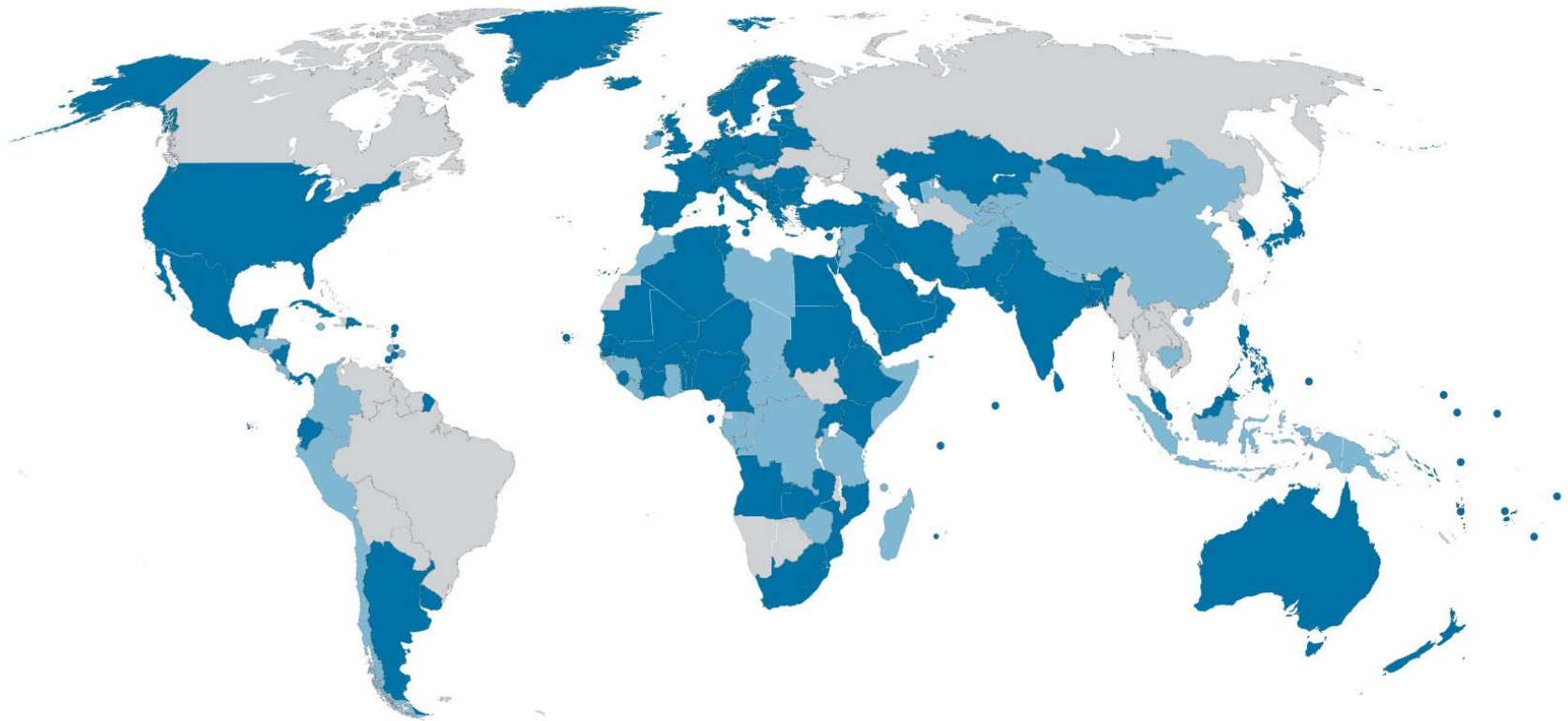


IRENA's Power Generation Cost Analysis and Support for Renewables



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About IRENA

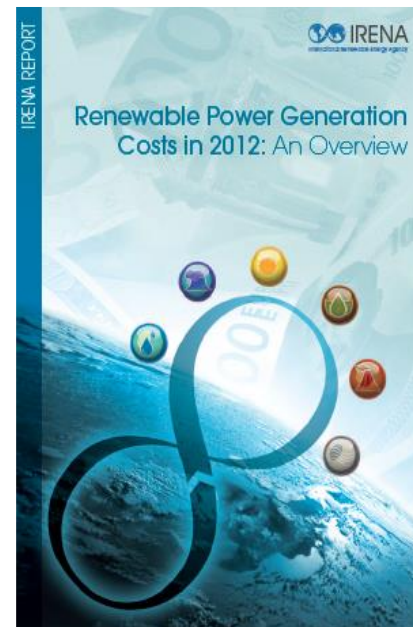


- Members of the Agency
- Signatories/States in Accession

- Renewable energy can meet policy goals for *secure, reliable and affordable* energy and *access*.
- Lack of objective and up-to-date data is a barrier
- Decision making based on: outdated numbers, opinion
- IRENA to strive to become THE source for cost data
- Goals:
 - Assist government decision-making, allow more ambitious policies
 - Fill a significant information gap
- Coverage:
 - Power generation (June 2012 and January 2013)
 - Road Transport (July 2013)
 - Stationary applications (2014)

