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# Distributed Generation and EV Batteries

Jacob Gant

*Worcester Polytechnic Institute*

Kevin Guardino

*Worcester Polytechnic Institute*

Andy Hubina

*Worcester Polytechnic Institute*

Thomas Tawardos

*Worcester Polytechnic Institute*

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## Synopsis

Today, batteries from electric vehicles (EVs) are recycled for raw materials once the vehicles reach their end of life (EOL). This inefficient practice neglects the fact these batteries still have 80 percent charging capacity left at their EOL. Our project focuses on reuse of EV batteries through distributed generation (DG) systems, how to integrate them, and what public policy changes will have to occur to sustain such a system.

## Problems

- EV battery recycling is dangerous and wastes leftover capacity
- Public policy regulating and limiting DG
- Integration of different types of EV batteries
- Incentive/business model for EV battery-DG systems
- Transport and distribution of EV batteries

## Distributed Generation (DG)

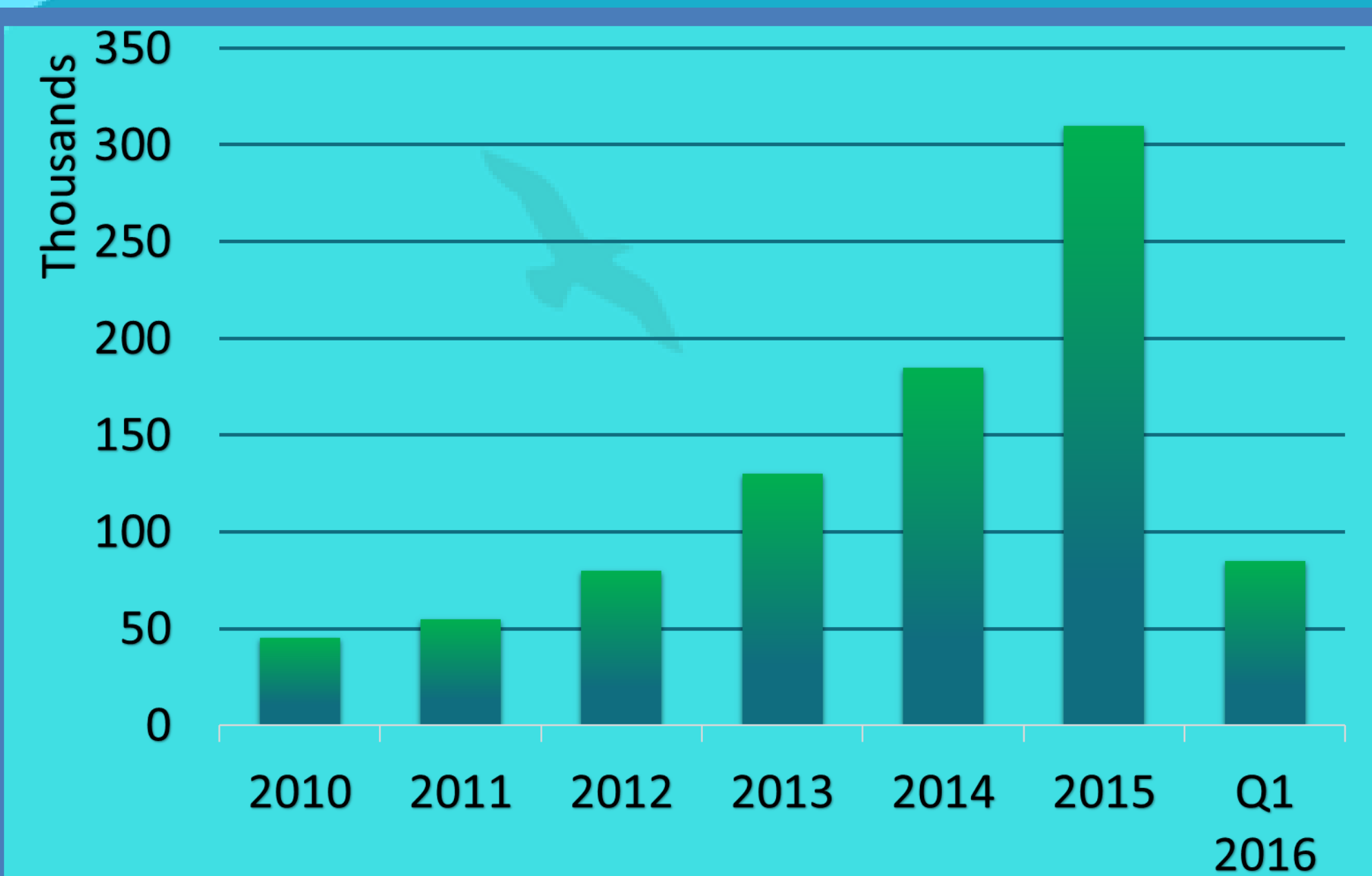
Power generation at or near the site of use

