

JISEA Annual Meeting

Michael Leifman

Director of Forecasting, GE Power & Water



Power & Water portfolio

~\$28B '14 revenue >37,000 employees >120 countries

Power Gen Products \$5.8B

High Efficiency, Scale Power

- Gas Turbines
43MW-470MW
- Steam Turbines
(200-600MW)
- Generators
& Controls



Power Gen Services \$8.3B

Enhancing Plant Performance

- Long-term Operations & Maintenance
- Asset Upgrades
& Enhancements
- Service
Agreements
- Outage &
Field Services



Distributed Power \$5.3B

Broad, Efficient Portfolio

- Aero-derivative Gas
Turbines (18-100MW)
- Jenbacher & Waukesha
Gas Engines
0.1 to 10MW
- Parts & Services



Renewables \$6.3B

World's Most Efficient & Reliable Fleet

- Wind Turbines (1.7-3.2MW)
- Wind services aligned
to customer goals
- Energy Storage
- C&I solar offerings



Water/Process Tech \$2.3B

Energy Efficient Water Solutions

- Chemical &
Monitoring Solutions
- Engineered Systems
- Mobile Water
- Build-Own-Operate
Services



Nuclear \$1B

Advanced Reactor Technologies

- ESBWR, ABWR, PRISM
- Outage & Asset
Enhancement
Services
- Fuels &
Engineering
Services



Diverse Technology & Services Solutions



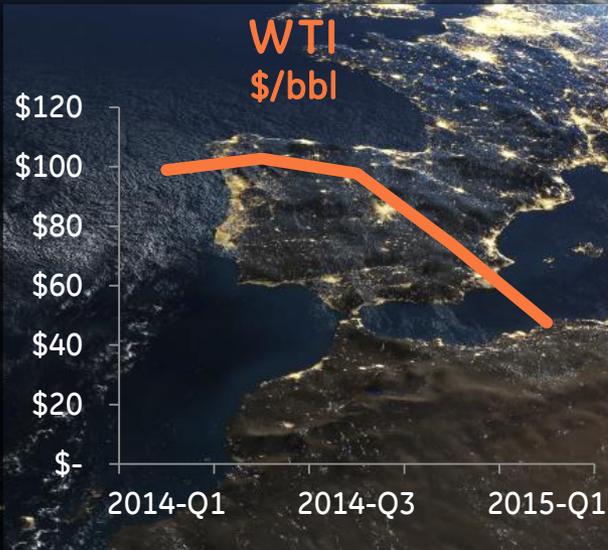
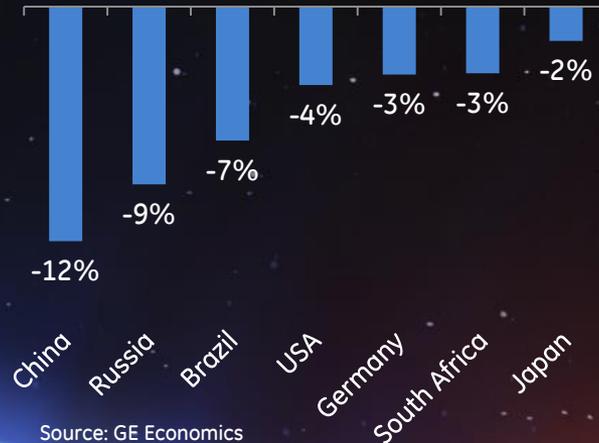
One year, big changes.....

In last 12 months:

- ✓ OPEC production levels
- ✓ Russia/Ukraine
- ✓ USA, China, EU CO2 commitments
- ✓ Mexico energy reform
- ✓ India PM Modi reform agenda
- ✓ ISIS
- ✓ End of QE
- ✓ UK capacity mechanism
- ✓ One EU energy system