2

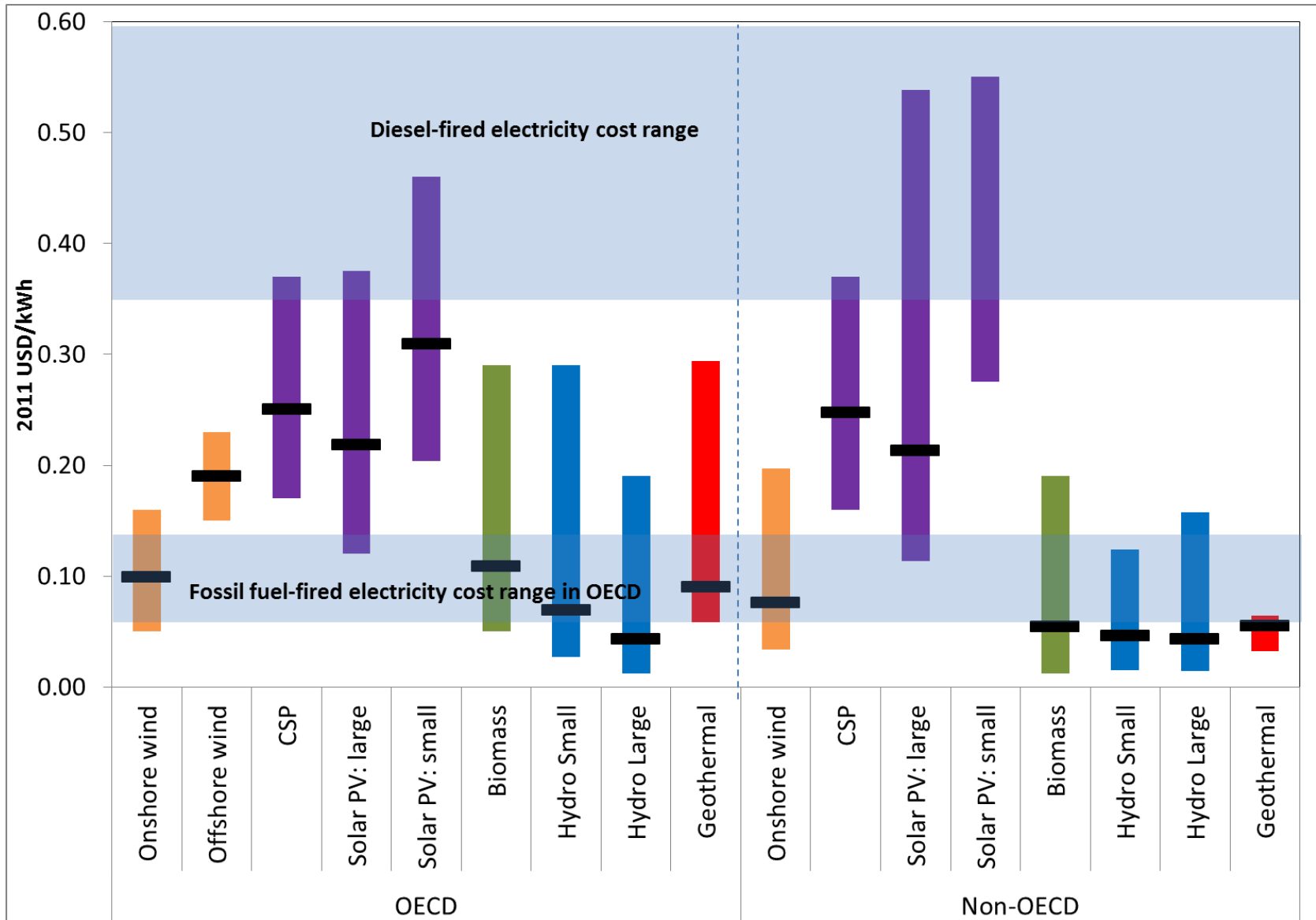
RENEWABLE POWER GENERATION 2012



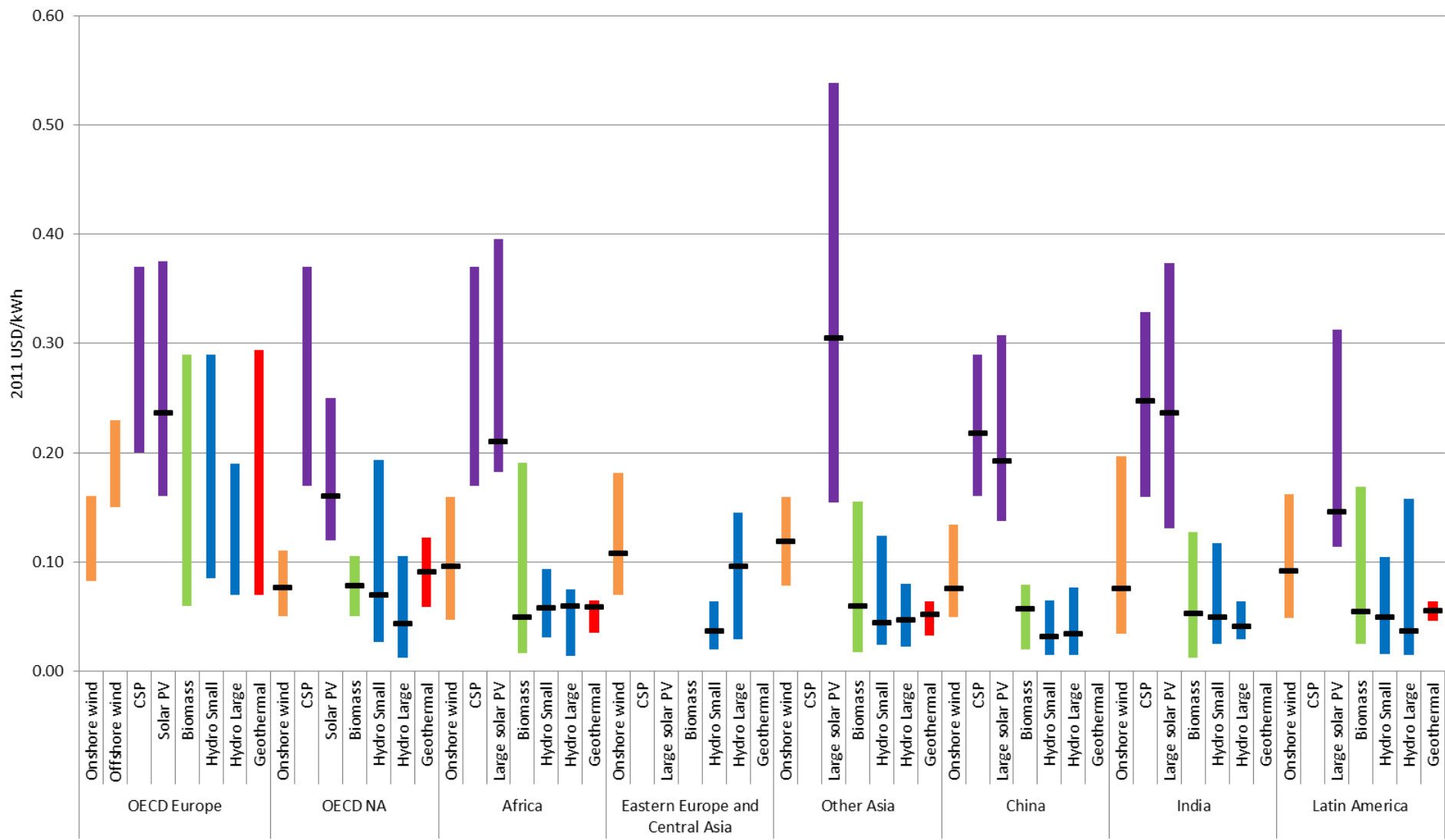
Key findings

- Renewables now THE economic solution off-grid and for mini-grids, increasingly competitive for grid supply
- A shift in policy focus will need to come
- Dramatic price reductions for Solar PV. Onshore wind competitive at best sites, CSP has great potential. Hydropower, geothermal and biomass more mature
- Equipment cost declines and technology improvements
→ LCOEs are falling
- Data collection poses challenges
- Why isn't data systematically collected from support policies?

