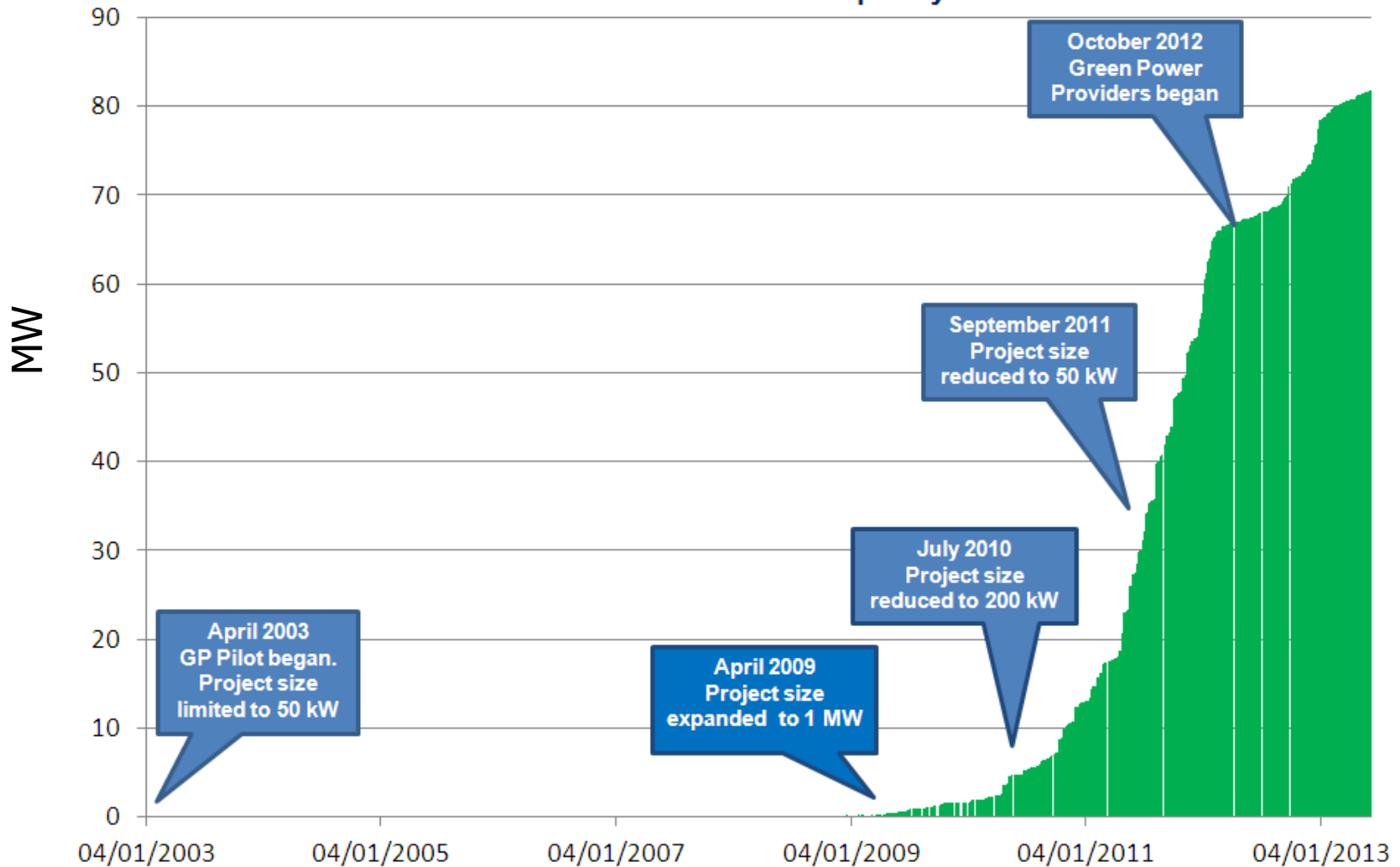
- Launched in October 2012 to replace the Generation Partners pilot program
- Targeted to homeowners & businesses
- Currently premium on top of retail price: 9¢/kWh (solar), 3¢/kWh (other)
- Participants sell 100% of renewable energy back to TVA; MW capacity limited each year
- 20 yr contracts, load requirement, fast track process for smaller systems

2014 Program Details to be updated online in mid-December



Distributed solar projects have increased

Generation Partners & Green Power Providers
Historical Growth in Capacity





Generation Partners/Green Power Providers, as of 10/1/13

Participating Distributors: 132			
Nameplate Capacity By Technology			
Technology	Operating MW	Approved MW	Total MW
Solar Photovoltaic (PV)	71.36	4.33	75.69
Biomass	1.4	0.05	1.45
Landfill Gas & Wastewater Methane	9.77	0	9.77
Wind	0.12	0	0.12
Micro Hydro	0.003	0	0.003
Total	82.65	4.38	87.03
# Installations By Technology			
Technology	Operating	Approved	Total
Solar Photovoltaic (PV)	1784	202	1986
Biomass	3	1	4
Landfill Gas & Wastewater Methane	11	0	11
Wind	28	0	28
Micro Hydro	1	0	1
Total	1827	203	2030