\$20T lower GDP in 2025 than expected one year ago; ~ 30% of 2014 GDP

Lowered '25 GDP forecast



2015 YOY GDP growth: 2.8%

'15 - '24 CAGR

- Advanced Economies: <2%
- Developing/Emerging: 4.3%

Mega trends of power generation

Developed ↓, Emerging ↑



Age of Gas



Mainstream Renewables



Distributed Technologies

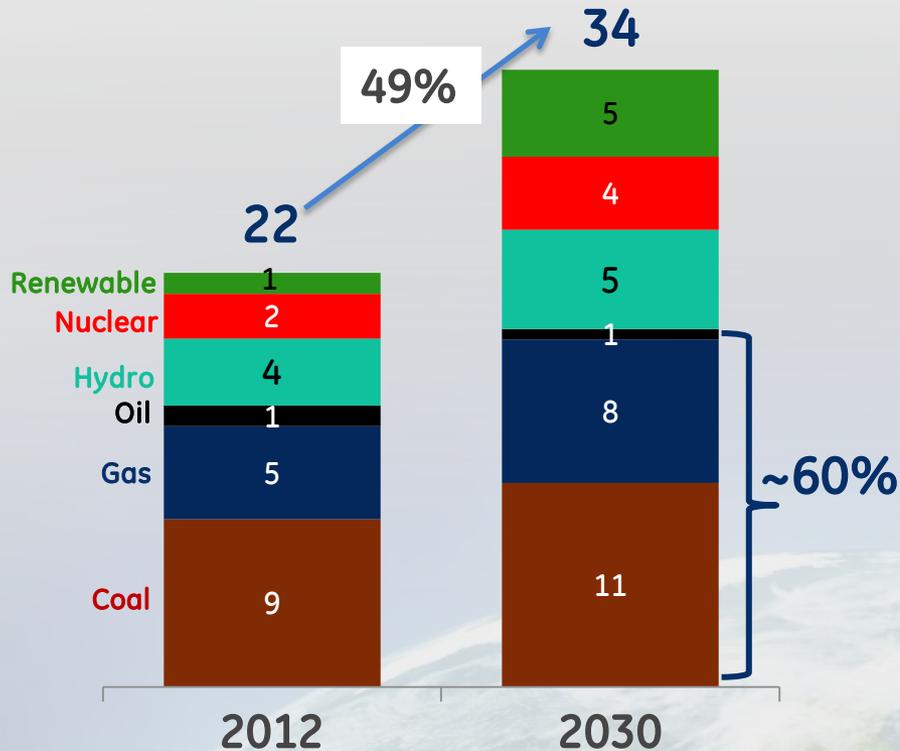


Customers need Affordable, Accessible, Sustainable Power



Global power outlook ...

World electrical generation by fuel
(TWh in '000s)



Source: IEA 2014 World Energy Outlook (new policies scenario)

Industry dynamics...

Fossil Fuels

Remains ~60% of industry

Gas

Doubling its share

Emerging Markets

85% of electricity growth, distributed power driver

Renewables

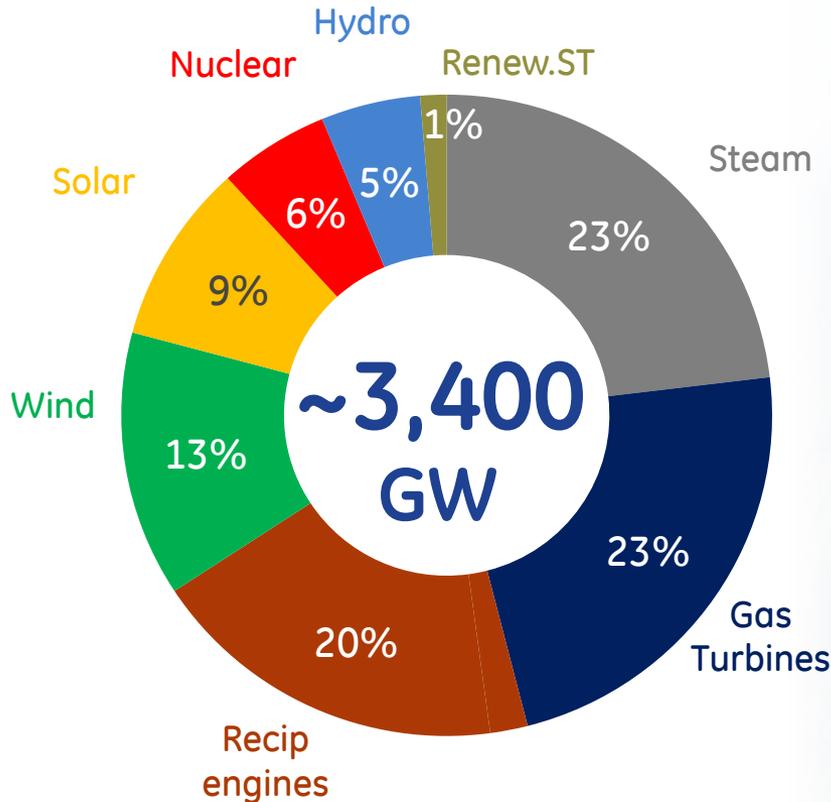
Fastest growing segment

Diverse solutions required ... technology, geography, scale

World Power ... the next 10 yrs

New Equipment, 2014-2023

V% vs. Last 10 yrs.