LCOE ranges and averages



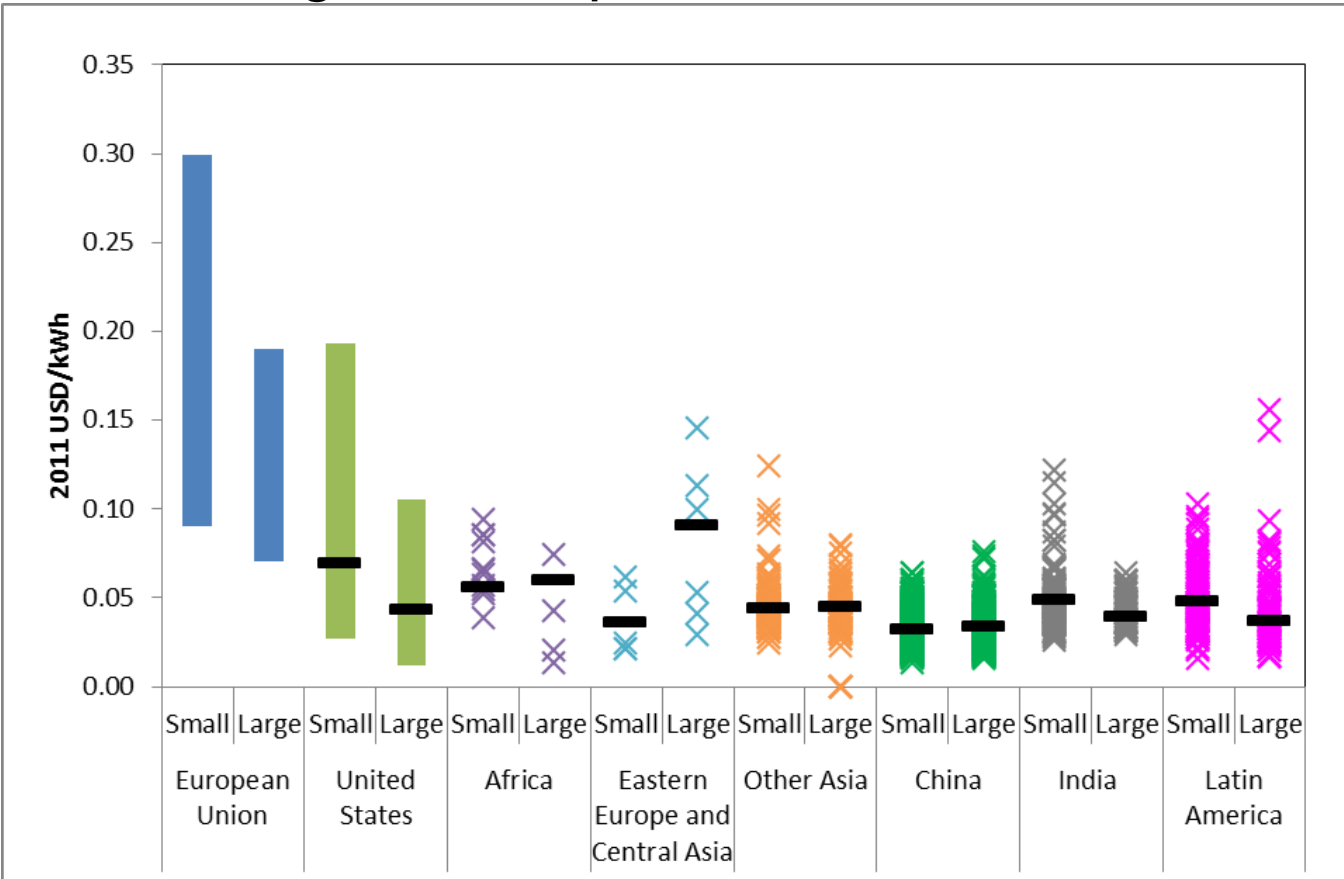
Levelised cost of electricity by country/region



