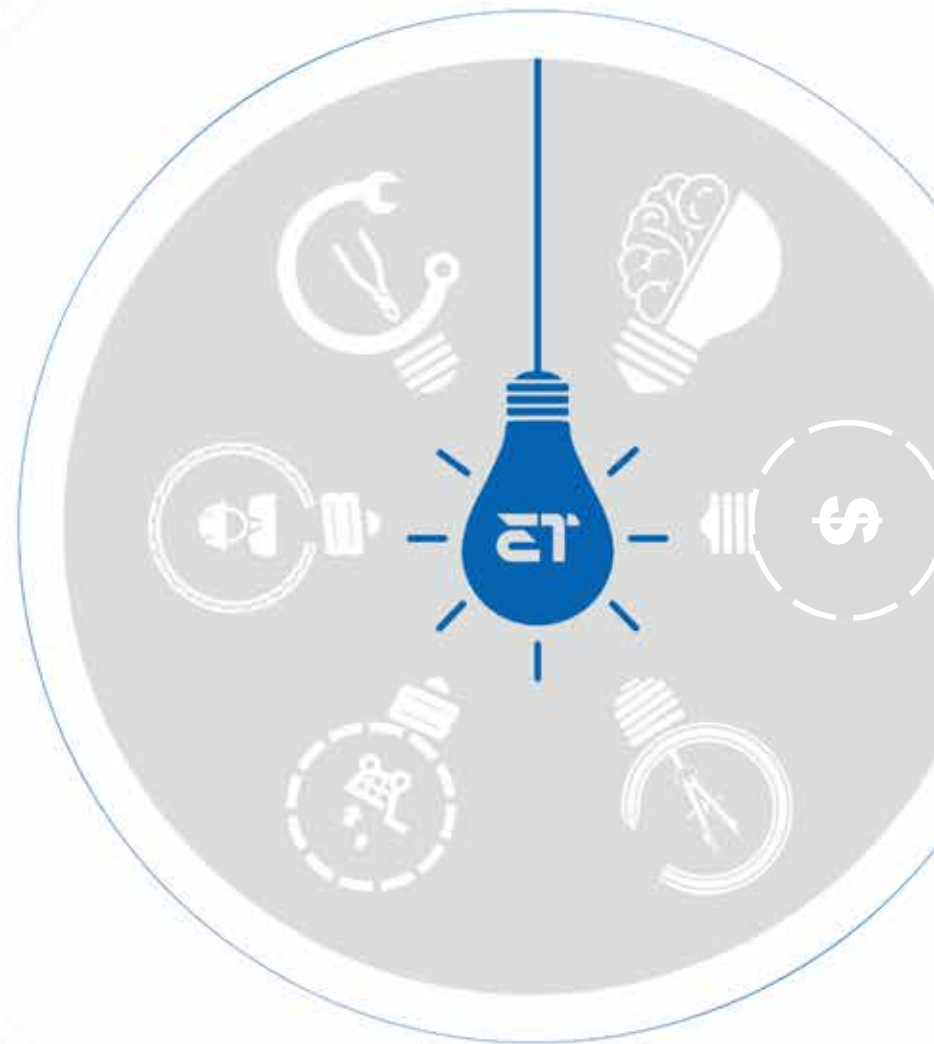


EnergyPath 2018

US Power Markets and Solar Power

Matthew Tripoli, PE



Towards Excellence **We Make Solar Evolve**

www.etsolar.com

Introduction – Matthew Tripoli



ET Energy Group Introduction



ET \ Solar

**R&D &
Manufacturing**

- Tier 1 Module Manufacturer Based in China
- Shipped 5 GW+ of modules worldwide to date



ET \ Capital

**Project Development
Financing & Investment**

- Regional teams worldwide
- 500 MW North American pipeline
- Development to project financing



ET \ Solutions

**EPC &
O&M**

- Global Tier-1 EPC
- Advanced O&M platform
- Assets diagnosis & optimization services



