



# **U.S. EPA: Consumers, Solar and the Environment**

**FTC Workshop: Something New Under the Sun**

**Session: Laying the Groundwork**

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EPA's Green Power Partnership

# Environmental Overview of the U.S. Electricity Sector

- The U.S. electricity sector is a significant source of greenhouse gas emissions and air pollution
- Air pollution generated from the electricity sector impacts human health
- Greenhouse gas emissions emitted from fossil-fuel resources contribute to climate change
- For consumers, electricity consumption can represent a significant part of one's environmental and carbon footprint, which is a motivating factor for consumers

# Solar Generation and the Environment

- Solar photovoltaics is a zero emitting resource that can help reduce air pollution, including greenhouse gas emissions
- Solar photovoltaics can also offer other environmental benefits including water savings and land use benefits in some circumstances
- Other desirable benefits of solar photovoltaics range from health to economic benefits

# U.S. Renewable Energy Markets

- Compliance markets
  - Require obligated entities to *generate* a certain amount of renewable electricity
- Voluntary markets
  - Allow non-regulated electricity consumers (e.g., organizations and residences) to *use* renewable energy and make environmental claims
- Regulatory surplus
  - The interest of voluntary buyers to know that their purchase is incremental to (e.g., above and beyond) what otherwise would occur due to regulation

# Role of Renewable Energy Certificates (RECs)

- Renewable energy certificates (RECs) are tradeable instruments that represent the environmental and energy attributes of 1 MWh of renewable energy delivered to the grid
- Because the flow of electricity cannot be traced on the grid, RECs serve as an essential ownership and accounting tool to track the attributes of renewable
- RECs are the instrument used for claims of renewable energy use. If you don't own a REC to substantiate your renewable electricity use claim, you aren't using renewable electricity

# Role of Renewable Energy Certificates (RECs)

- RECs have a strong legal standing for renewable energy generation and use claims\*
  - Utilities use RECs to substantiate claims of compliance with *generation* requirements driven by state mandates (e.g., Renewable Portfolio Standards)
  - Voluntary buyers use RECs to substantiate claims of renewable energy *use* and environmental claims relative to self-imposed goals, e.g., corporate GHG accounting.
- REC prices are affected by many factors including geographic variations in supply and demand, obligations placed on certain buyers, and penalties (e.g., alternative compliance payments)



# EPA's Green Power Partnership and the Scale of the Voluntary Market

- The Green Power Partnership works with 1,400 organizations using more than 34 billion kWhs of green power annually, all of which is substantiated through renewable energy certificates
  - Nearly 1 billion of which is from solar
- The voluntary market is not insignificant
  - In 2014, voluntary retail sales of renewable energy totaled 74 million megawatt-hours (MWh), representing about 26% of total U.S. non-hydropower renewable generation, and approximately 2% of total U.S. electricity sales. [NREL 2015]

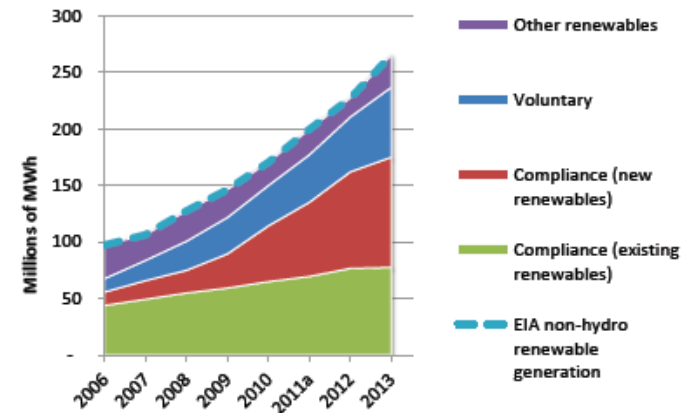


Figure 1. Comparison of renewable energy estimated market sizes, 2006–2013

Sources: Heeter (2013); EIA (2014a)

# Consumer motivations for using solar energy

- To make an environmental difference
- To realize cost stability and energy savings
- To meet renewable energy and sustainability goals
- To manage climate risks and GHG emissions
- To enhance environmental marketing and brand management



# Consumer Issues

- REC Tensions
  - Making claims and taking incentives
  - Compliance and voluntary markets
- Lack of consumer understanding and available information
  - What is a REC and why should I care?
  - Clarity in contract language
- REC ownership (e.g., third-party development structures)
- Substantiation of carbon footprint reduction claims in corporate greenhouse gas reporting requirements
- Marketing claims
  - Developer vs Consumer (i.e., Community Solar)