- **Centralized power**
Still >60% of new installs
- **GT & coal orders @ parity**
Gas availability ↑ ~20%
- **Emerging markets drive growth**
75%+ of orders
- **Distributed gen & Renewables**
Double

Distributed power & renewables growing ... central power gen remains core

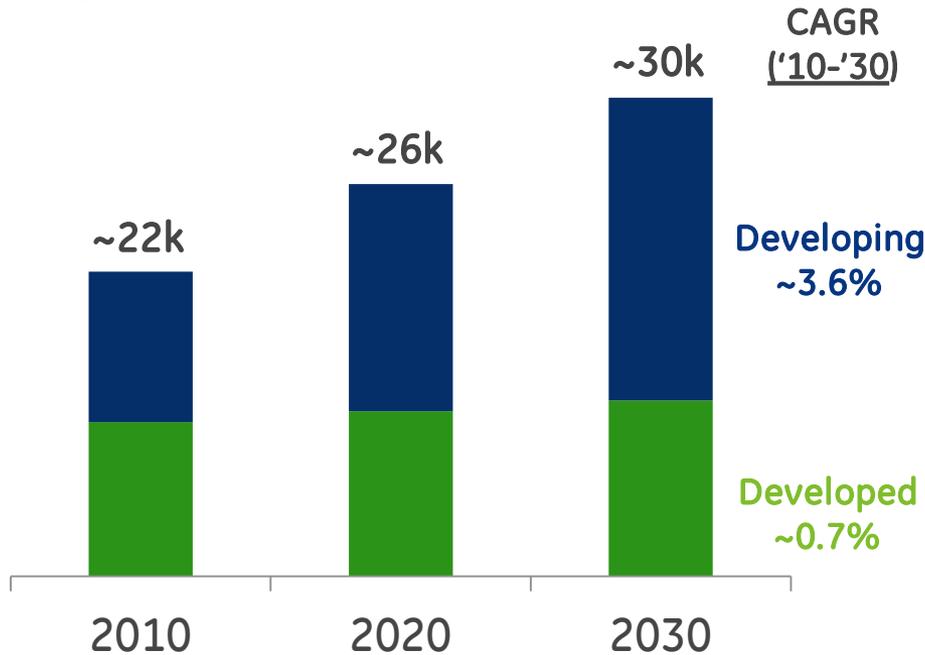


Source: McCoy, GE P&W estimates

Growth centers are shifting

Electricity consumption

(TWh)



Developing economies

5x growth rate '10-'30

60% of global economy

85% of kWh

Source: IEA World Energy Outlook 2014

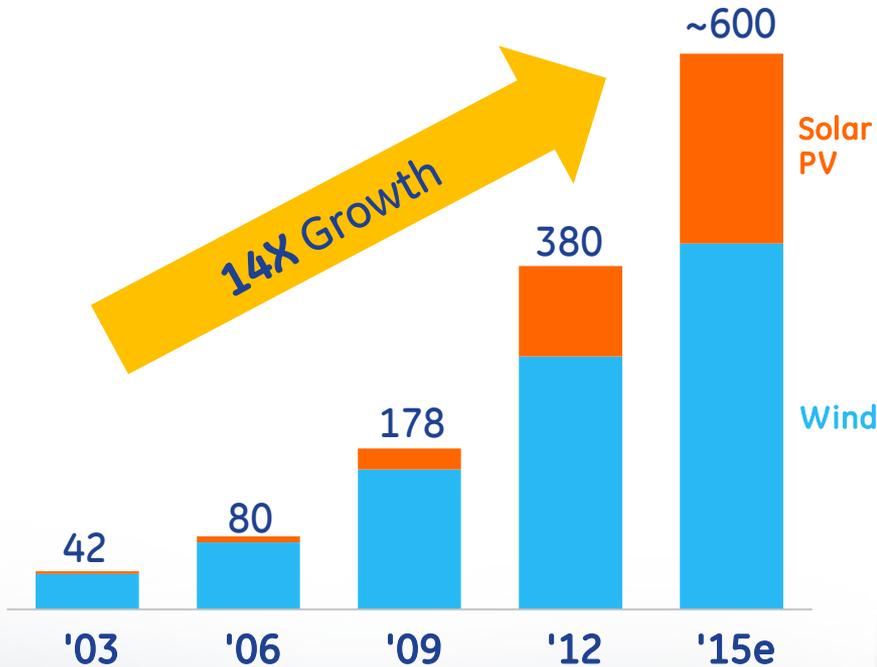
Developing countries will account for ~60% of electricity consumption by '25