ET Capital North America - 2016 Projects

ET SOLAR GROUP
Global Leading Energy Solutions Provider

Halifax Airport | 30.0MWp | North
Carolina, USA

ET Capital North America - 2017 Projects

ET SOLAR GROUP
Global Leading Energy Solutions Provider

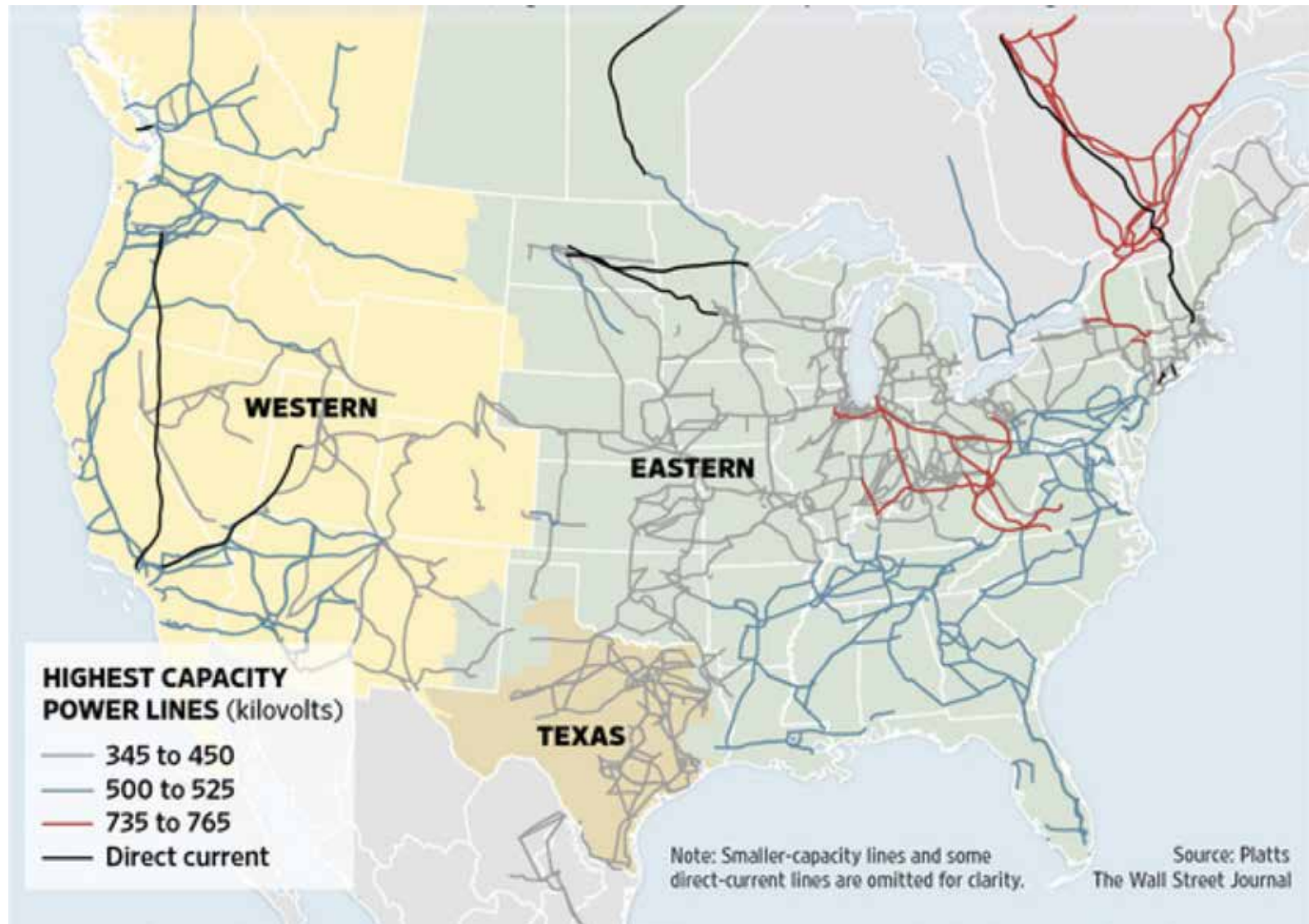
Oregon QF | 60.0MWp | Oregon, USA



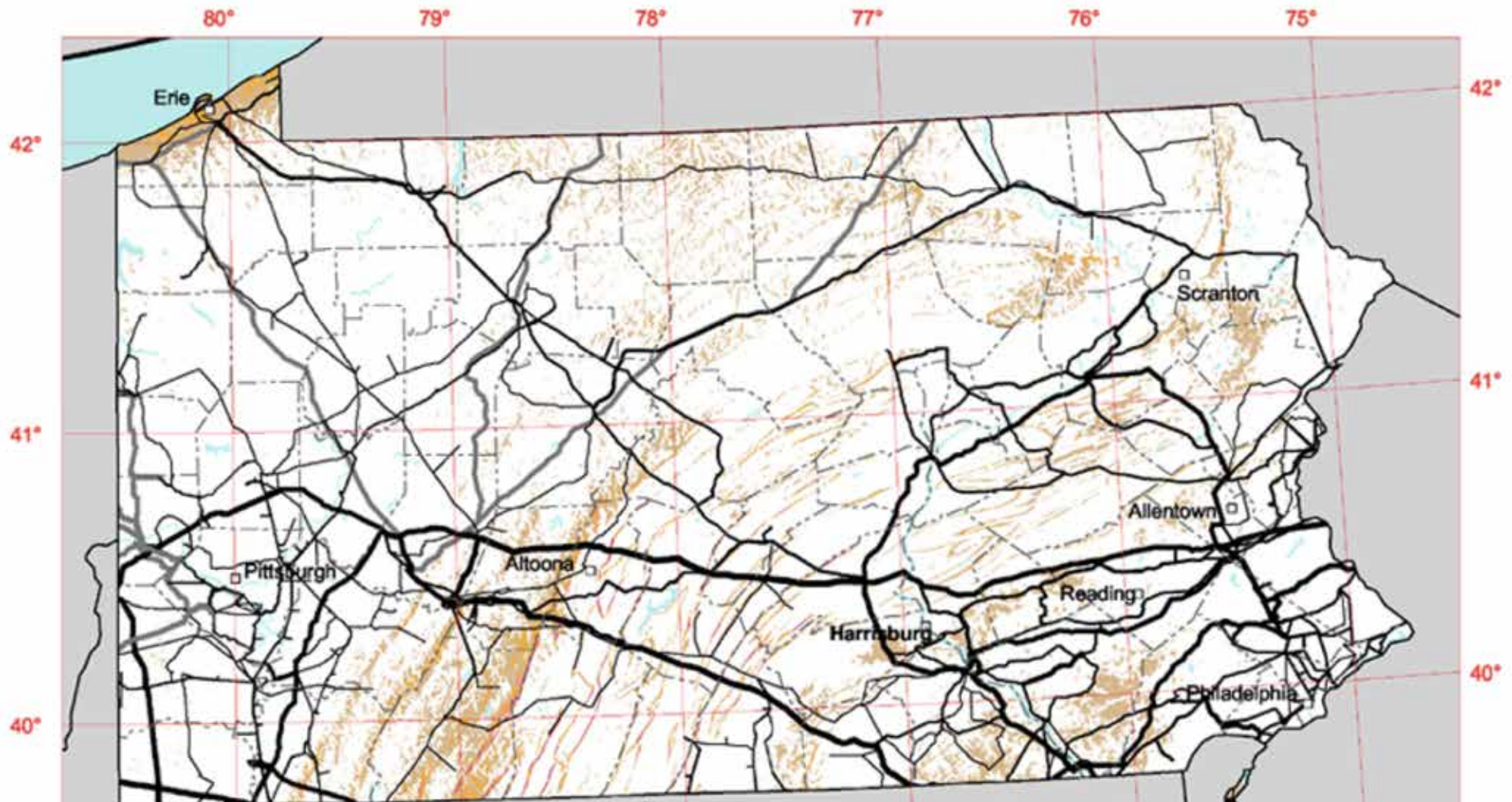
Electric Transmission



US Electric Grid



Pennsylvania's Electric Grid

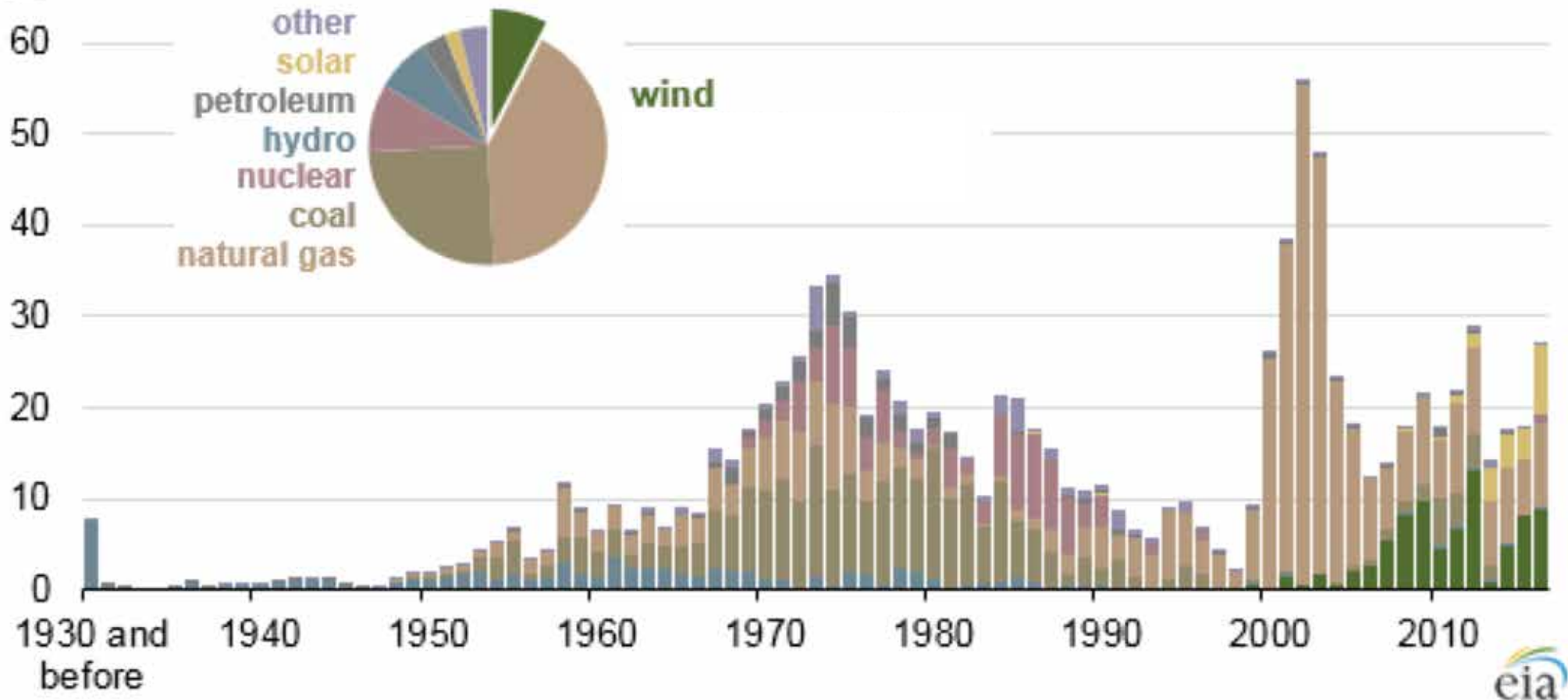


Source: NREL

Power Generation

Where we've been . . .