Note: assumes a 10% cost of capital

Hydropower

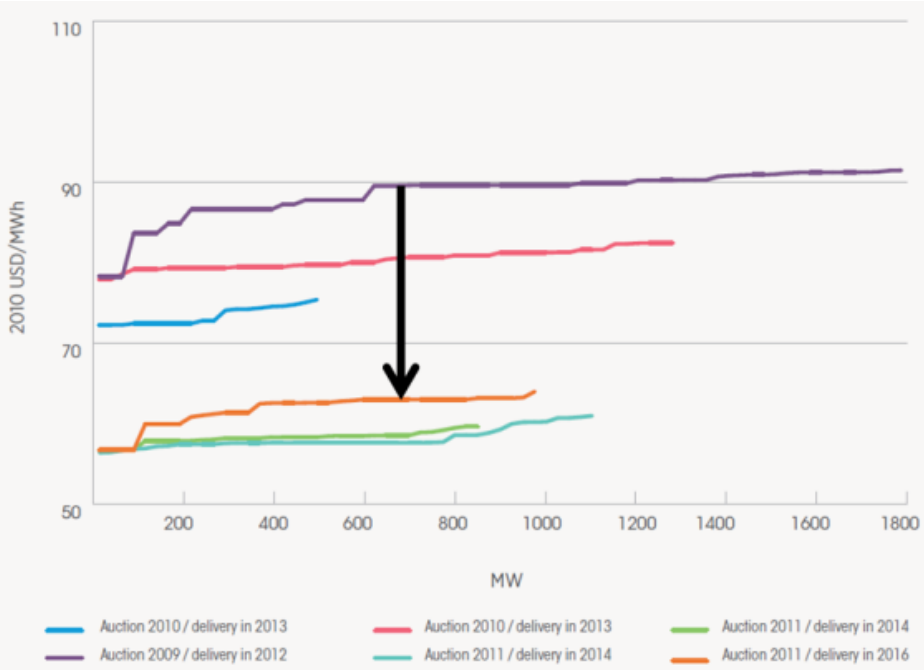
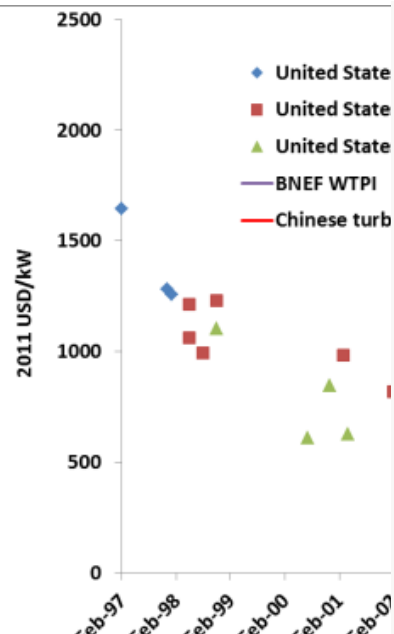
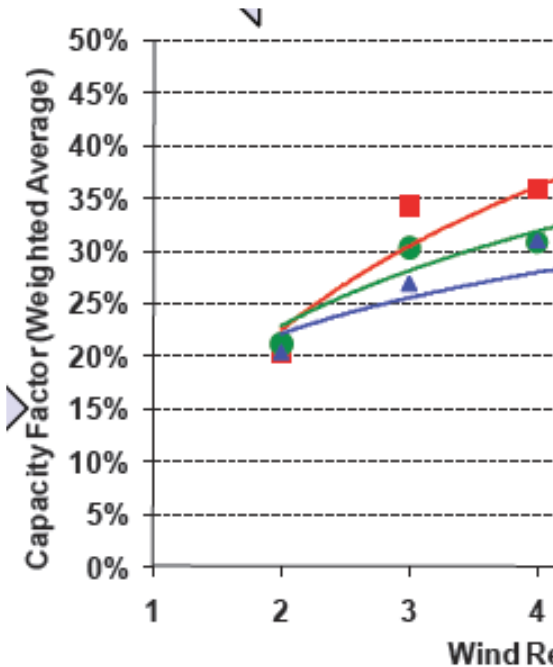
- Mature technology, flexibility in design in many cases
- Lowest cost electricity of any source in many cases
- Importance will grow with penetration of variable RE