Renewables going mainstream

Global installations

Cumulative (GW)



Source: GWEC, Navigant, REN21, Bloomberg, MAKE

↓ cost & policy driving growth

Wind costs ↓ ~70% over the last decade

- Wind >35% of EU/US installs '12-'13
- 9 states w/>10% wind generation

Solar PV costs ↓ 75%+ last 5 years

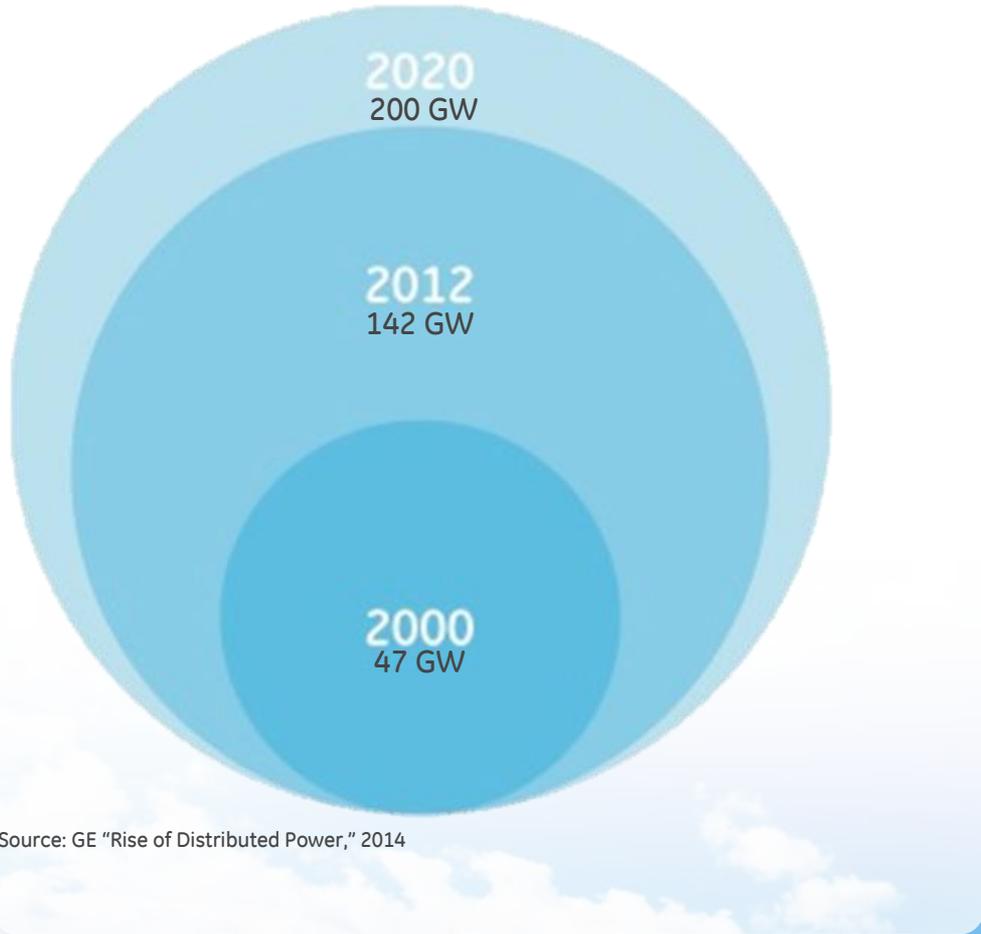
- Record installs in '13 ... 37GW
- Solar passed the 140GW IB in '13

Source: EWEA, AWEA, EIA, GE Marketing

Technology making renewables more economic than ever

Distributed Power growth

Solar, recip engines, aero-derivative GT



Source: GE "Rise of Distributed Power," 2014



Diverse customers asking for reliability, speed & efficiency

What are the Disruptors?



