



# Solar Technology

*Answering the Energy Challenge*

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Presented to:

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# TVA at a Glance

- Founded in 1933, “TVA Act”
- Nation’s largest public power provider
- Technology leader
- \$11.3 billion in annual revenue
- 155 distributors
- 9 million people in 196 counties in seven states
- About 60 directly-served large industrial and federal customers



# TVA's Strategic Direction

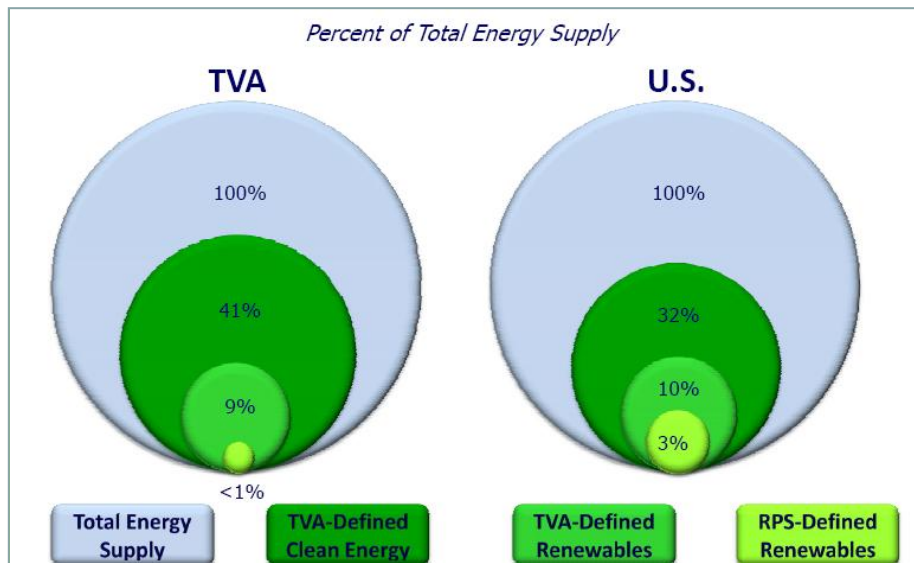
- Add nuclear units
- Increase energy efficiency
- Add gas capacity
- Retire marginal coal-fired units
- Expand transmission capacity
- Use new technologies



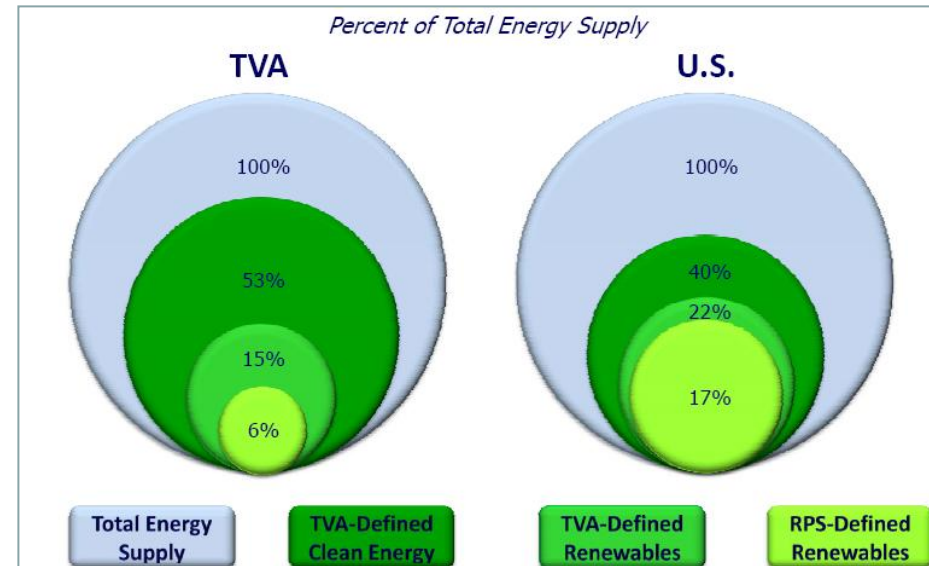
“TVA will be one of the nation’s leading providers of low-cost and cleaner energy by 2020,” – Aug 26 2010, CEO Employee Forum