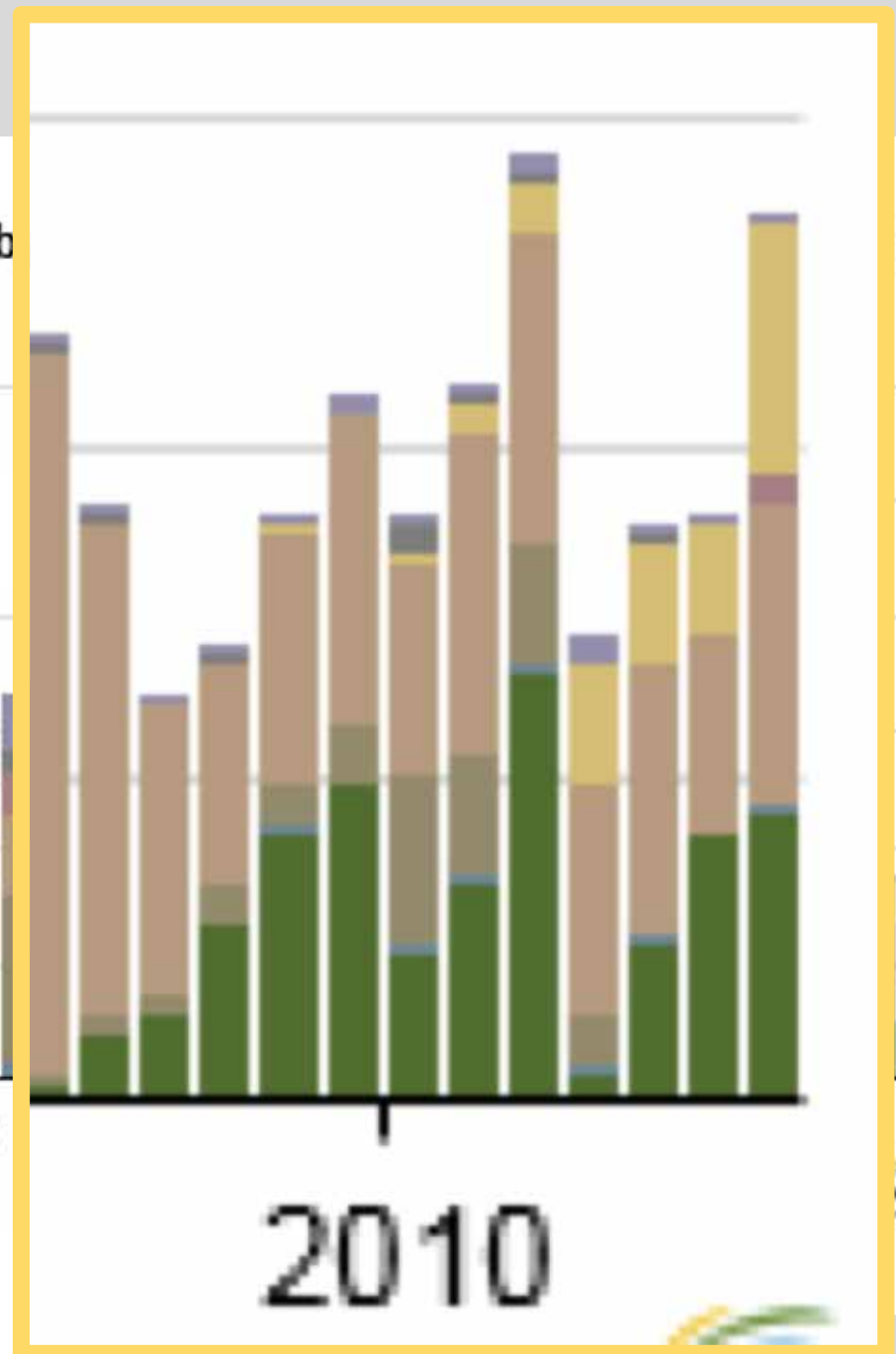
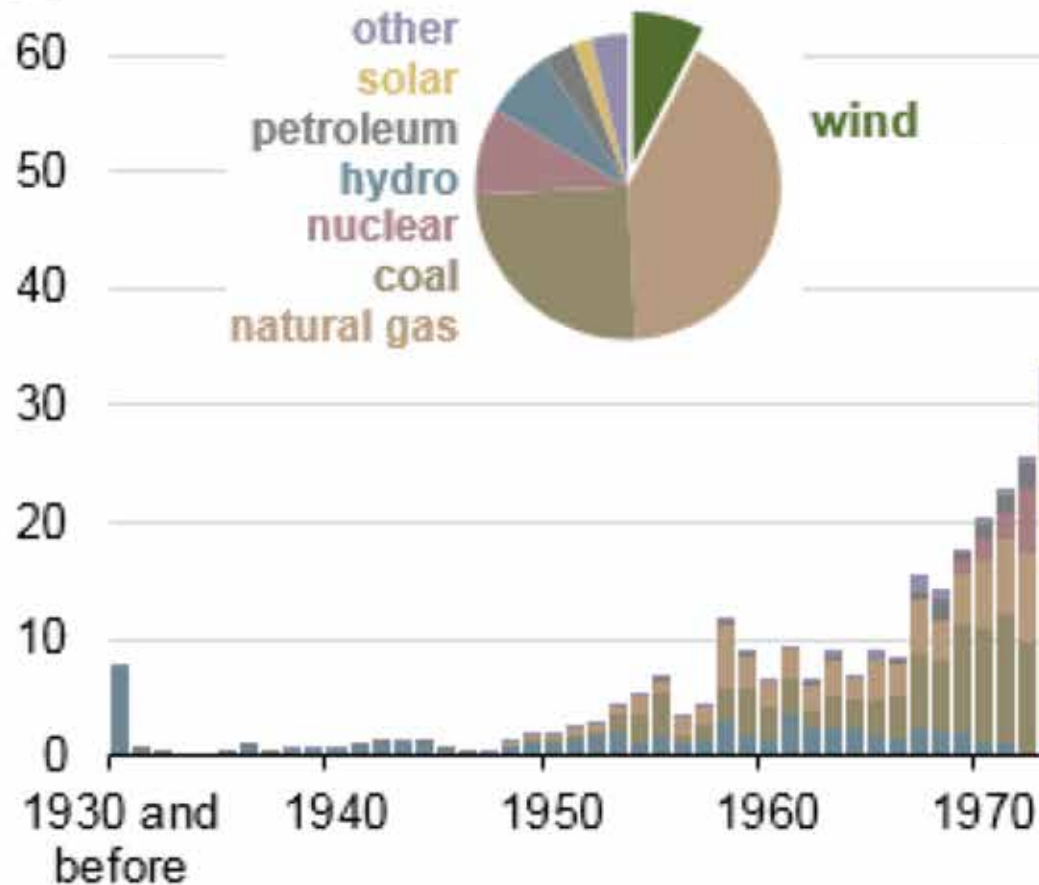
U.S. utility-scale electric generating capacity by initial operating year (as of Dec 2016)
gigawatts



Power Generation

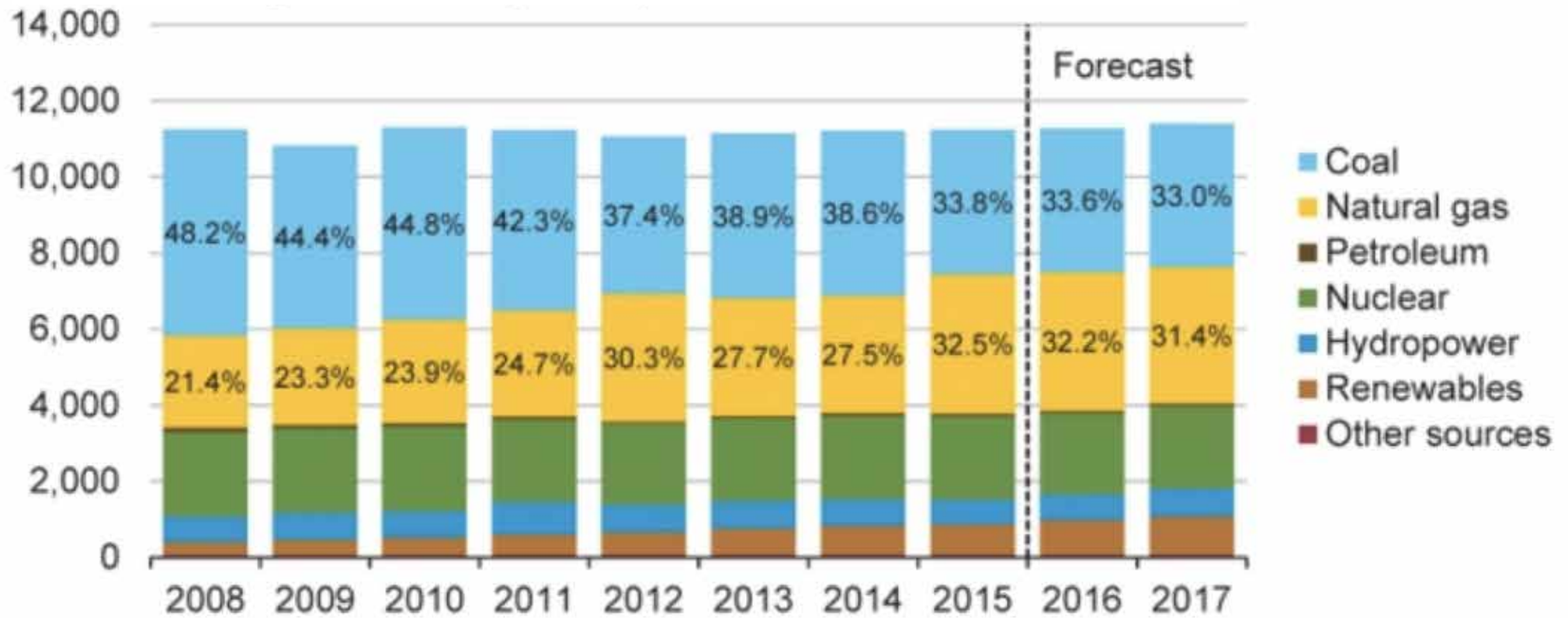
Where we've been . . .

