Renewables: The True Costs

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Rationale and goals

- Renewable energy can meet policy goals for *secure*, *reliable* and *affordable* energy and *access*.
- Lack of objective and up-to-date data from trusted source is a barrier
- Decision making based too often on: outdated numbers, opinion
- IRENA to strive to become THE source for RE cost data
- Goals:
  - Assist government decision-making, allow more ambitious policies
  - Fill a significant information gap
  - Provide powerful communication messages about competitiveness

Renewable cost analysis at IRENA

Fills an important gap in knowledge

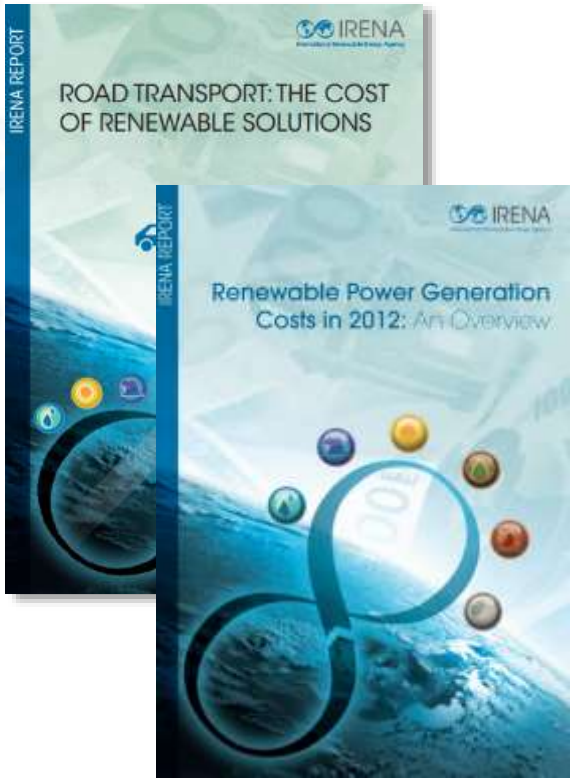
World-class database of costs

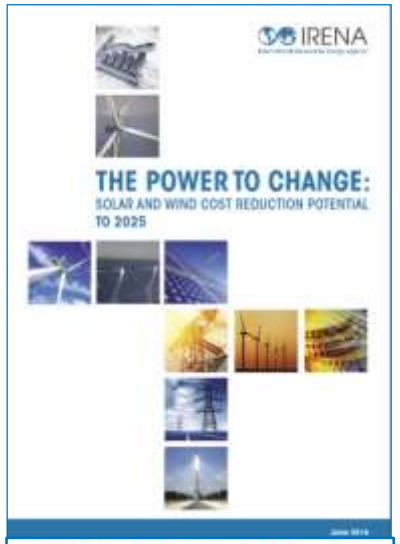
Cutting edge analysis, not just data

All sectors covered, not just power

Costing Alliance deepens engagement

IRENA Costing Analysis Products





2012 **2013** **2015** **2016**

THE IRENA RENEWABLE COST DATABASE

IRENA's database: Scope and coverage

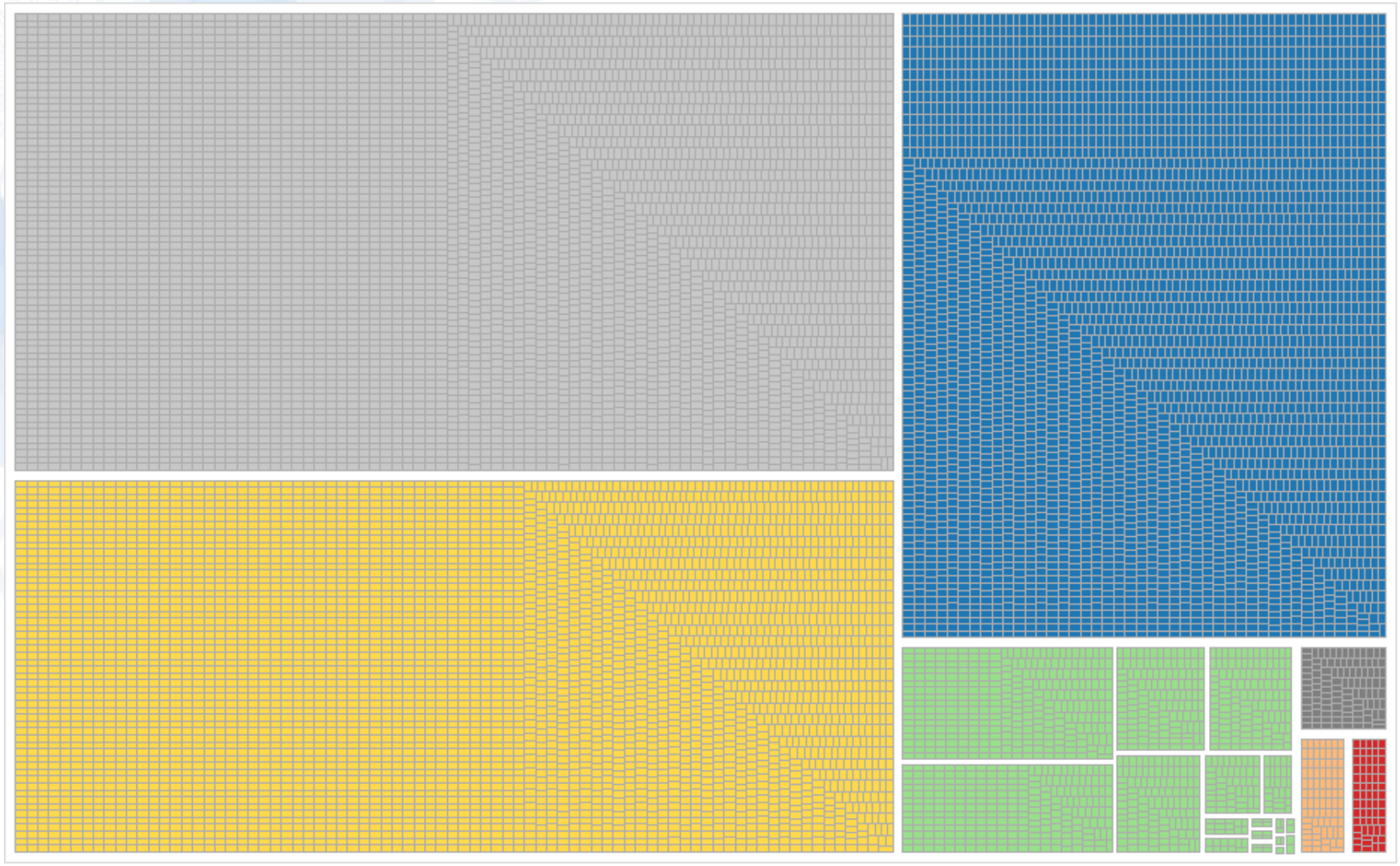
Power: 15000 utility-scale projects for LCOE,
¾ million small-scale solar PV