# Energy Portfolio Comparison: TVA vs. the U.S.

## *A Cleaner Tennessee*

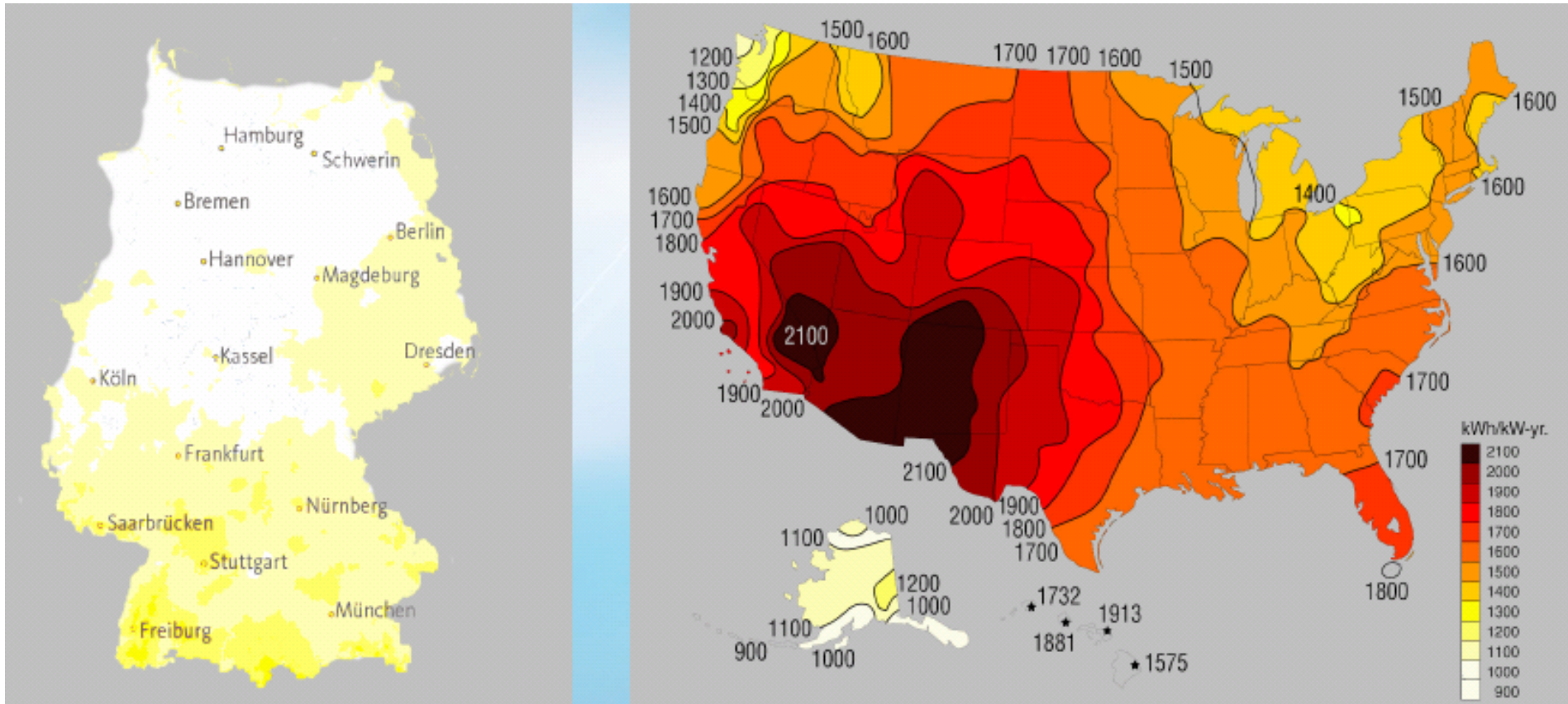


2009



2029