U.S. utility-scale electric generating capacity by gigawatts



US Power Generation Mix

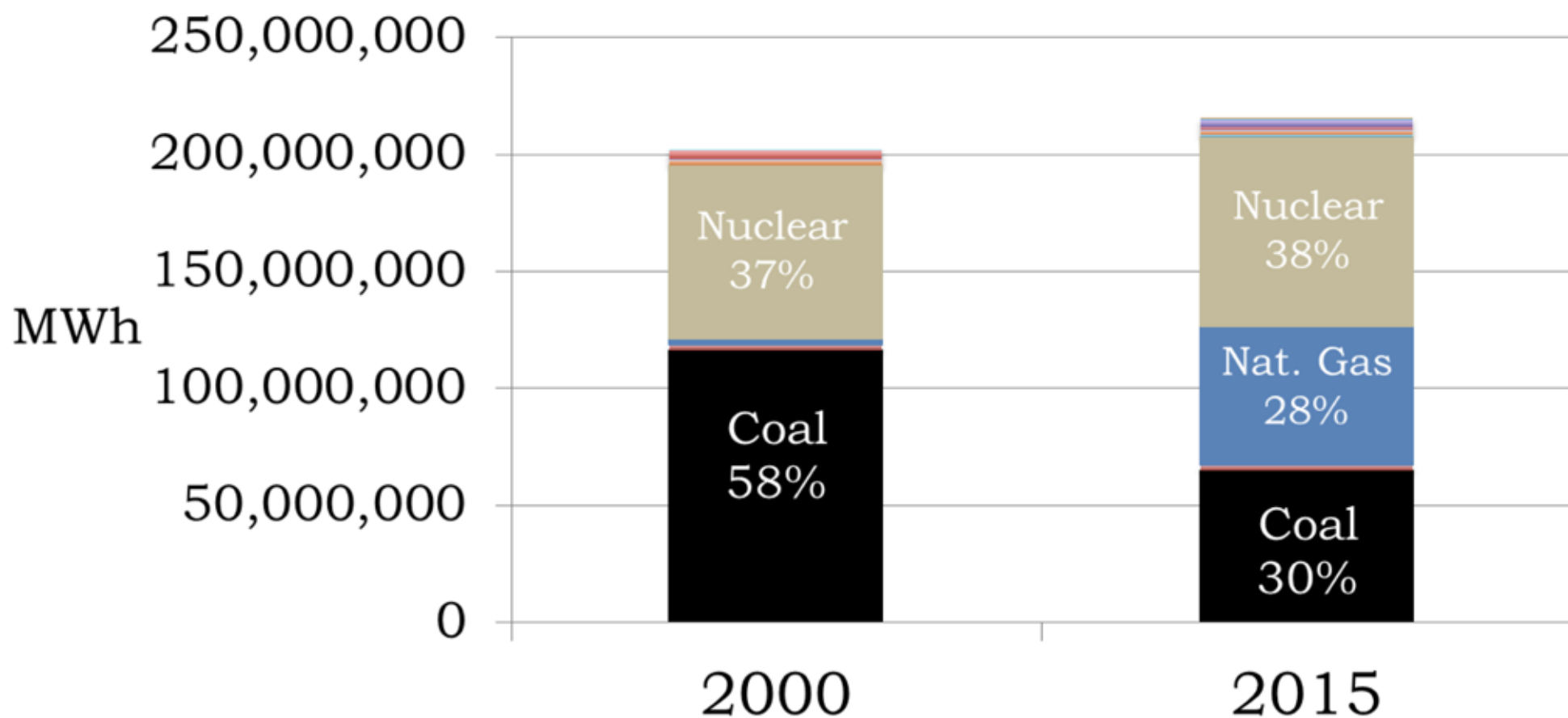
Avg. Daily MWh's



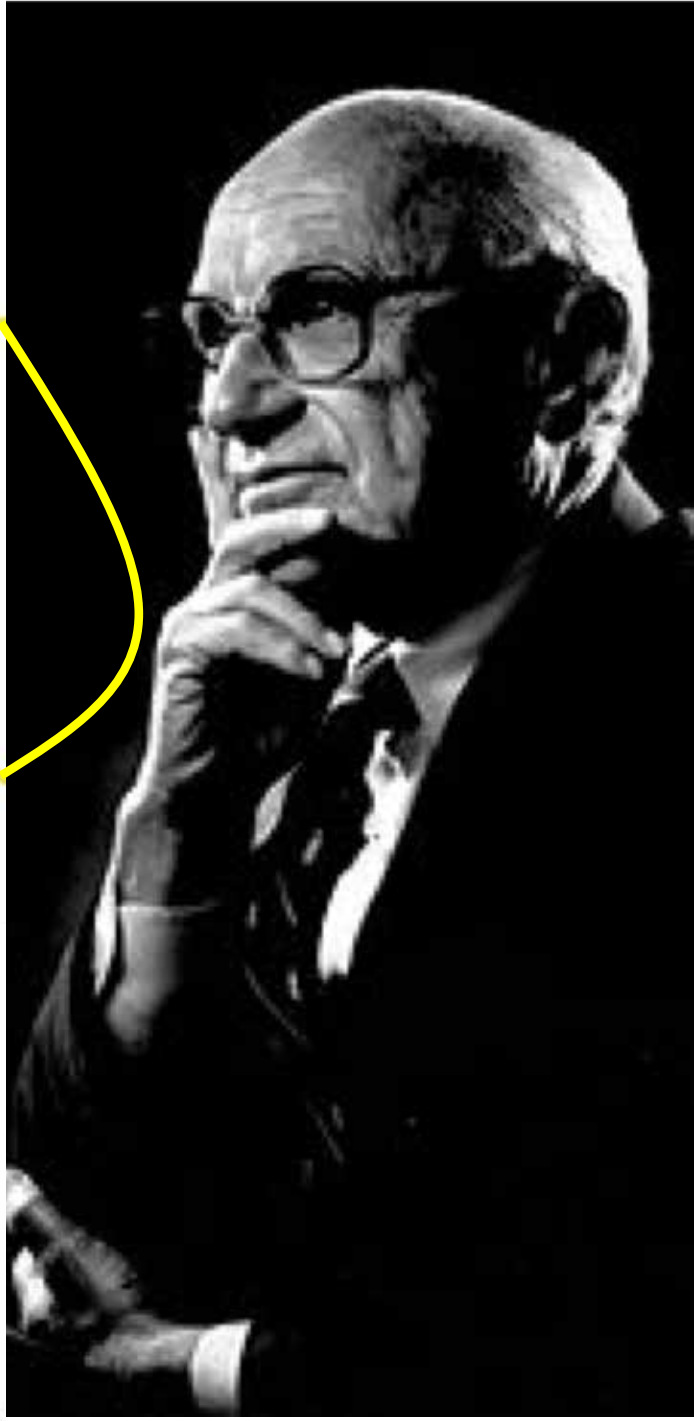
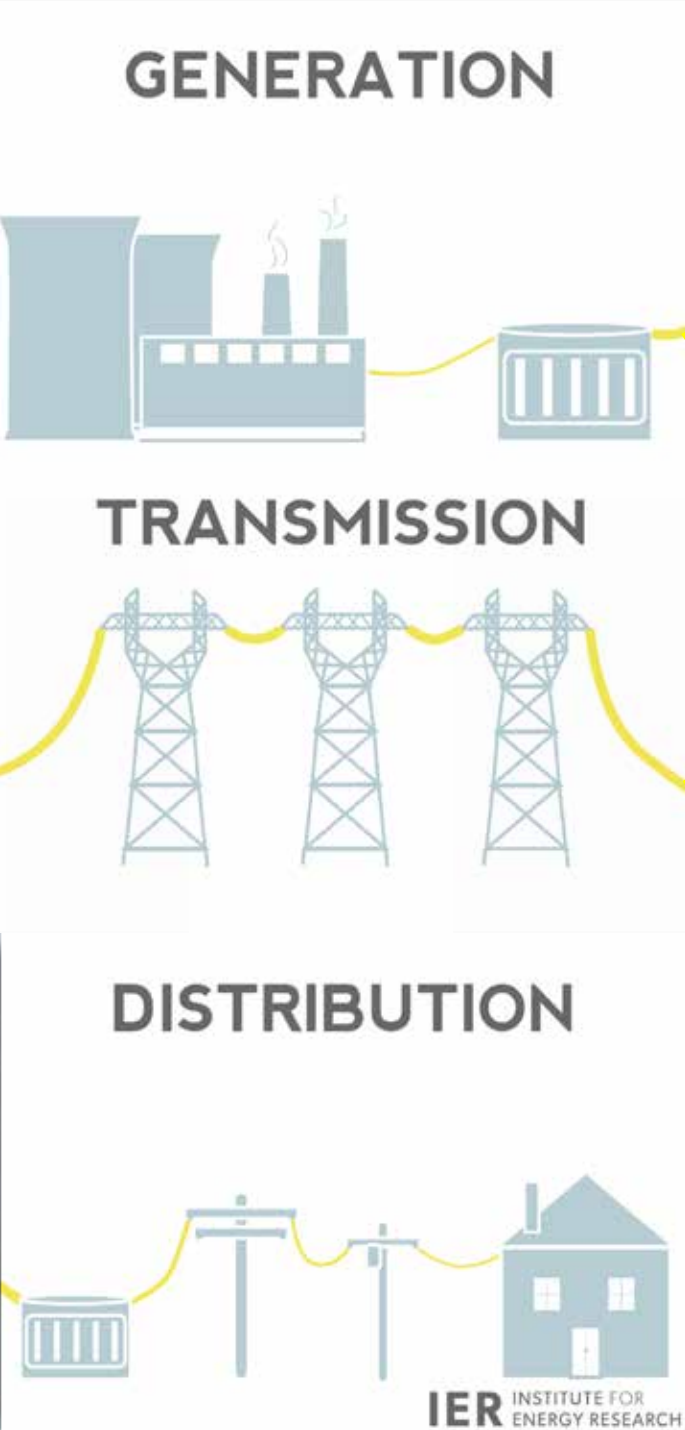
Source: EIA

Pennsylvania's Fuel Mix

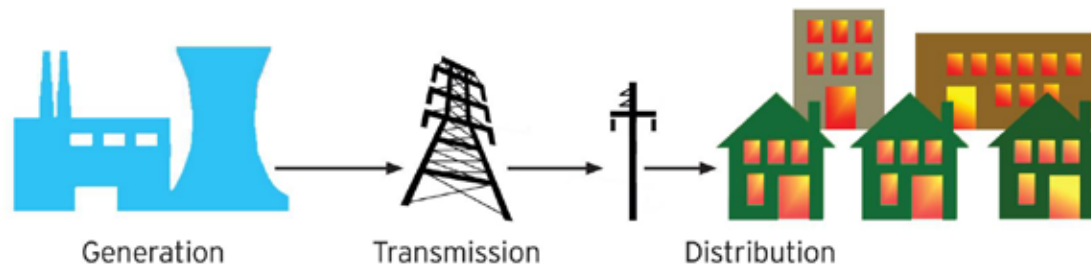
Annual MWh's



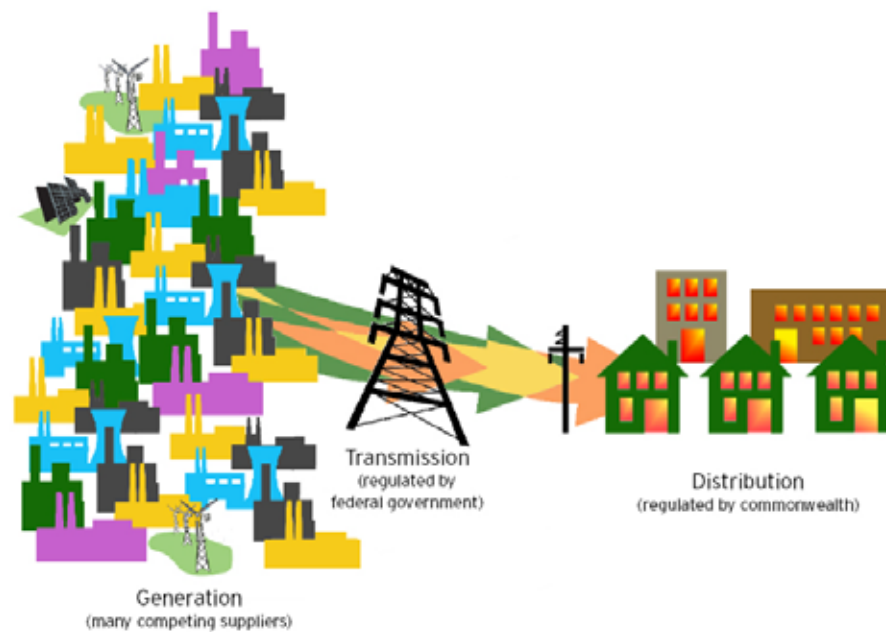
Source: 90.5 WESA



Market Deregulation / Restructuring



Pennsylvania Power & Light Company
(one, regulated company)