Smaller dataset on biofuels/EVs

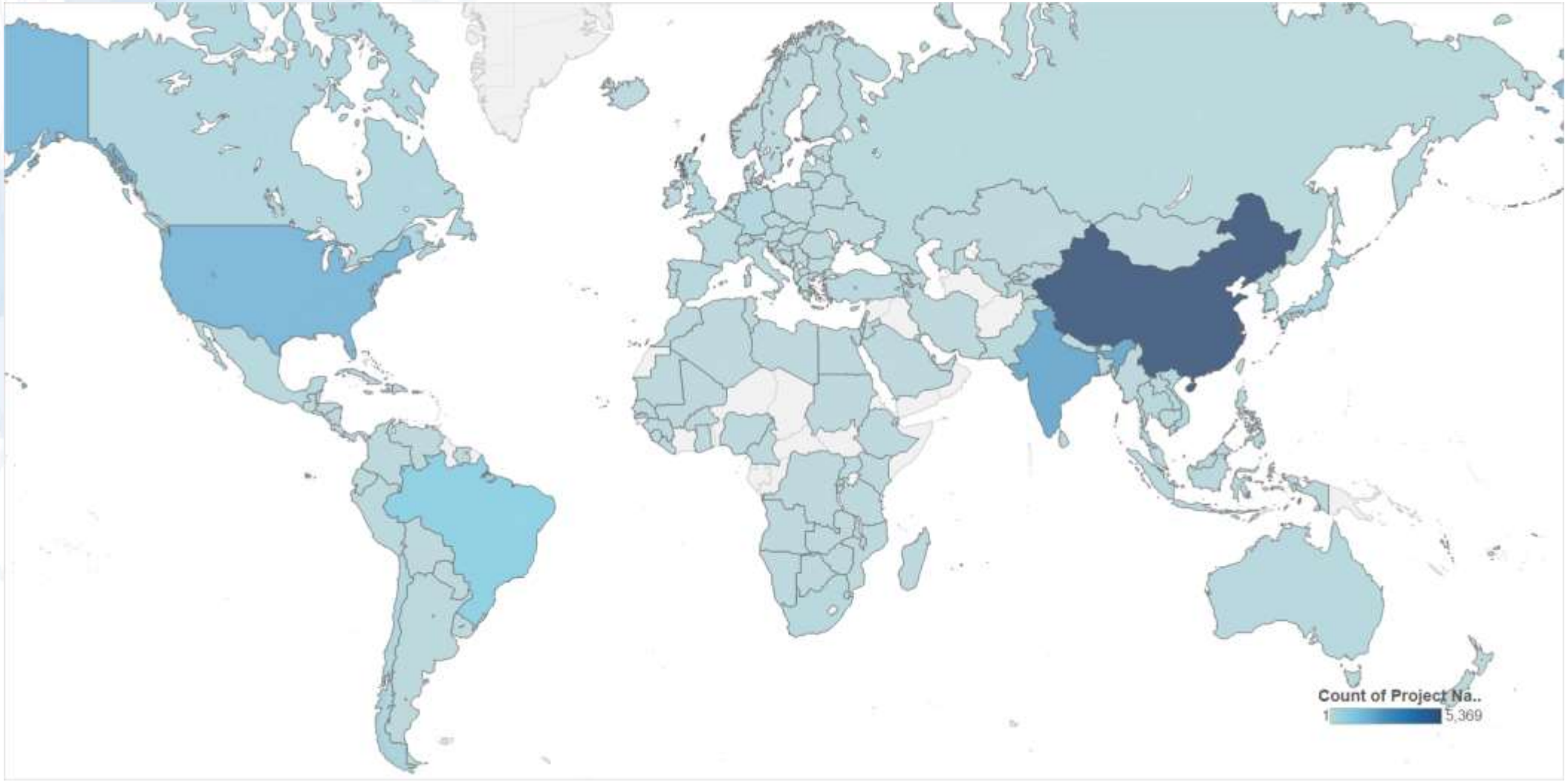
Stationary applications to be added in 2016/2017

Power: database concentrated in non-OECD
as more publicly available information
(e.g. multi-lateral financing, development projects, etc.)