Rooftop Solar

25+GW/yr.

"Biz models gain traction"



On-Site Power

Efficiency 80%+

"Specific customer needs"



Energy Storage

Cost ↓ 40%

"Potential shift in Just-in-Time paradigm"



Energy Efficiency

TWh ↓ 10%+

"Less kWhrs"



Data & Analytics

Energy Costs ↓ 20%

"Optimizing power use through software"



Disruptors enable new monetization opportunities to the utility industry

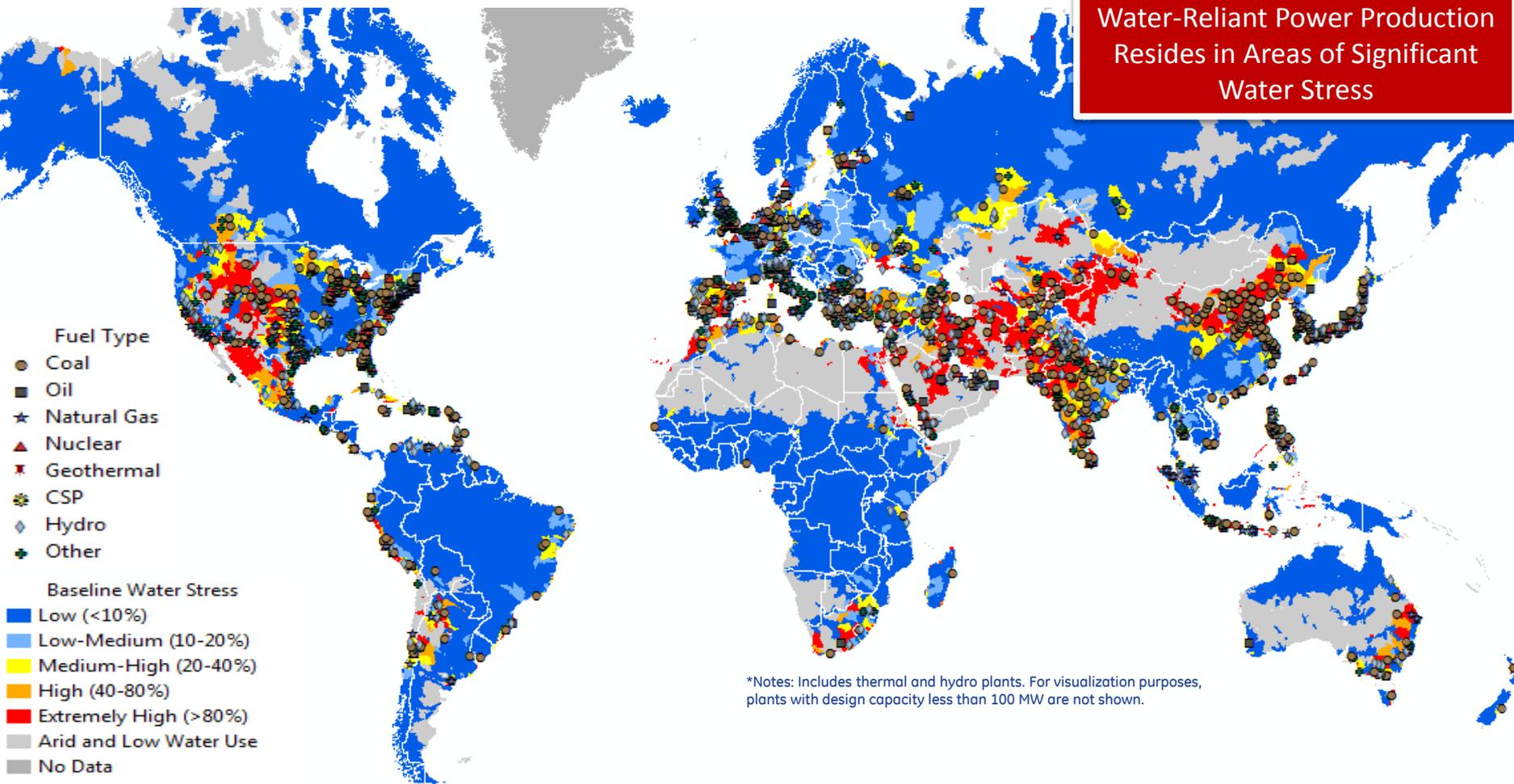