# A Solar Tale of Two Countries



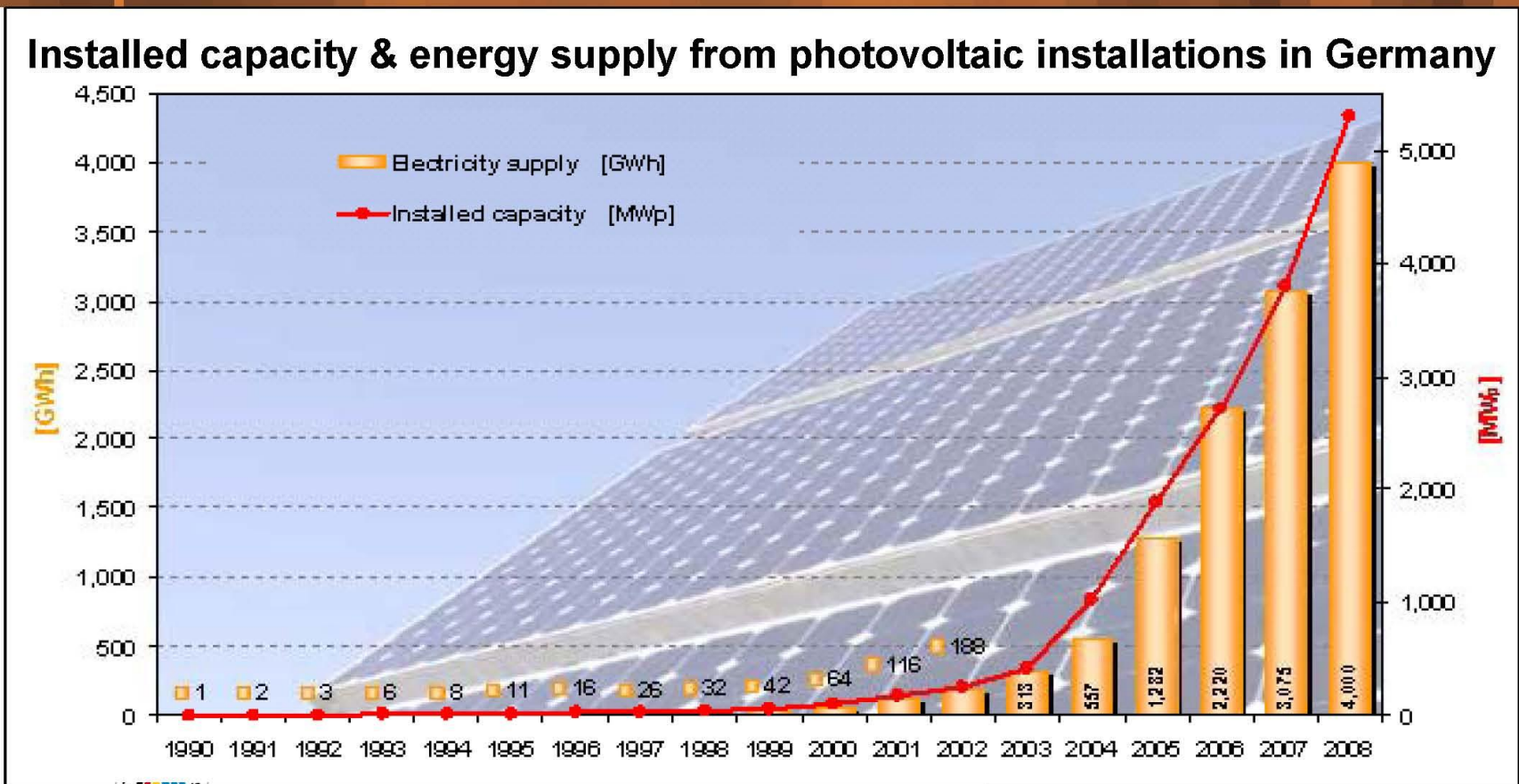
Germany	0.357 Mkm <sup>2</sup>	4,500 MW
USA	9.867 Mkm <sup>2</sup>	1,300 MW