Source: PPL

Unique Markets in Every State

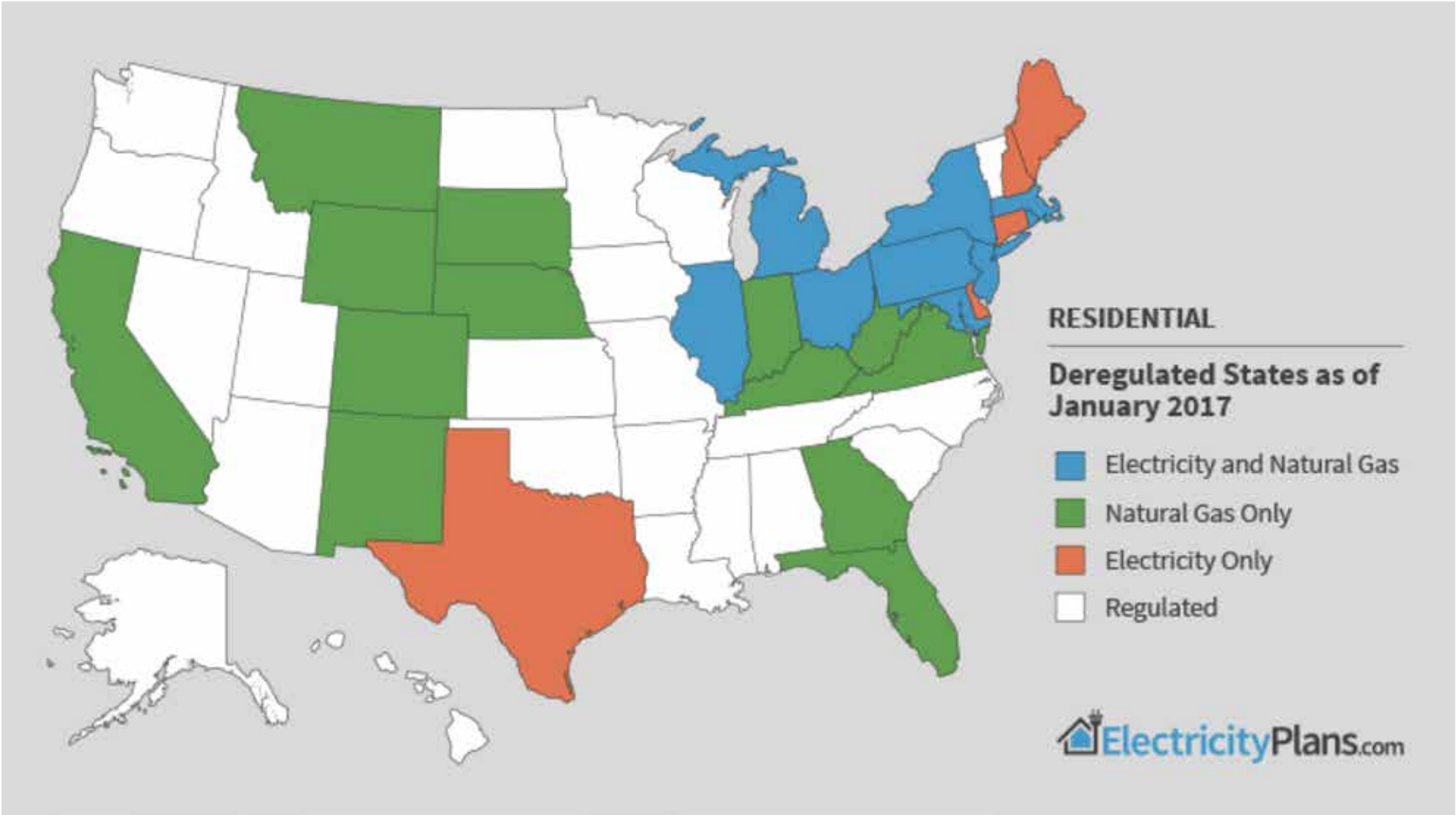
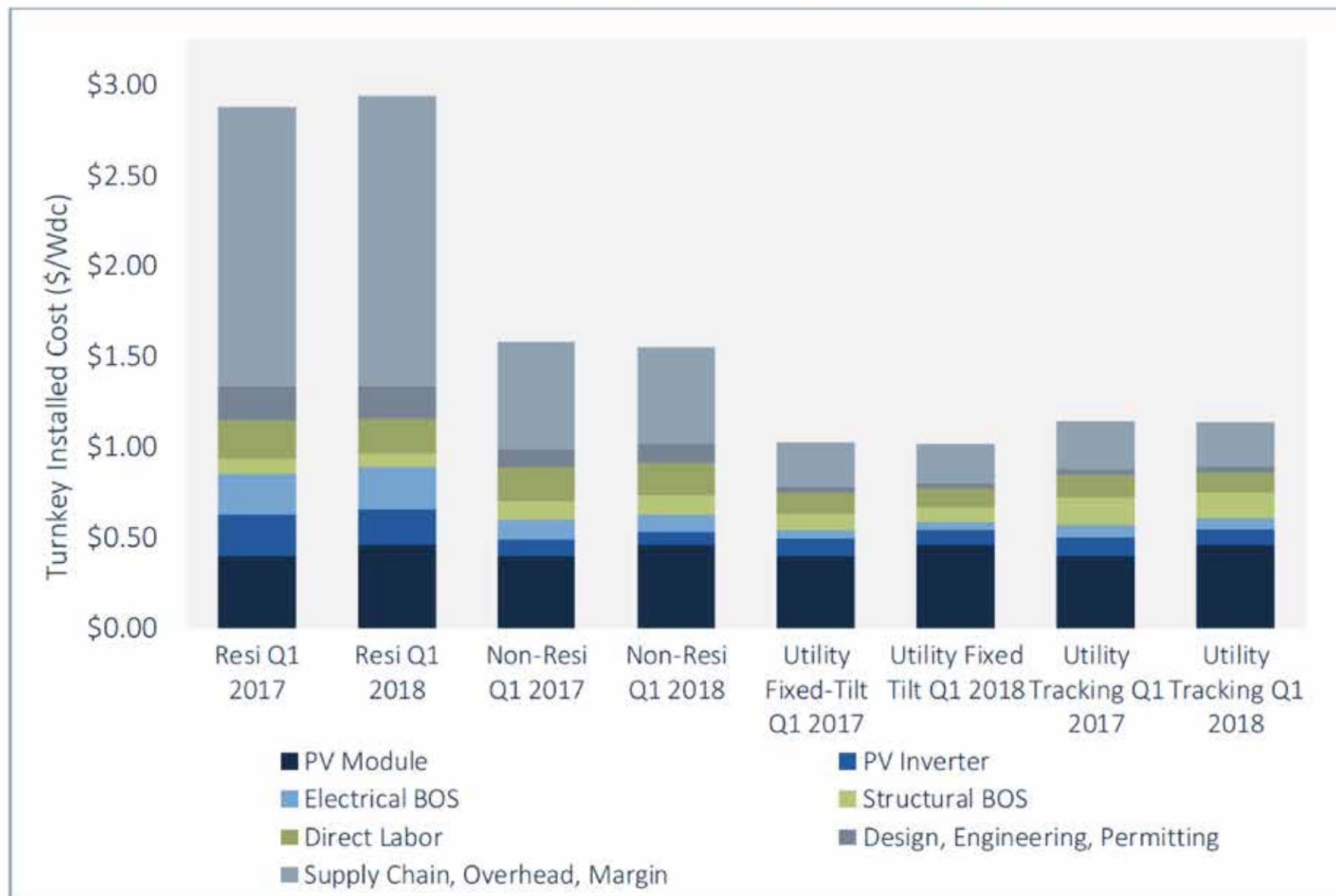