Source: Washington Post, Bloomberg, GE Marketing Analysis

Global generation units with water stress*

Medium to extremely-high stress

~50% of Global
Water-Reliant Power Production
Resides in Areas of Significant
Water Stress



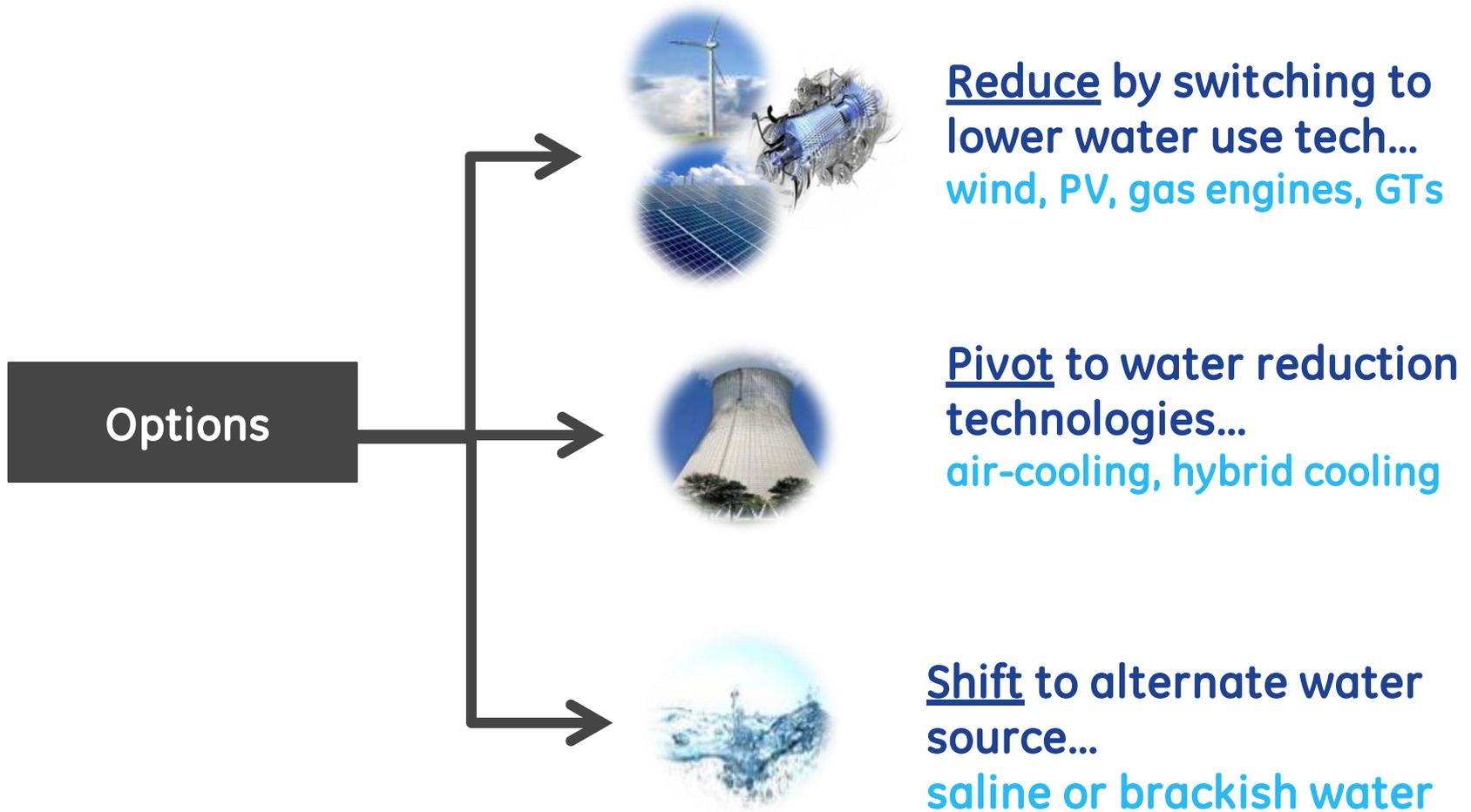
*Notes: Includes thermal and hydro plants. For visualization purposes, plants with design capacity less than 100 MW are not shown.