Power generation database



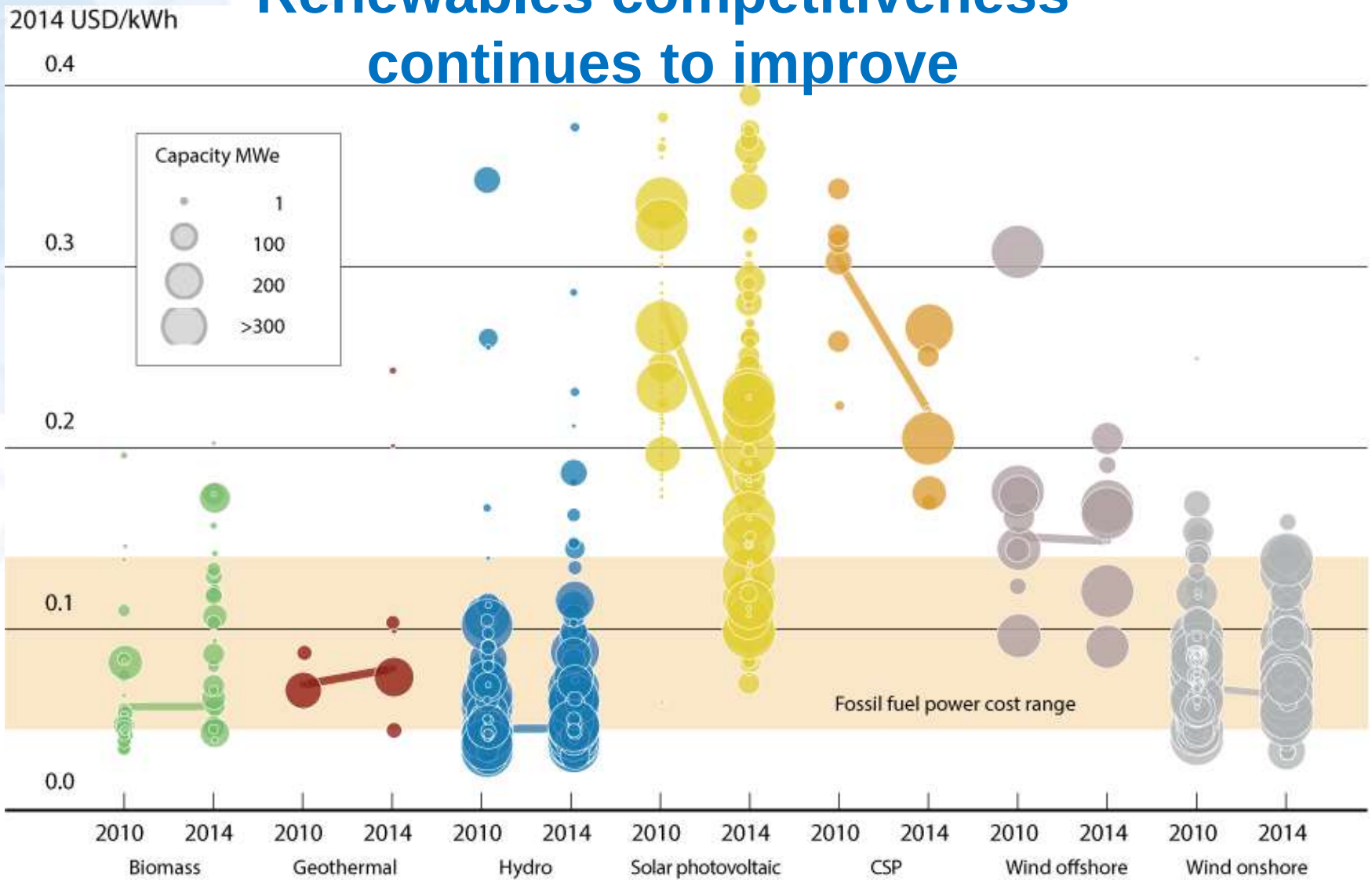
Power generation database



THE BENEFITS OF GOOD DATA

Powerful communications messages

Renewables competitiveness continues to improve



Wind power costs are falling….

IRENA
International Renewable Energy Agency

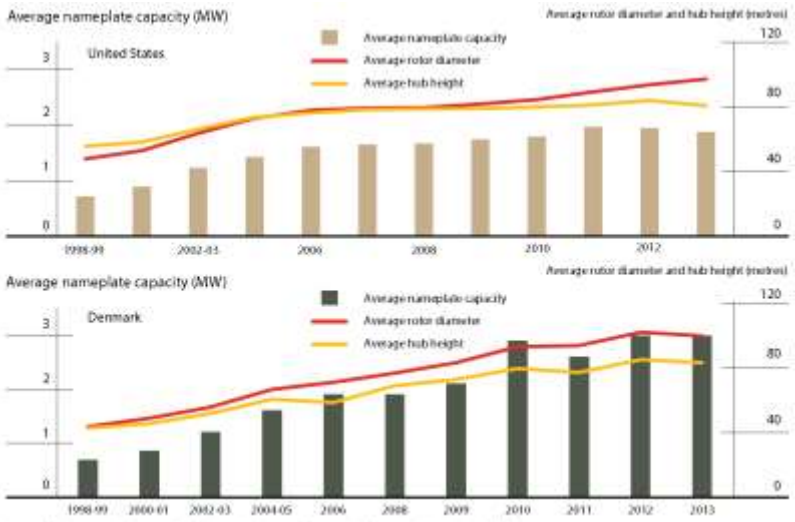
Higher capacity factors from improved technology