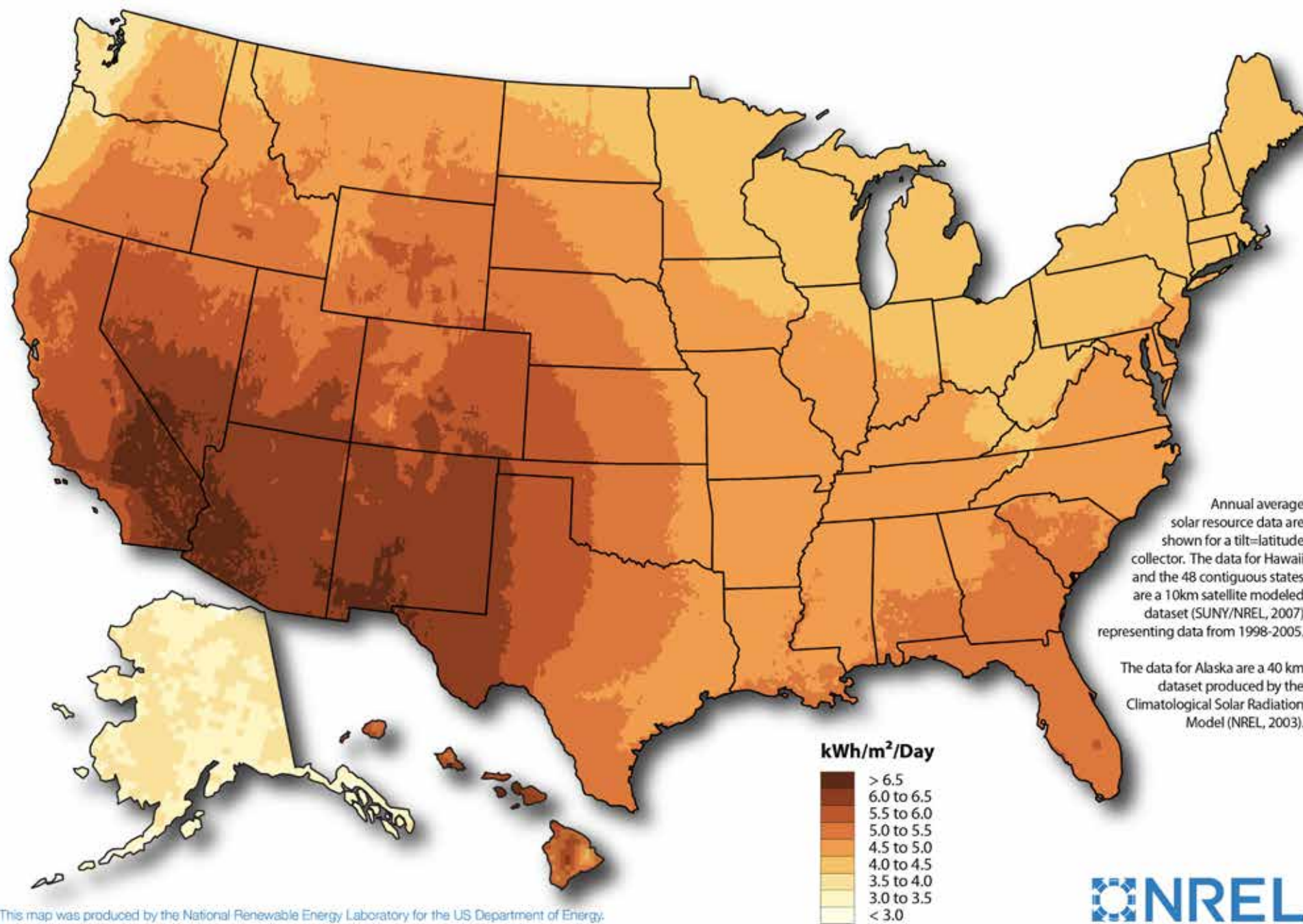


Figure 2.4 Modeled U.S. National Average System Costs by Market Segment, Q1 2017 & Q1 2018



Note: Detailed information about national system prices by market segment and component is available in the full report.

Photovoltaic Solar Resource of the United States



This map was produced by the National Renewable Energy Laboratory for the US Department of Energy.
October 13, 2009 Author: Billy J. Roberts

Top 10 Solar States

State ranking based on the cumulative amount of solar electric capacity installed through Q1 2018

