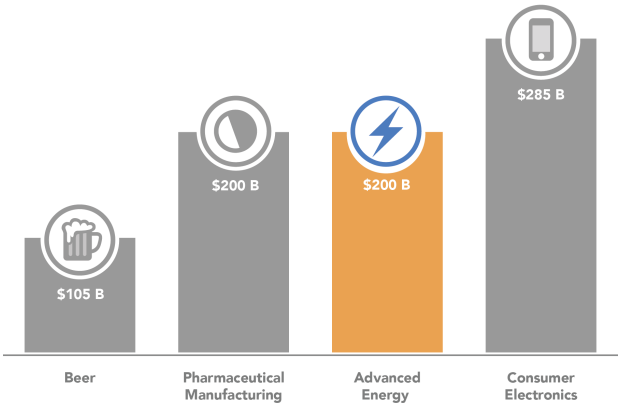
HIGHLIGHTS: ADVANCED ENERGY IS BIGGER THAN EVER

Advanced energy is a $1.4 trillion global industry, almost twice the size of the global airline industry, and nearly equal to worldwide apparel revenue.

The U.S. advanced energy industry generates $200 billion in revenue, nearly double beer sales, equal to pharmaceutical manufacturing, and approaching wholesale consumer electronics.

U.S. Revenue by Industry, 2016



Navigant Research

In the six years that AEE has been tracking, advanced energy in the United States has grown by an average of 5% annually for a total of 28% compared to 2011. Growth last year was 1%, primarily due to the effect of low oil and corn feedstock prices on ethanol revenue. **Without ethanol, U.S. advanced energy grew 5% in 2016, three times faster than U.S. GDP (1.6%).**

WHAT IS ADVANCED ENERGY?

$1.4 TRILLION

global industry revenue

$200 BILLION

U.S. industry revenue

3.3 MILLION

U.S. advanced energy jobs

As defined by Advanced Energy Economy (AEE), a national business association, advanced energy is a broad range of technologies, products, and services that constitute the best available technologies for meeting energy needs today and tomorrow. Prepared by Navigant Research, *Advanced Energy Now 2017 Market Report* is the fifth annual report of market size, by revenue, of the advanced energy industry worldwide and in the United States. The industry is broken into seven segments:

- **BUILDING EFFICIENCY**
- **ELECTRICITY DELIVERY & MANAGEMENT**
- **ADVANCED TRANSPORTATION**
- **ADVANCED FUEL PRODUCTION**
- **ADVANCED INDUSTRY**
- **ADVANCED FUEL DELIVERY**
- **ADVANCED ELECTRICITY GENERATION**

2016 U.S. NOTABLE GROWTH

REVENUE GROWTH

$5 BILLION

in building efficiency

$3.9 BILLION

in advanced electricity generation

PERCENTAGE GROWTH

48%

in electric vehicles

54%

in energy storage

30%

in solar PV

21%

in fuel cell generators

U.S. Advanced Electricity Generation was up 8% in revenue, or $3.9 billion, **led by solar PV, which capped off five years of growth with a 30% surge**, to $24.9 billion in 2016. U.S. Wind revenue held relatively steady at $14.1 billion – a welcome change from the boom-and-bust pattern from earlier in the decade. Sales of fuel cells for onsite power jumped 21% to $373 million.

Overall U.S. Building Efficiency products and services grew 8%, or $5 billion, **led by energy efficient lighting and commercial building retrofits, both up 7%** reaching $26.4 billion and $8.4 billion, respectively.

In U.S. Transportation, **Plug-in Electric Vehicle (PEV) revenue has grown tenfold over five years**, from $700 million in 2011 to $7.8 billion in 2016, and 48% over 2015, as all-electric alternatives to gasoline-powered vehicles caught on in the marketplace. Under pressure from low gasoline prices, however, hybrid electric vehicles saw revenue fall for the third straight year, dropping 11% to $8.9 billion. If this trend continues, revenue from PEVs may surge past hybrid vehicles in 2017. **Energy storage** also had another big year, with **revenue jumping 54% to $427 million in the U.S.**

Under price pressure from low prices of both oil and corn stock, revenue from ethanol fuel fell by nearly $7 billion, or 24%, to $20.6 billion despite steady production levels. For the second year in a row, declines in ethanol revenue counter-balanced nearly all the growth in other advanced energy market segments. Revenue from ethanol has dropped by half from its 2012 peak of $40 billion.