### Common Types of DG

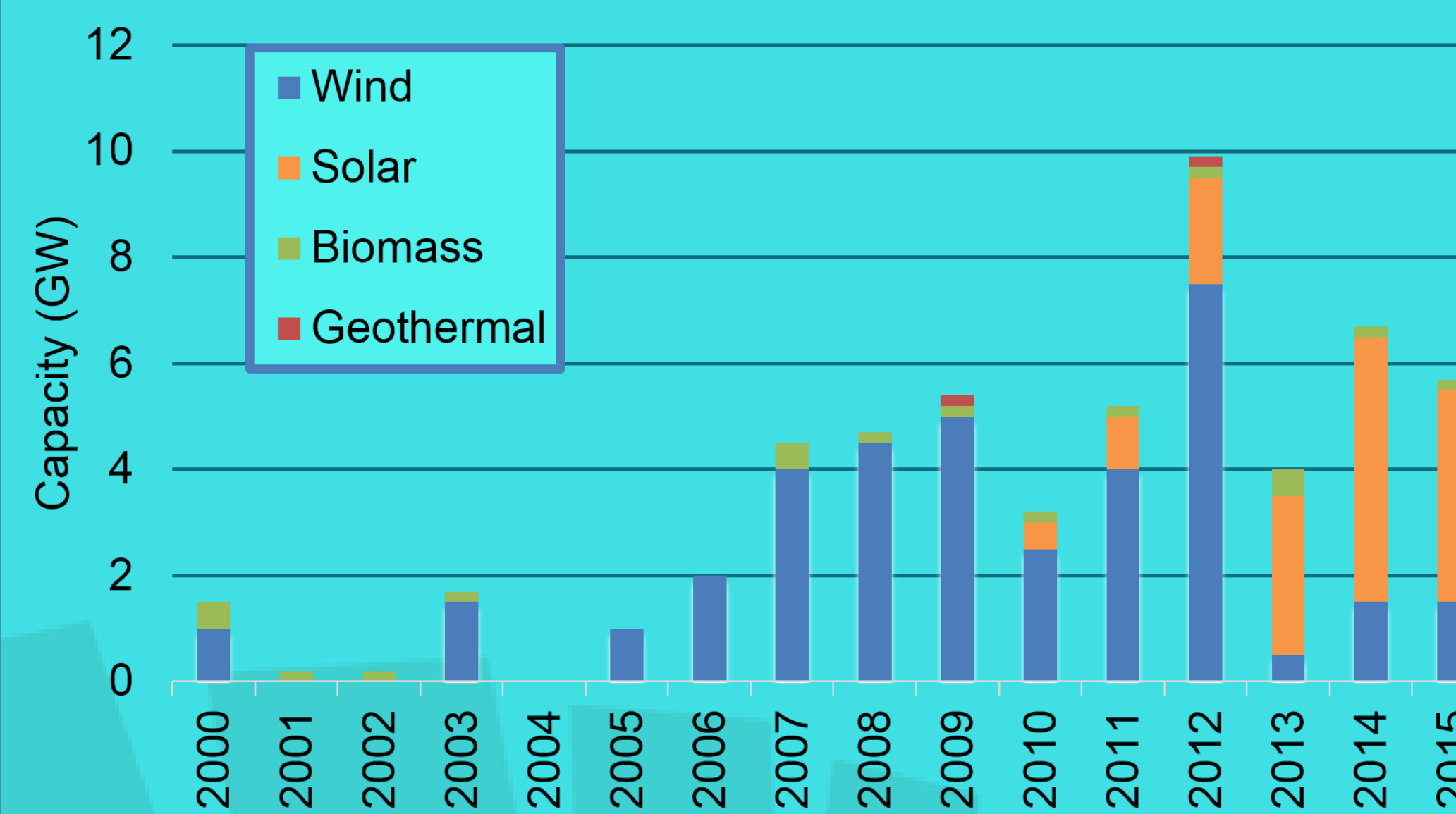
Photovoltaic    Wind Turbines    NG Fuel Cells