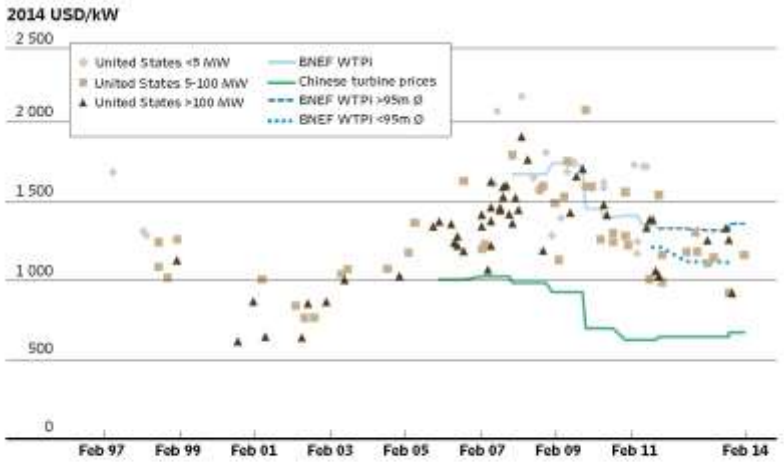
+

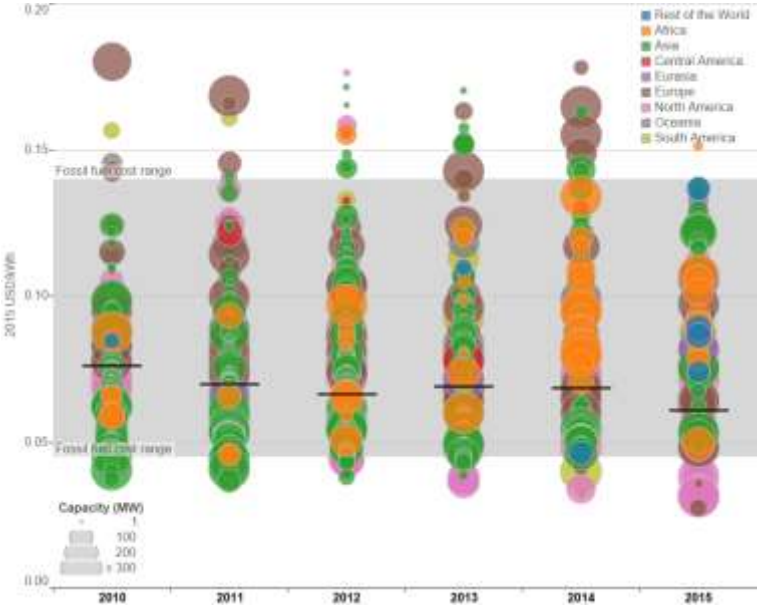
Wind turbine cost reductions

=

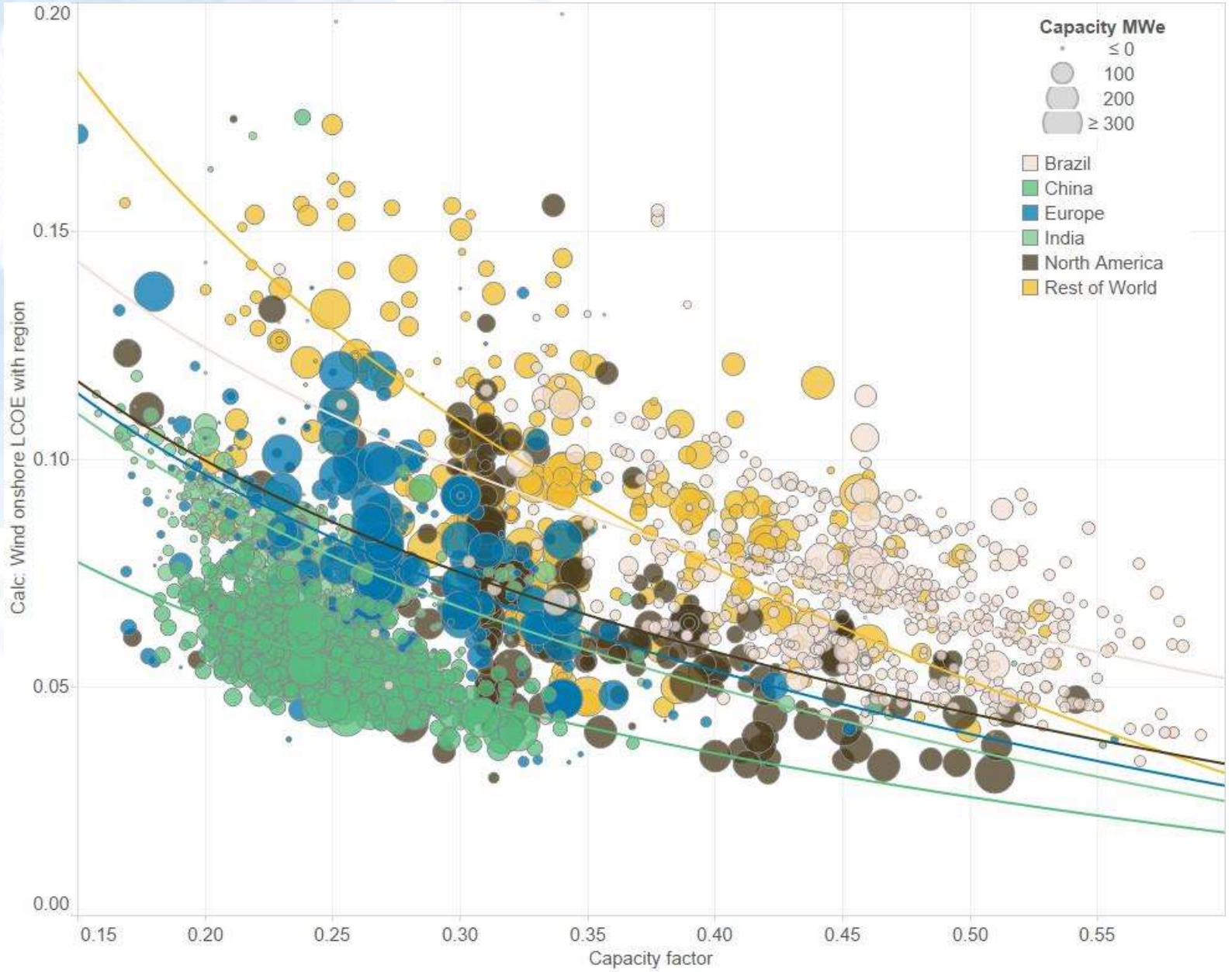
LCOEs are falling







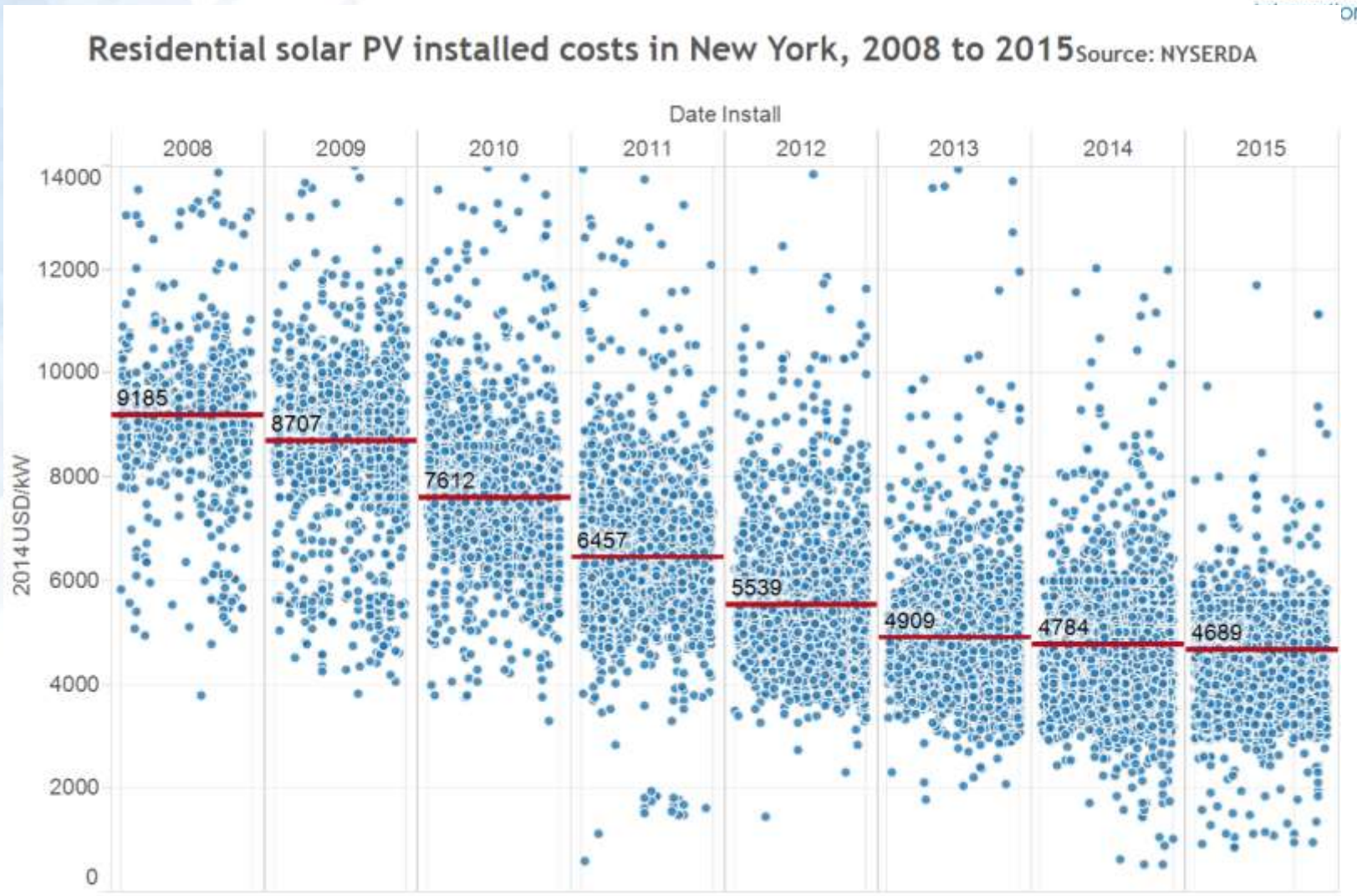
Insights into competitive deployment