Source: Platts UDI Database 2012 and WRI Aqueduct data



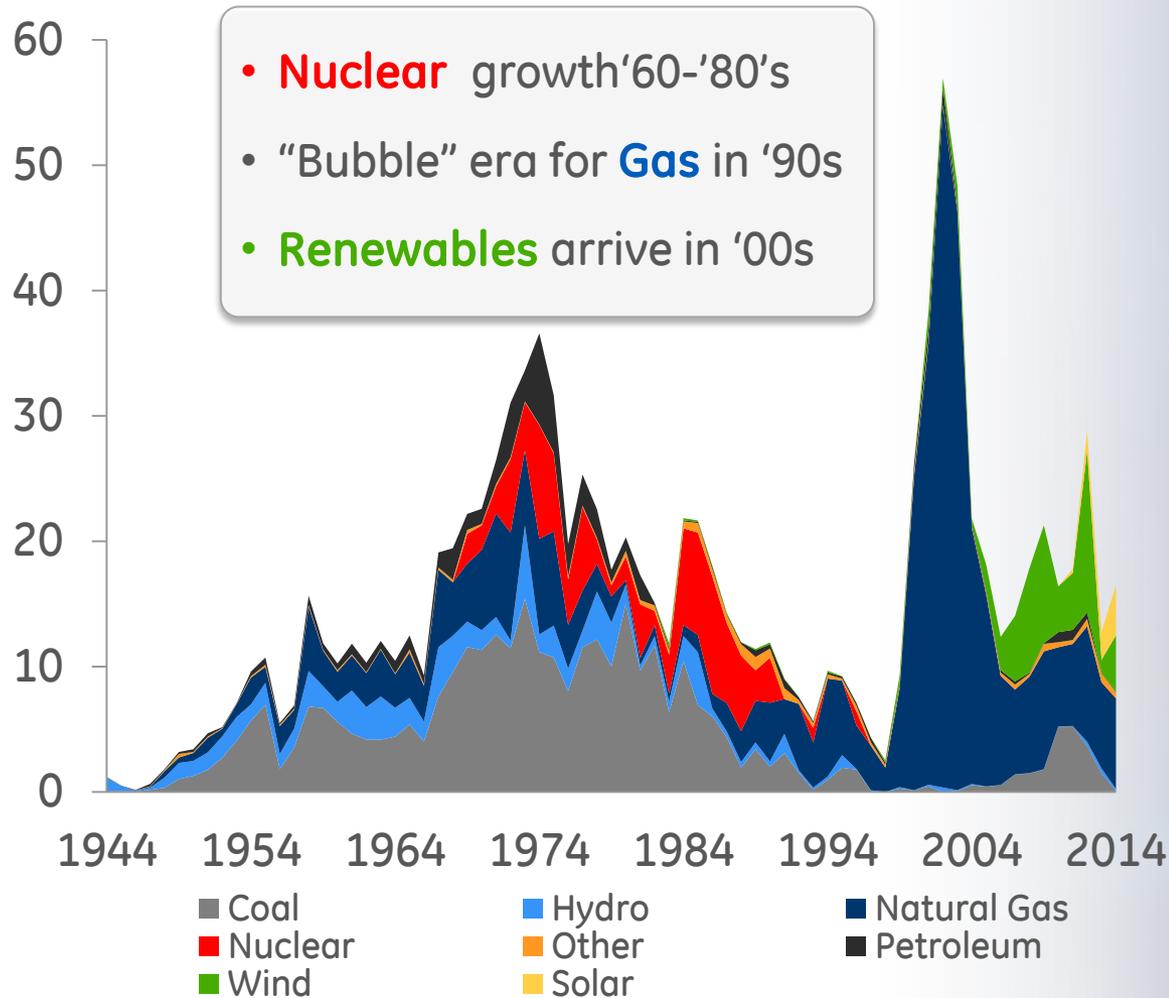
Responses to water stress

Three potential paths



We've managed change in the past

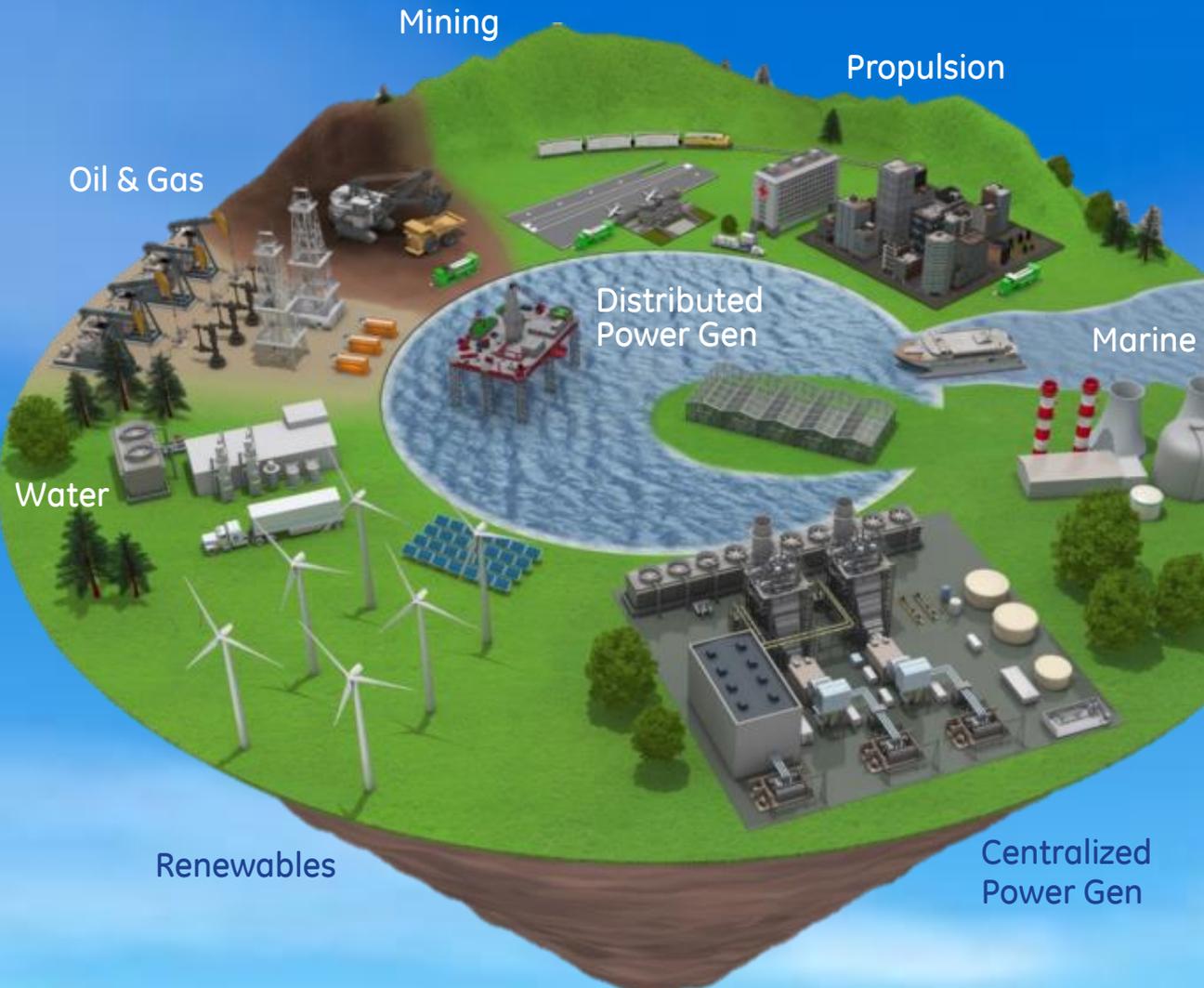
US GW Installs



Source: US DOE / EIA



The Future of Power



- Centralized AND Distributed
- Developed AND Emerging
- Traditional AND Disruptive

Diverse solutions required for future growth

Questions?



Imagination at work.