# Why Germany?

- PV Competitiveness
- Large Scale Deployment
  - Estimated 4,500 MW installed capacity by 2010; 90% grid connected
  - 40,000 jobs
- Price Support
  - Strong renewable energy standards
  - Feed-in, preferential Tariffs



## Solar PV installations since since 1990 in Germany



# Closer to Home

- TVA Green Power Switch<sup>®</sup>
  - 14 TVA-owned sites throughout the Valley totaling .28 MW
- TVA Generation Partners<sup>®</sup>
  - 251 participant-owned solar sites totaling 3.2 MW
- 1 MW solar array, Knoxville Natural Energy Group
- 5 MW West Tennessee solar farm





# TVA Solar Innovations

- Campbell Creek Energy Efficient Houses - Solar PV and solar water heating
- Melton Hill Clean & Green Campground- Solar PV and solar water heating
- Solar powered EV charging stations
- Concentrated solar thermal augmentation with coal-fired plants assessment
- Utility-scale electricity storage demonstration using repurposed lithium ion automotive batteries



# Campbell Creek Energy Efficient Houses



## Monthly Energy Use

Standard House	1,852 kWh
Retrofit House	1,396 kWh
Advanced House	839 kWh

## Monthly Energy Cost

Standard House	\$154.06
Retrofit House	\$117.84
Advanced House	\$42.51

Average monthly cost & use, July 2009-April 2010



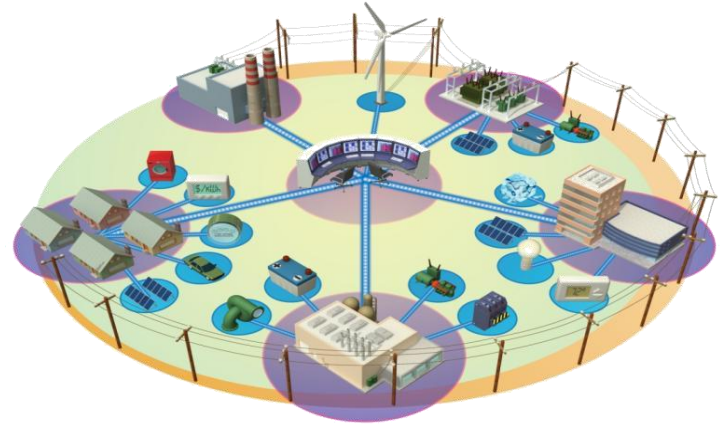
# Melton Hill “Go: Green” Campground



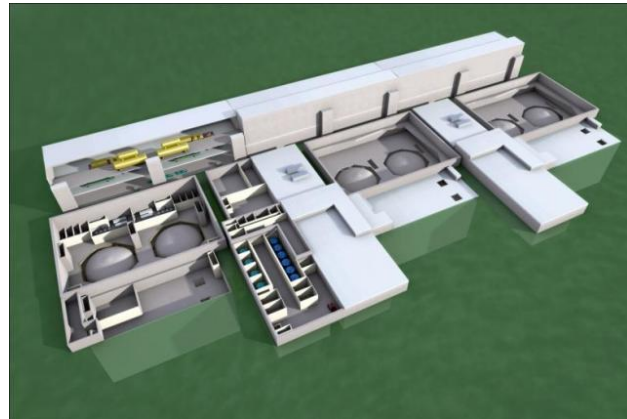
# TVA Signature Technologies



Infrastructure - EVs



Infrastructure-  
Smart Delivery



Infrastructure - Clean Generation

***Nation's Leader in Signature Technologies***