3

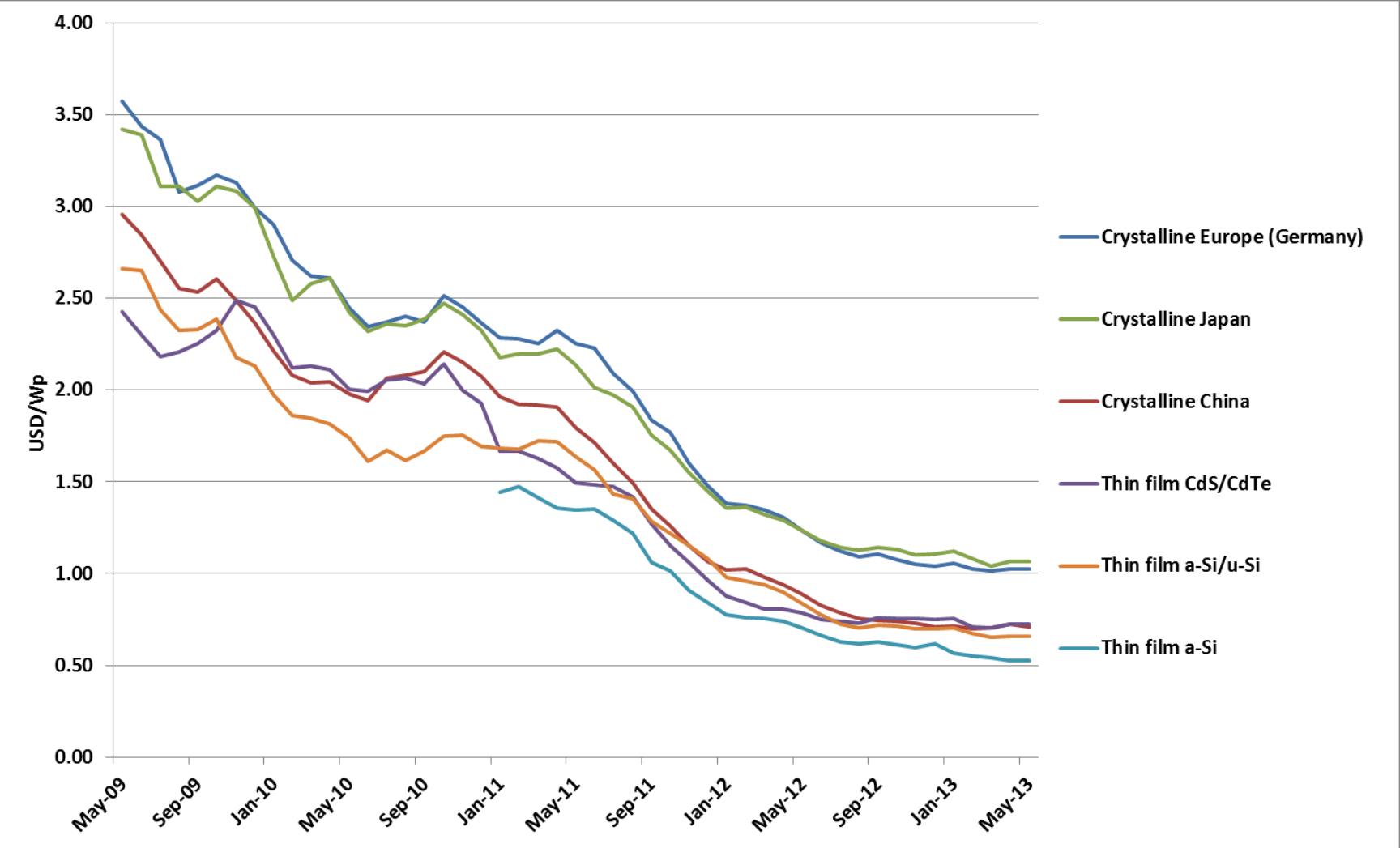
**TOO MUCH OF A GOOD
THING.....**

The LCOE of wind

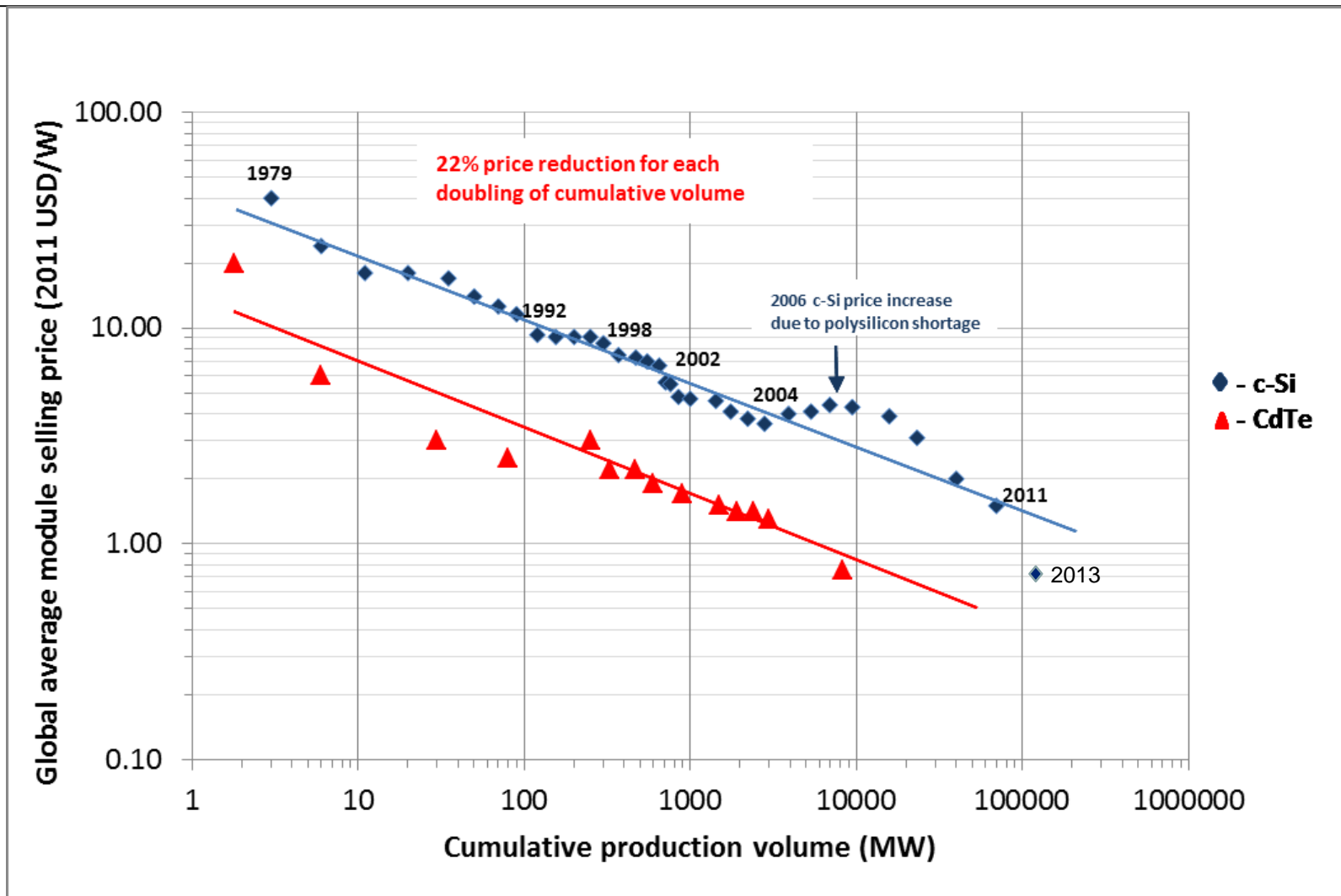


Source: Lawrence Berkeley National Laboratory

PV modules prices

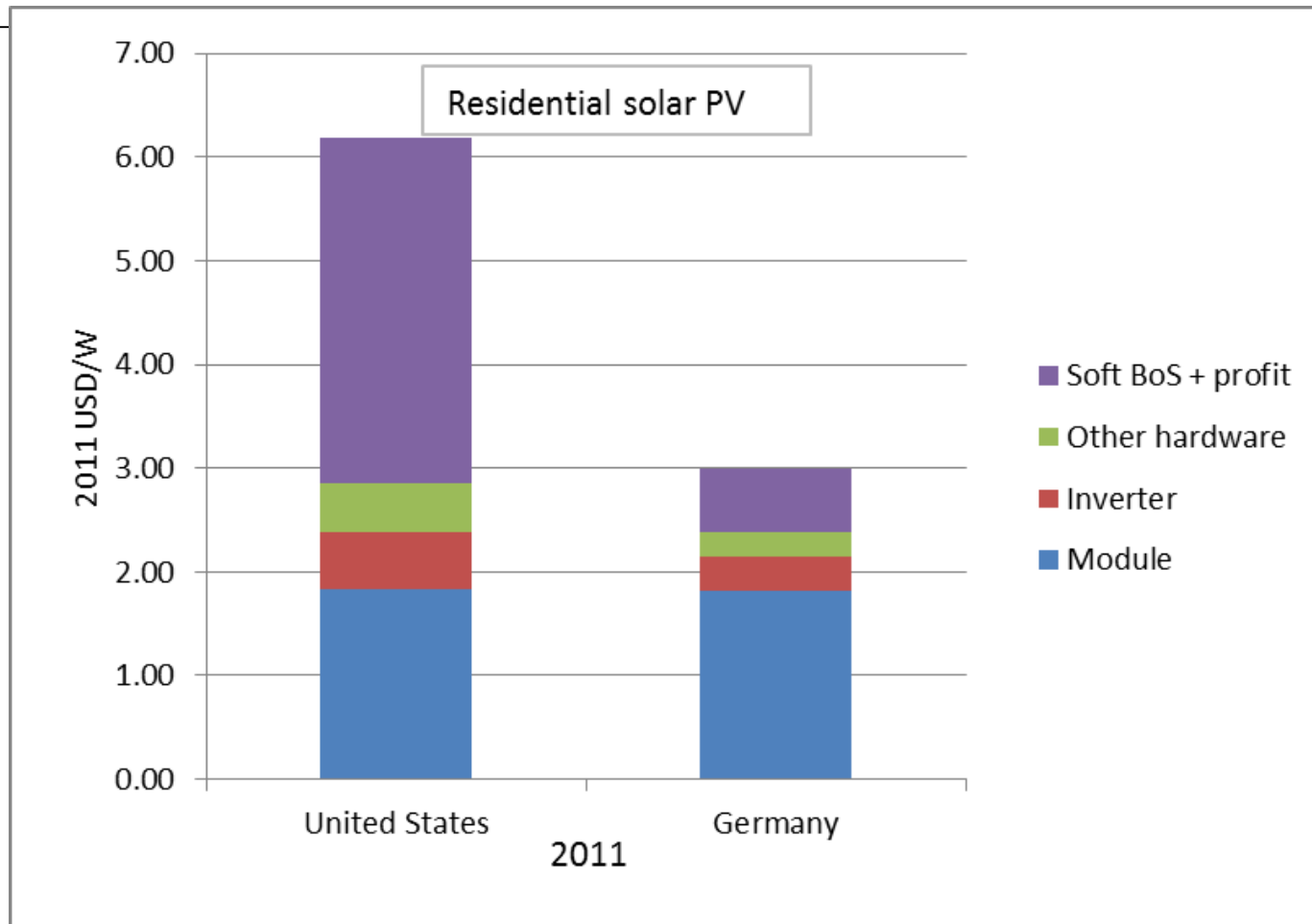


Learning rates for PV modules



Source: Bloomberg New Energy Finance, February, 2011 and IRENA

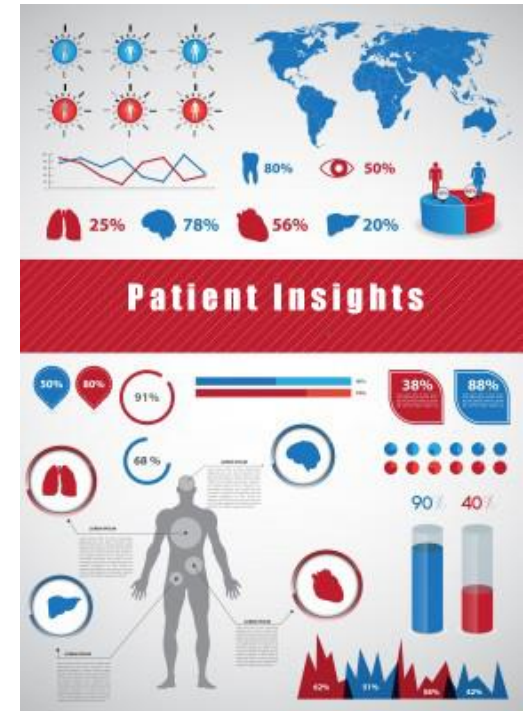
An emerging/persistent issue: Balance of system costs?



Cost reduction pass-through will be strongly tied to success in reducing BoS costs

Diagnosis for support policies

- The patient is very healthy
Technology improvements, capital costs reducing -> LCOEs falling
- But growing pains may be experienced
Rapid growth can lead to significant supply/demand imbalances
- Suggested treatment is very patient specific
Trade-offs involved, depends on market, technology and scale
- Preventative measures can be highly effective
Future proofing policies is challenging, but necessary
- Further basic research required
A lot of data exists, but it is typically not collected, IRENA to change this



4 PLANS FOR THE IRENA RENEWABLE COSTING ALLIANCE

-
- Analysis to date has been based on low hanging fruit
 - Engage with business: The Alliance will work at a technical level on data and its availability
 - Alliance members share, confidentially, their data on real world project costs
 - Entirely voluntary, we work together for mutual benefit
 - Establishment period now, official launch at Assembly
 - Goals:
 - more data, better data, a greater focus on analysis of data



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

Observers:

- Quarterly newsletter
- Mailing list for new publications/analysis



Renewables are increasingly competitive, but more needs to be done to fulfill their potential...

IRENA is part of the solution

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www.irena.org/costs