Competitive cost structures yield low LCOE's across a range of resource quality

No clear trend by year of project installation for data available, better data required

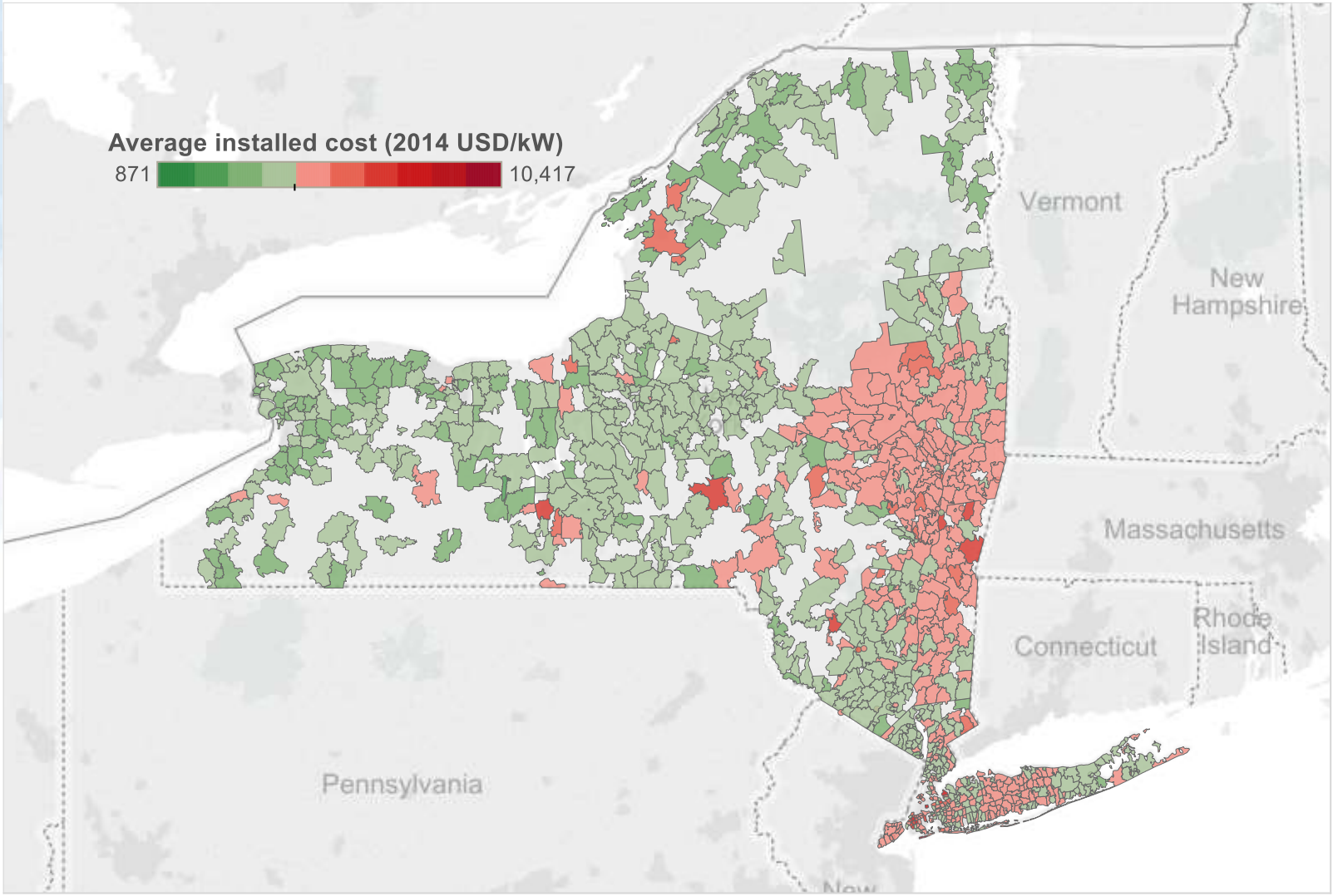
Identify policy questions that need to be asked…..



Where do costs differ? Why?

Identify policy questions that need to be asked…..