Market-based programs

Renewable Standard Offer



- Launched in 2010 for mid-size projects in the TVA service area
- Contracts up to 20 years
- Market prices paid based on peak electricity demand times
- 48 MW still available in CY 2013

Solar Solutions Initiative



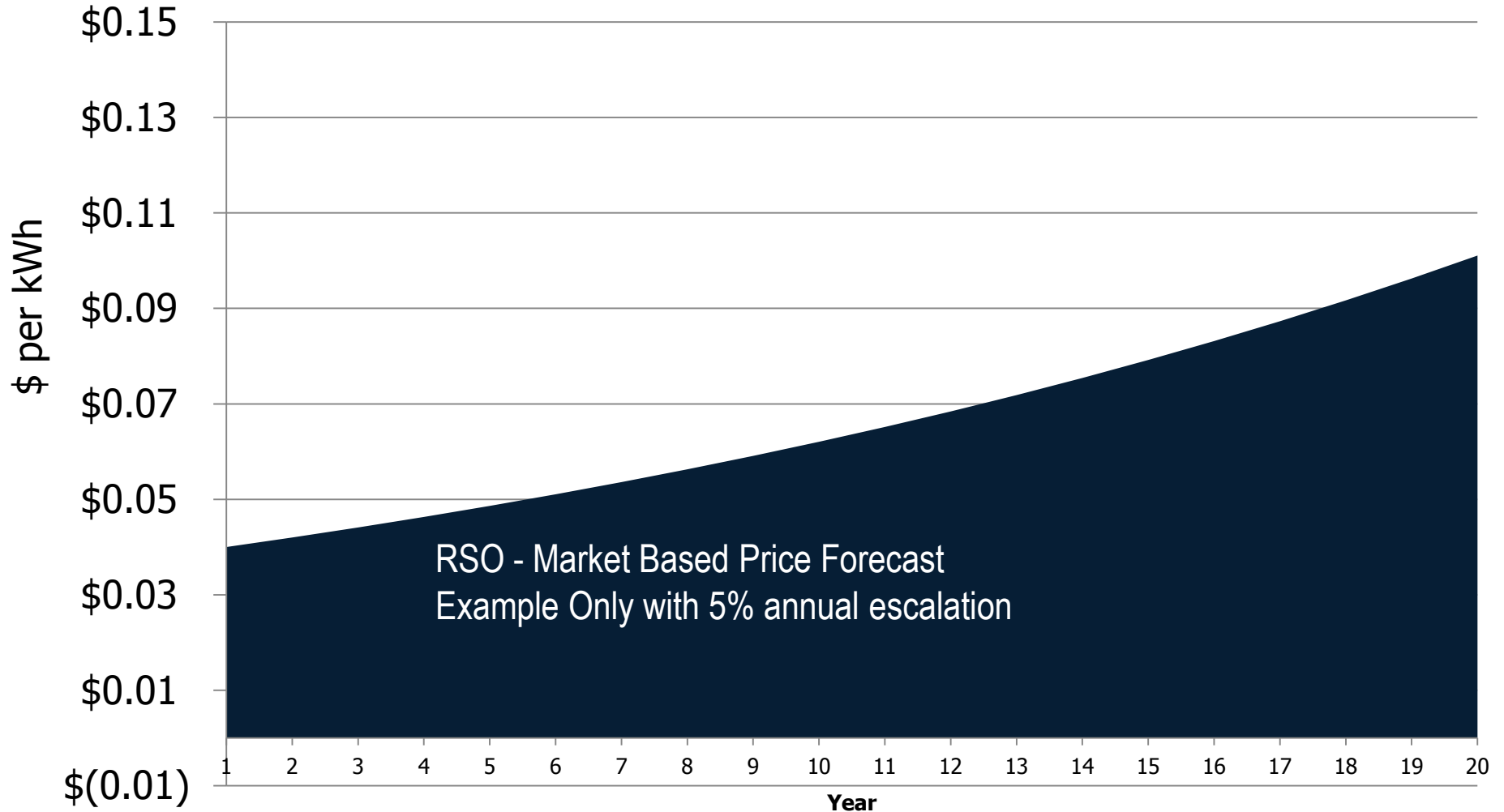
- Two year pilot launched in 2012 for projects using regional certified installers
- An overlay to the Renewable Standard Offer
- Additional \$0.08/kWh incentive
- 18.7 MW contracted – not taking applications at this time