PENNSYLVANIA

30TH

visitPA.com



5 **New Jersey**

2,447 MW

🏠 381,919



10 **Georgia**

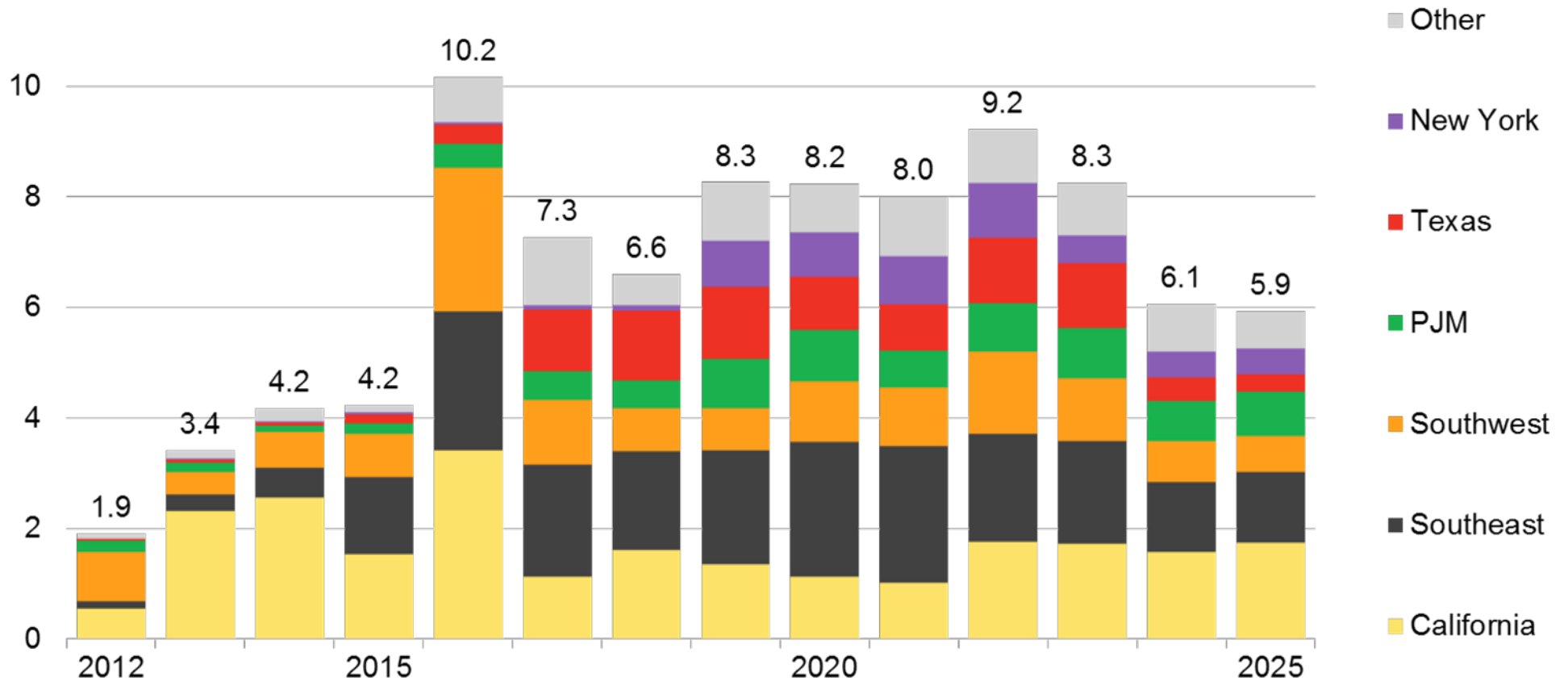
1,553 MW

🏠 173,639

© SEIA 2018

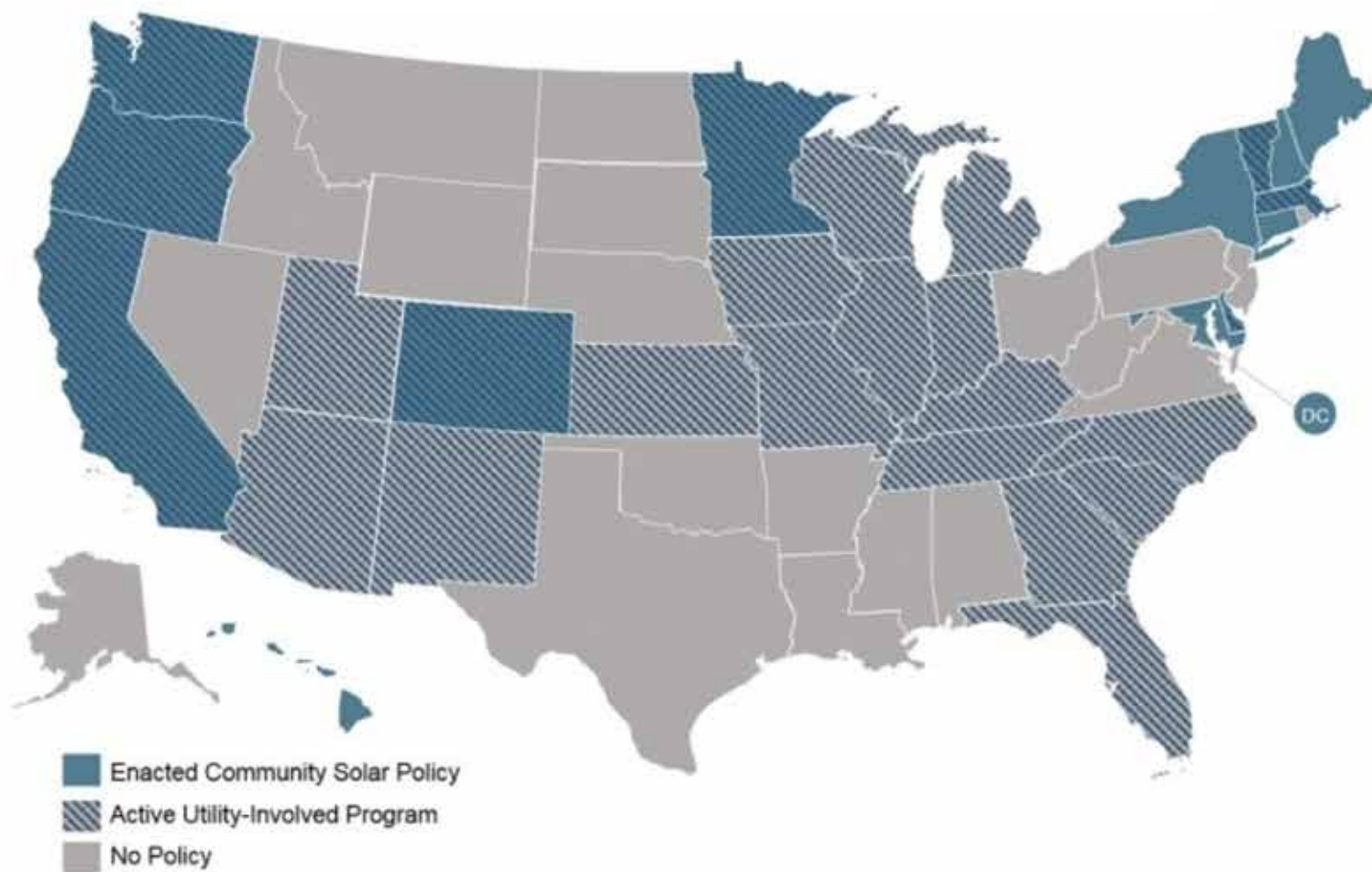
Forecast – Utility Scale Solar

12 Gigawatts



Source: Bloomberg NEF

Community Solar Markets



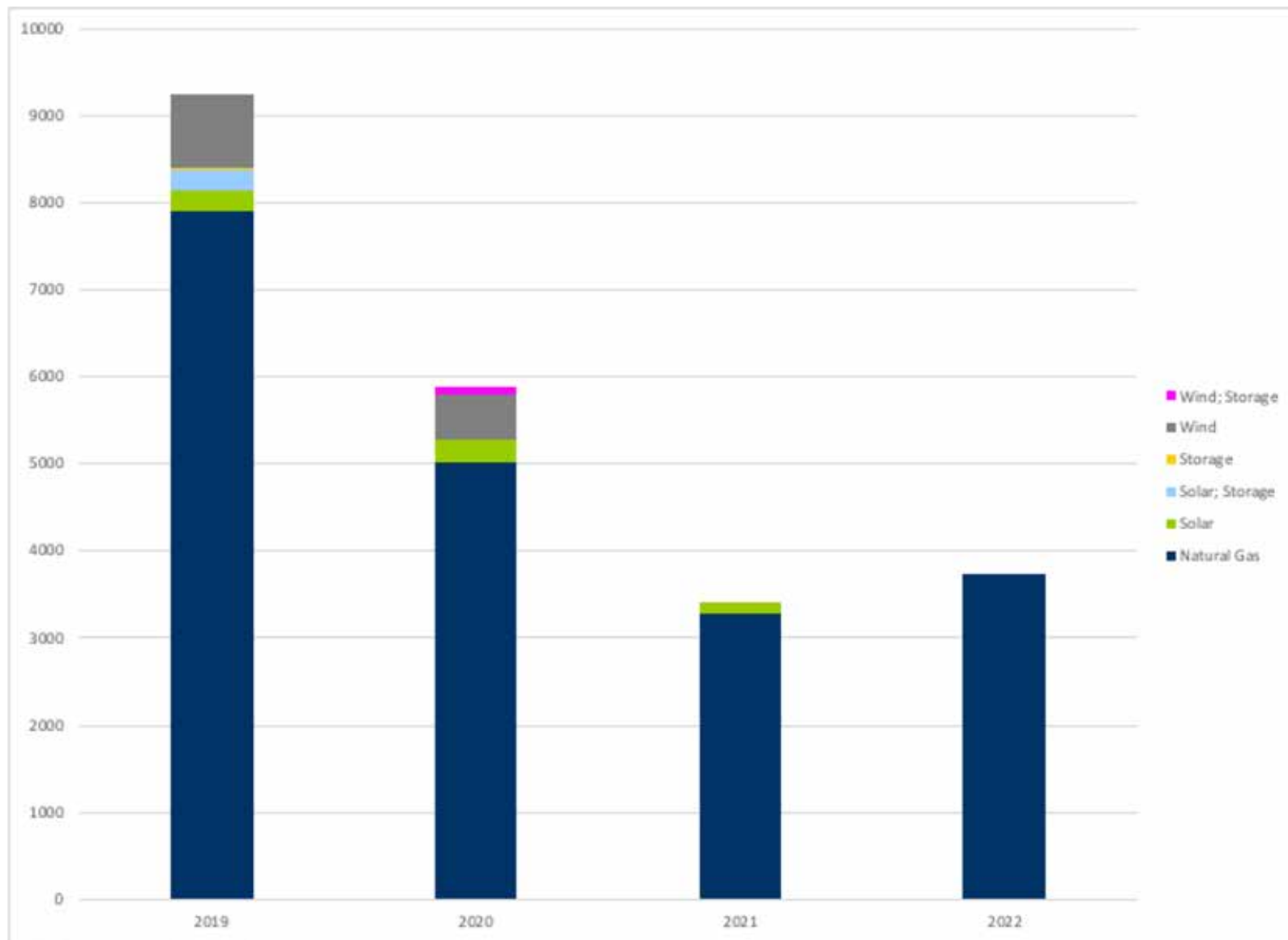
Sources: Solar Electric Power Association¹⁹, Vote Solar,²⁰ and NCCETC and Meister Consultants Group (MCG) research



Coin Flips for PA

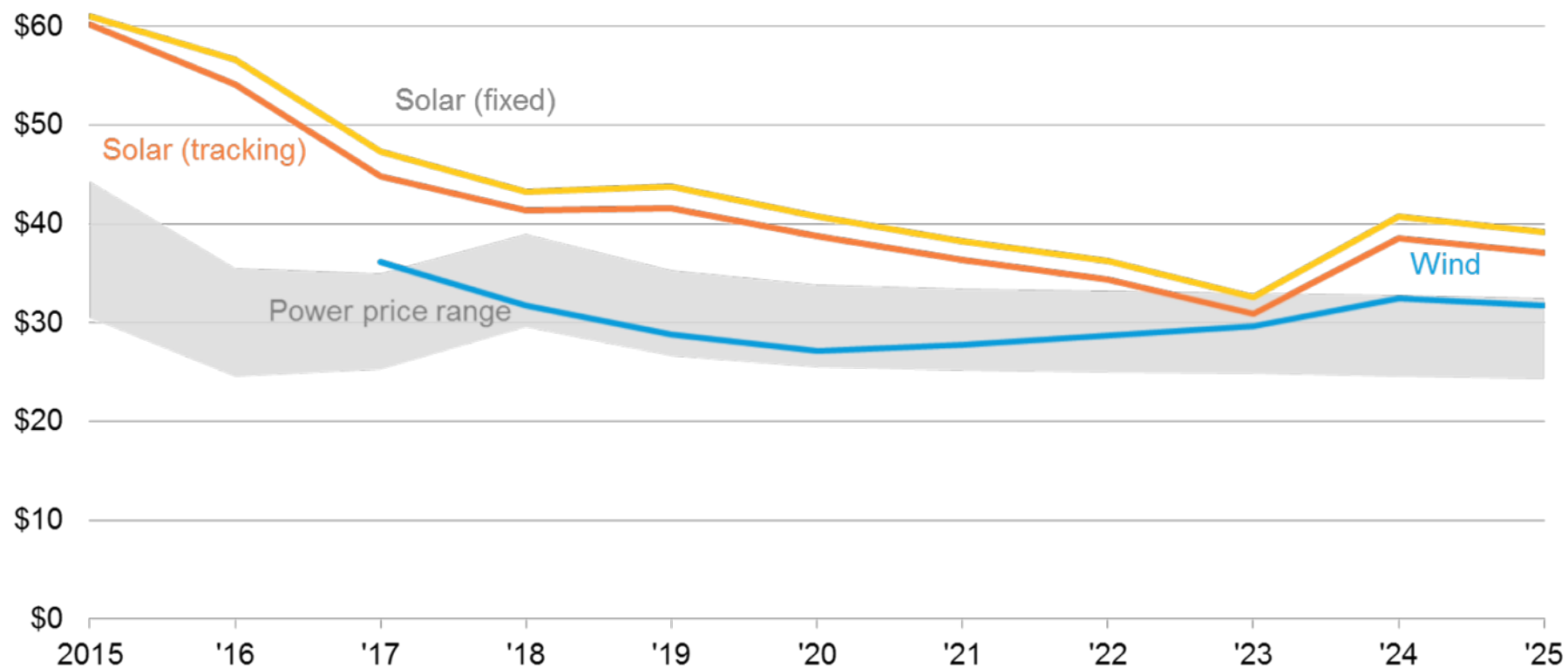
- Restructured Market
- Pennsylvania AEPS
- Community Solar
- Low Solar Penetration
 - Neighbors