Average residential PV system cost (relative to 2014 median)



Where do costs differ? Why?

ANALYSIS TO SUPPORT ACCELERATED DEPLOYMENT

SOLAR PV IN AFRICA: COSTS AND MARKETS

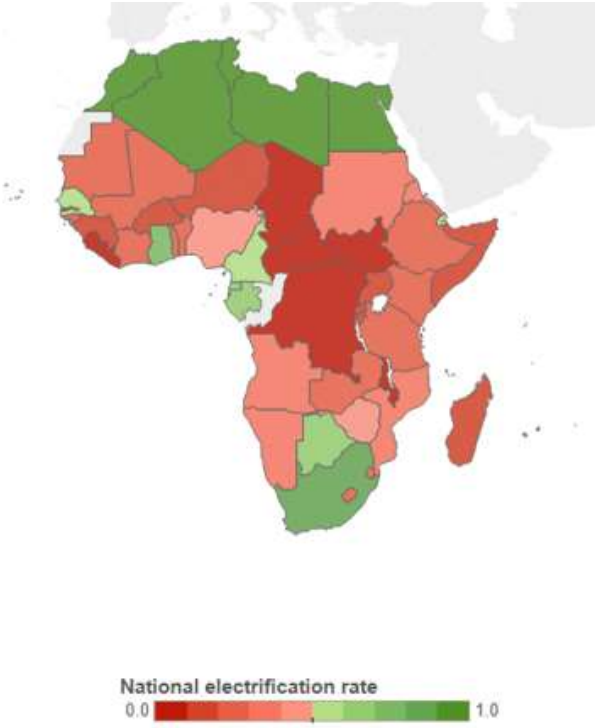
NEW OPPORTUNITIES UNLOCKED

Solar PV Costs in Africa

Africa has a need for power:
Solar resources make PV an excellent fit

But cost structure is different from other regions

~600 million lack access

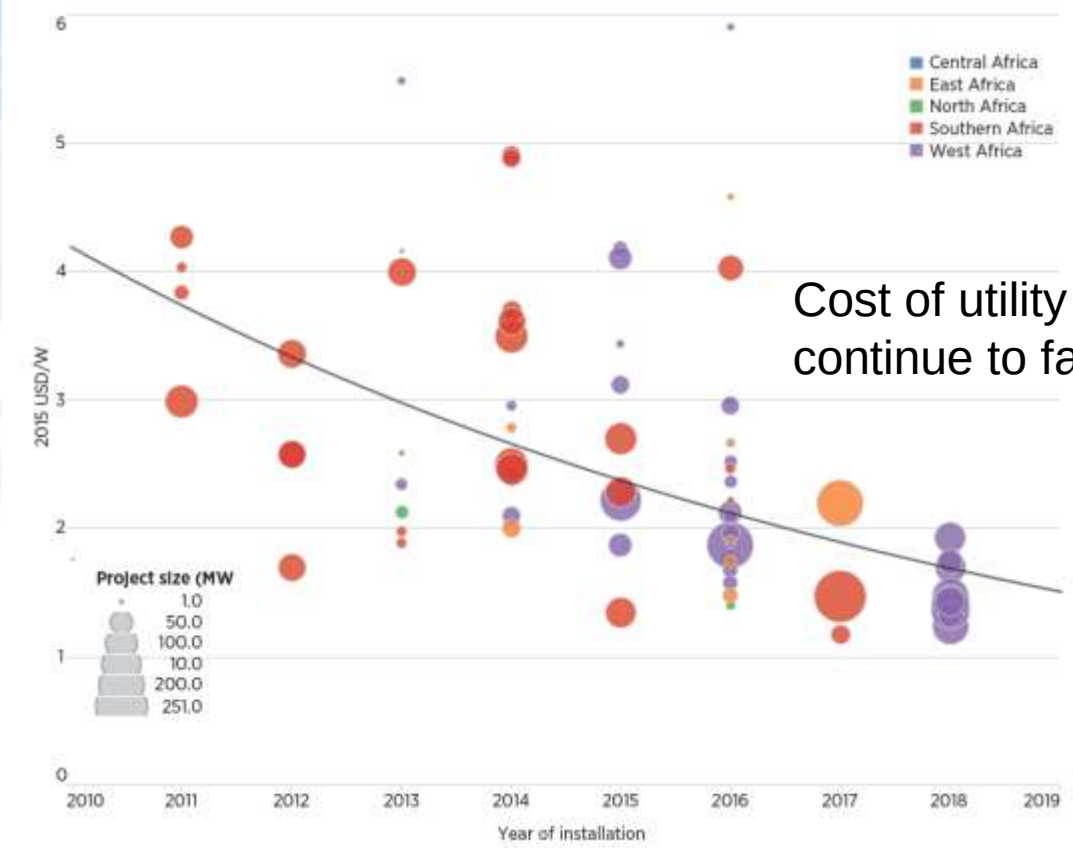


Data collection challenging, but encouraging results

- Some markets relatively competitive
- Very small SHS cost structures are challenging
- Regional deep-dives necessary for greater clarity