2014 Program Details to be updated online in mid-December



Example – RSO only project > 50 kW up to 20 MW

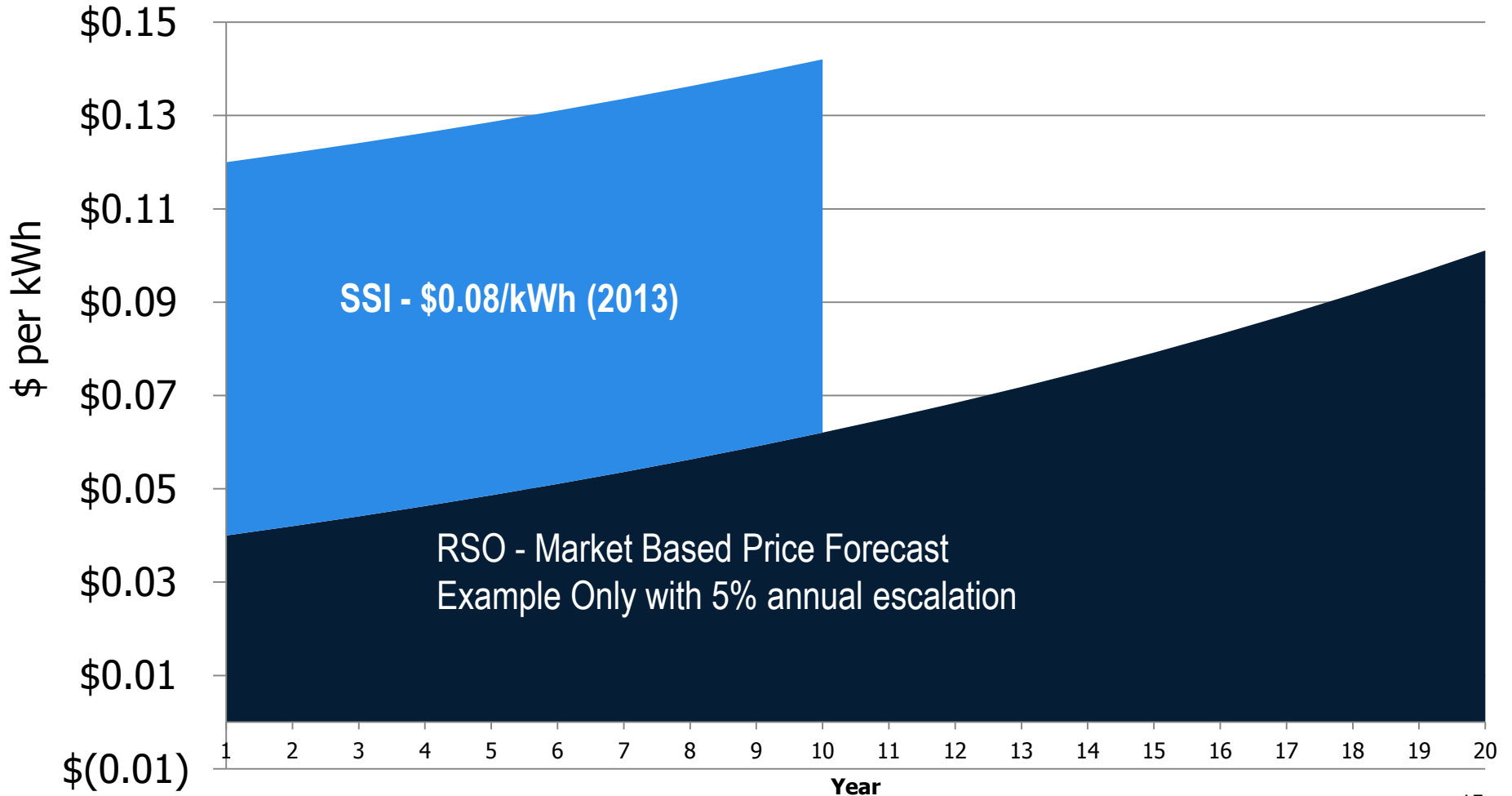
RSO Market Price Contract - Solar





Example – RSO and SSI, > 50 kW up to 1MW solar

RSO and SSI - 1,000 kW Solar





Renewable Standard Offer, as of 10/1/13

Nameplate Capacity By Technology			
Technology	Operating MW	Applications & Contracted MW	Total MW
Solar Photovoltaic (PV)	1.36	60.20	61.56
Biomass	---	20.00	20.00
Landfill Gas & Wastewater Methane	6.40	12.78	19.18
Wind	---	18.40	18.40
Total	7.76	111.38	119.14