PA – Potential Capacity Additions



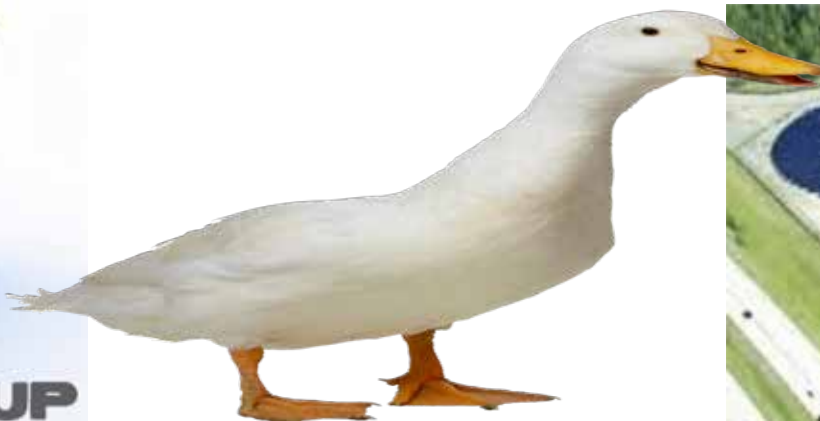
Mid-Atlantic LCOE

\$70/MWh (Real 2018)



Source: Bloomberg NEF

Things to Watch



**THERE'S
AN
APP
FOR
THAT**

Matthew Tripoli, PE
Director, Project Development East
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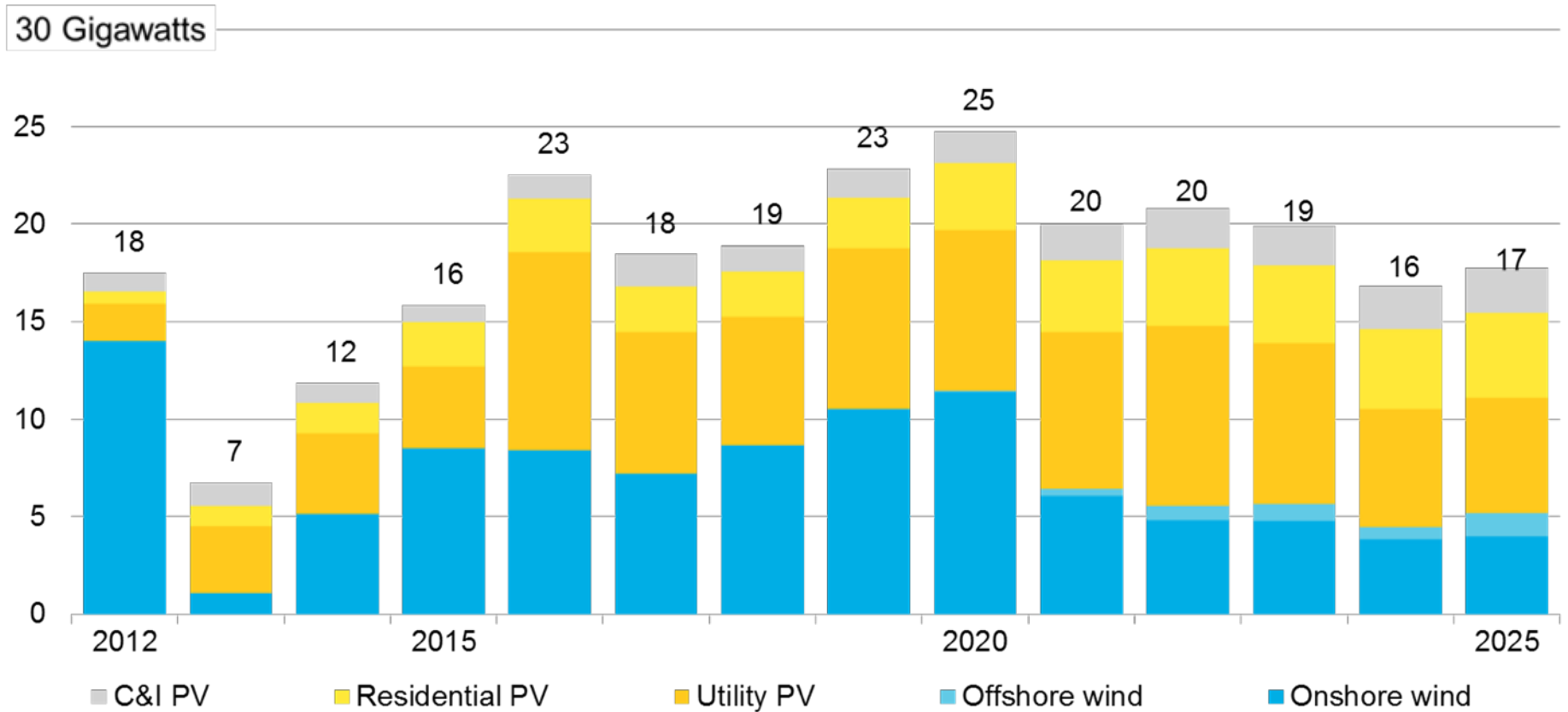
THANK
You



Towards Excellence **We Make Solar Evolve**

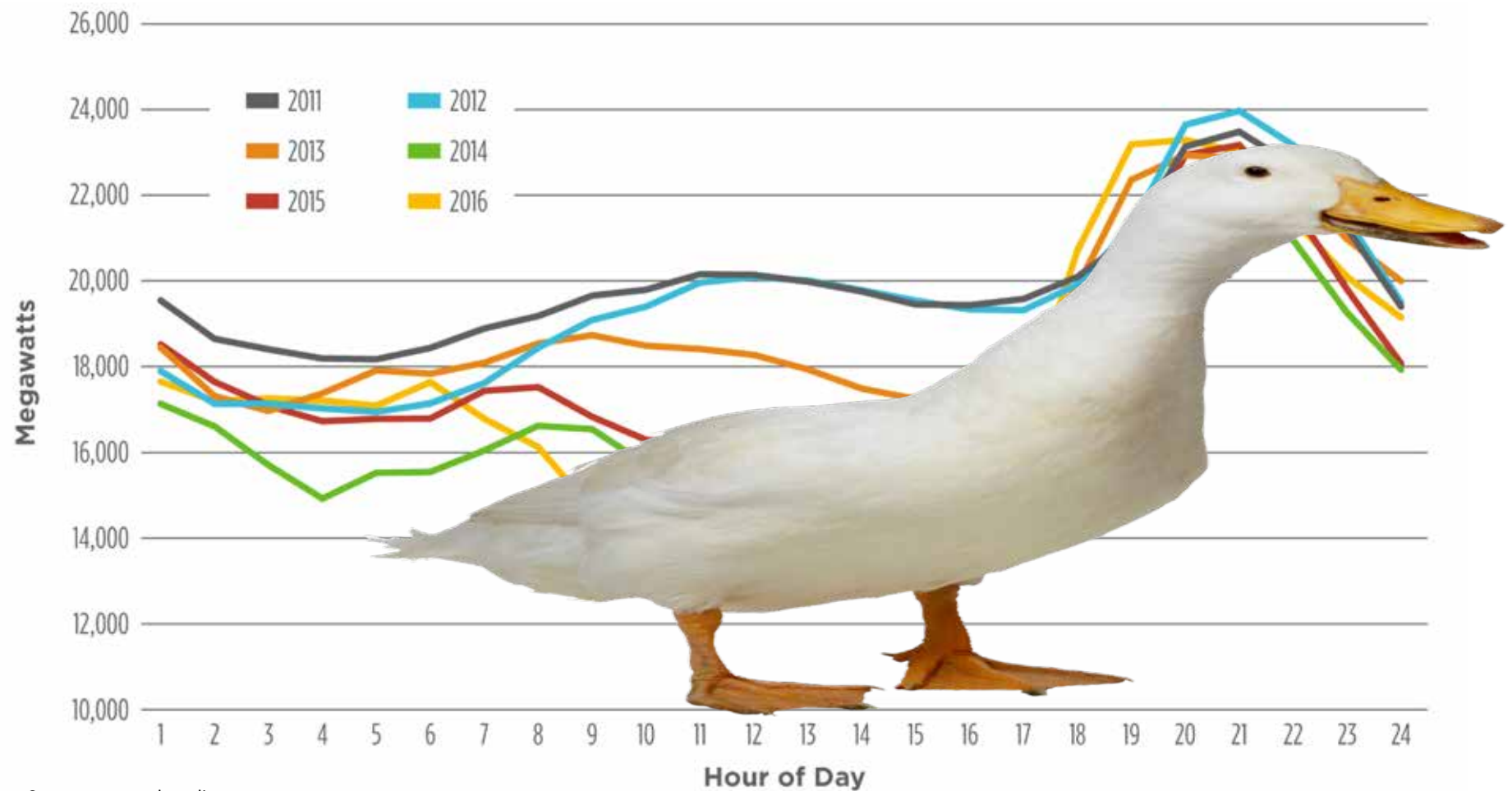
www.etsolar.com

Forecast – US Renewable Installations



Source: Bloomberg NEF

California Duck Curve



Source: greentechmedia.com