Solar PV costs in Africa: Utility-scale and SHS

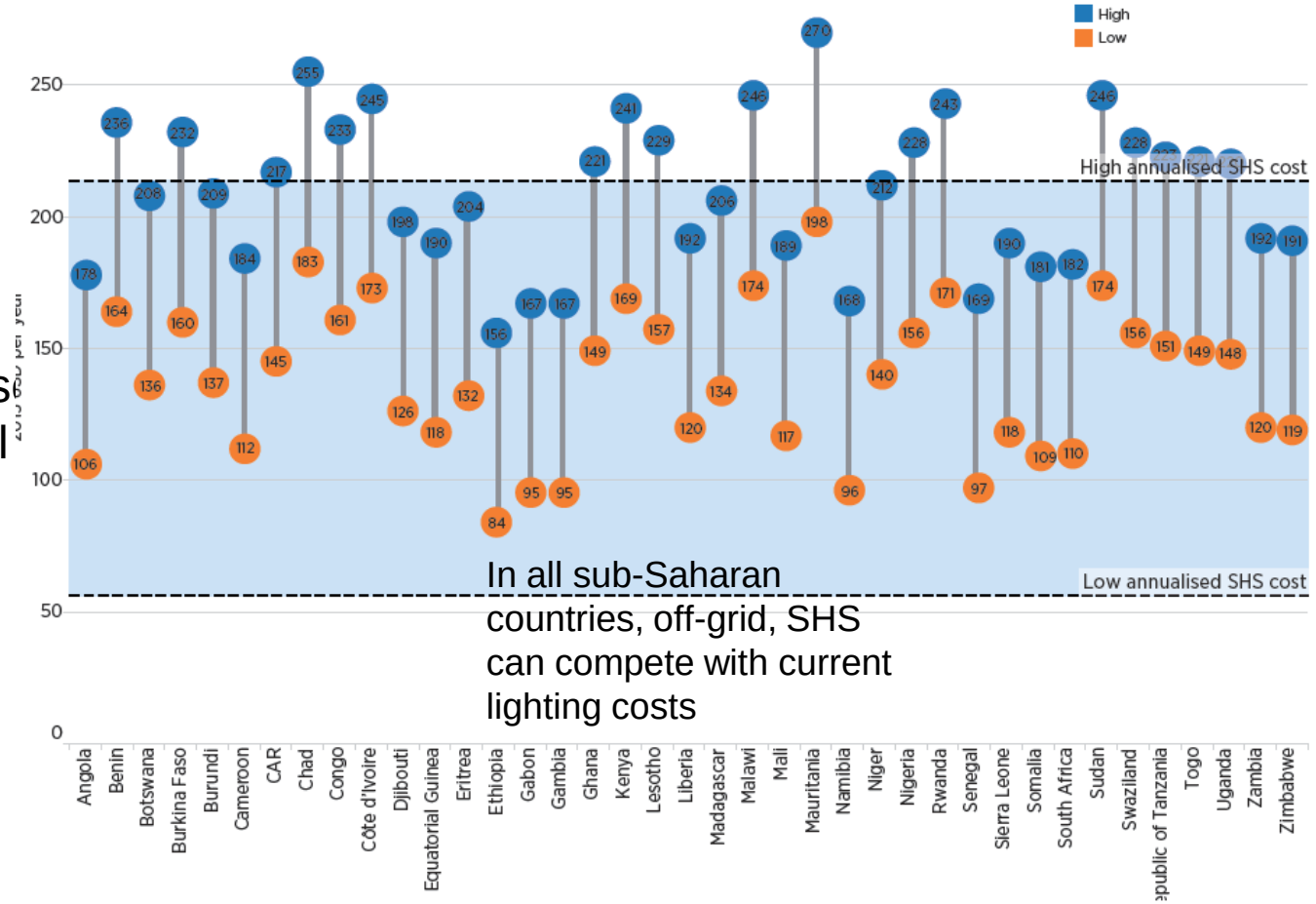
Operating and proposed utility scale solar PV project installed costs in Africa, 2010-2018 (IRENA)



Cost of utility s
continue to fall

Source: IRENA Renewable Cost Database, 2016

Annual off-grid household expenditure on lighting and mobile phone charging compared to SHS (<1kW) annualized costs, by country (IRENA)