# Installations By Technology			
Technology	Operating	Applications & Contracted	Total
Solar Photovoltaic (PV)	3	4	7
Biomass	---	1	1
Landfill Gas & Wastewater Methane	2	4	6
Wind	---	1	1
Total	5	10	15



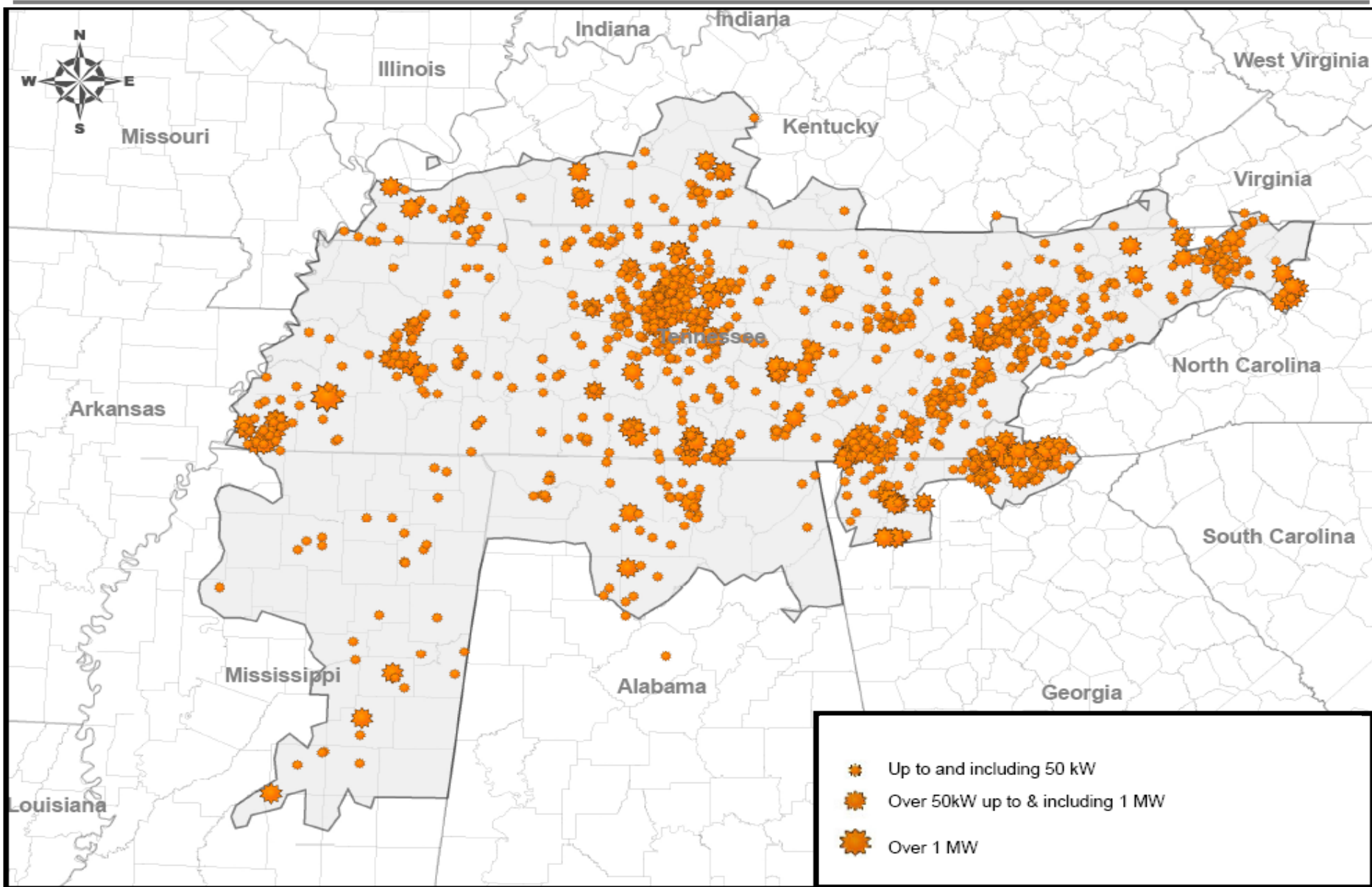
Solar Solutions Initiative – pilot, as of 10/1/13

2012 & 2013 Pilot Offering*			
Solar Photovoltaic (PV) Only	Operating	Applications & Contracted	Total
Nameplate Capacity (MW DC)	1.15	17.54	18.69
Installations (#)	2	24	26

*TVA is not currently accepting additional applications.



Total Operating Solar Projects in Valley



**It is difficult to make
predictions, especially about
the future.**

Yogi Berra