## Home Solar Generator Sales



## RPS Capacity Additions

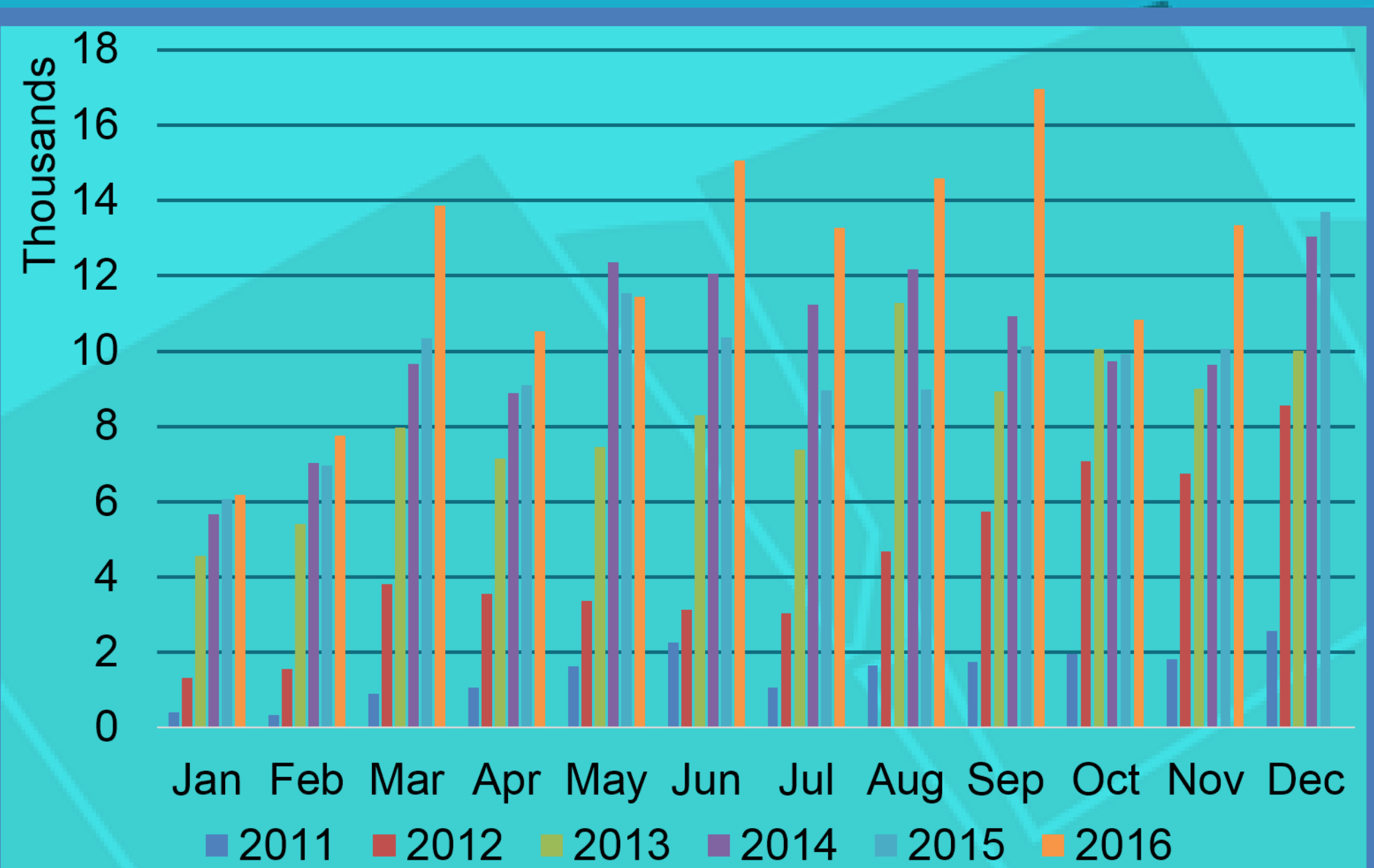


According to 2016 study by UC Berkeley, solar power is overtaking wind in annual capacity additions.

## DG Policy

- Investment Tax Credits (ITCs)
- Renewable Portfolio Standards (RPSs)
- Solar energy carve-outs

## U.S Electric Vehicle Sales



## Methodology

- Explored the potential uses of EOL EV batteries
- Researched batteries as storage for high energy-use periods
- Met with battery expert Dr. Eric Gratz
- Explored policy and logistics of DG systems
- Created general model for use of EOL EV batteries in conjunction with DG

## Results

- Developed framework for battery integration
- Provided policy recommendations DG
- Provide policy Recommendations for EV battery reuse
- Recommended viable business model or incentive program for battery integration

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