The Power to Change

Cost Reduction Potentials for Solar and Wind

Costs will continue to fall for solar and wind power technologies to 2025

Large cost differentials

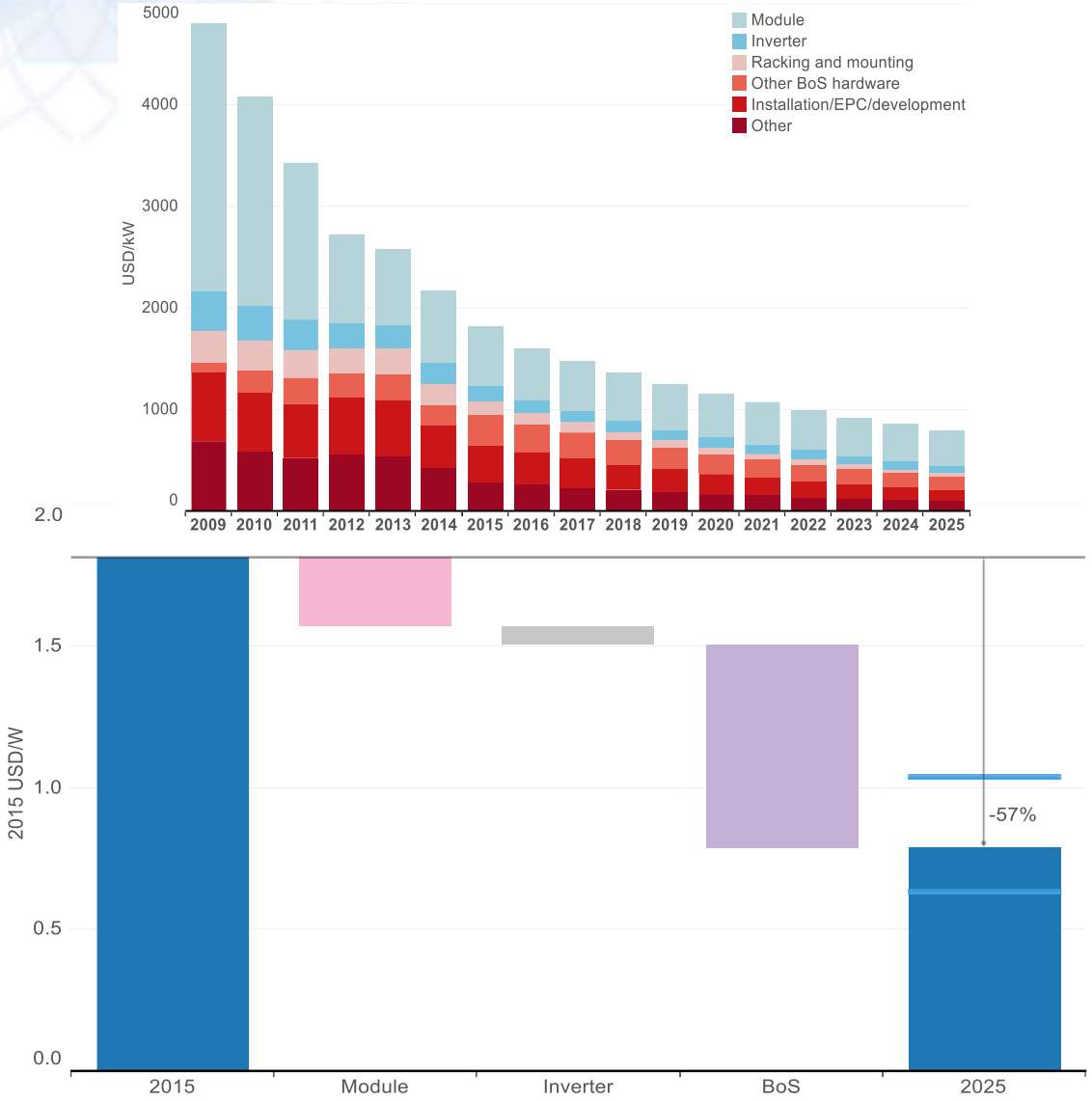
Continued technology innovation

Growing scale of markets

Policy framework critical to unlocking largest savings

Cost reduction drivers are changing

Solar PV:
Installed system costs to 2025

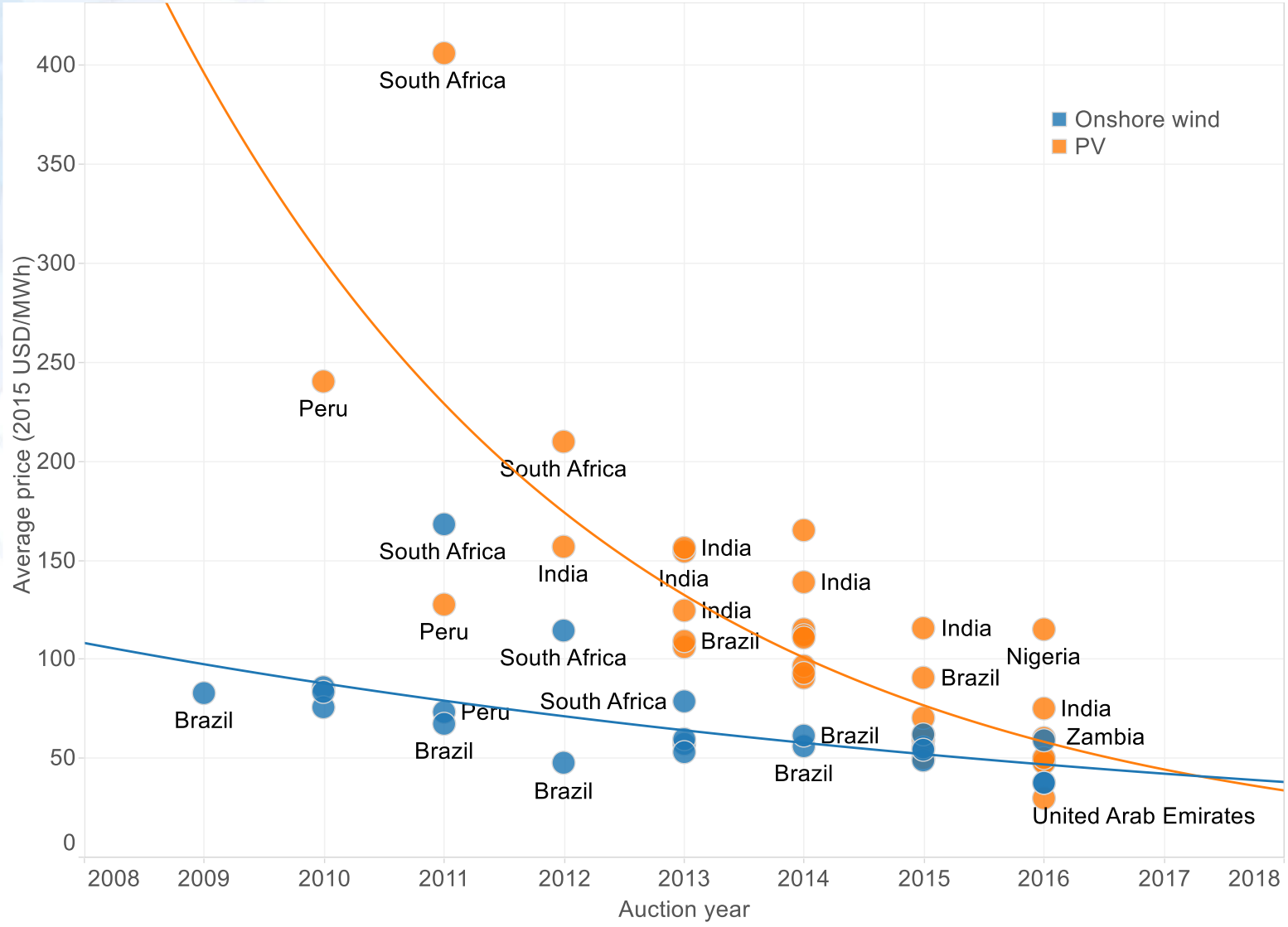


Large average cost reduction potential

BoS dominates potential

Will require action by policy makers

Solar and wind tenders/PPAs



RENEWABLES: THE TRUE COSTS

AND THE

IRENA Renewable COSTING ALLIANCE

Rationale and Plans

- Lack of up-to-date data is a barrier
- IRENA to fill this gap to:
  - Accelerate deployment with improved transparency
  - Reduce uncertainty on costs, allow more ambitious policies
- The Costing Alliance (launched January) will:
  - Allow outreach to industry
  - Systematise collection and improve data availability
  - Shift resources to policy-relevant analysis
- Entirely voluntary, members work together for mutual benefit
- Low administrative overhead

IRENA Renewable Costing Alliance

Member countries:

- Steering group for costing analysis focus
- One workshop a year
- Must nominate institution to deliver data
- Quarterly newsletter

Alliance Members:

- Provide data, confidentially
- One workshop a year
- Ability to query the database in detail
- Quarterly newsletter

Your organization?

Observers:

- Quarterly newsletter
- Mailing list for new publications/analysis

Upcoming cost analysis: Firm

PV parity indicators

Global wind learning curve

Stationary applications

Energy security

Battery markets & costs to 2025

RE financing costs

IRENA's reneable cost analysis

Transparent data

Simple methodology

Timely and policy relevant information

Renewables are increasingly competitive

The winners are customers, the environment and our future

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