How Can New Transatlantic Collaboration Overcome Barriers to Renewable Energy Goals?

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THE CENTER FOR
CLIMATE STRATEGIES

Speakers

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Project, Report, Key Findings and Recommendations

INTRODUCTION

About CCS

Better Safer World

Catalyst, Capacity

<u>Action Plans US -- States and Localities</u>

Alaska, Arizona, Arkansas, Colorado, Connecticut*, Florida, Kentucky, Iowa, Maine*, Maryland, Michigan, Minnesota, Montana, Oregon, Pennsylvania, New Mexico, North Carolina, New York, South Carolina, Southern California, Vermont, Washington

<u>Action Plans and Capacity Building Global – Nations, States, Provinces</u>

China, DR Congo, Eastern Europe, European Union, Guatemala, Mexico, Philippines, Ukraine, others

About the Project

Funded by the EU Delegation to the US

Enhance national and subnational dialog on clean energy

Address issues of economic hardship

Focus on priorities for collaboration

Focus on renewable electricity market penetration

Cost, technology, investment barriers

Enhanced collaborative responses

About the Report

EU and US authors, reviewers, collaborators

Recommendations for enhanced transatlantic collaboration to expand penetration of renewable energy

Key Findings

EU-US Common ground

- New climate change and clean energy goals
- High levels of geographic variation
- Significant levels of economic hardship
- Renewable energy a strong track record and high potential for economic recovery and for diversifying energy sources
- Similar barriers and responses to renewable energy barriers

EU and US Policy responses to overcome RE barriers

- Strategies for the control of both “hard” and “soft” costs
- New approaches for clean energy investments
- Evolution of technology for on and off grid electric systems

EU-US Collaboration to overcome RE barriers

- Rapid access to best available information, real time technical assistance
- Virtual mechanisms to enable critical exchange, learning and assistance, and to ultimately expand access to renewable energy barrier reduction strategies and support
- Immediate opportunities exist, but governments are likely to be limited in their ability to upgrade collaboration at the speed and scale needed
- Transatlantic cooperation can be linked to support for other regions for greater benefits.

Key Recommendations

Enhance transatlantic cooperation mechanisms to meet new goals and methods

Focus on mutually supportive actions to remove cost, investment, and technology barriers

Develop virtual mechanisms for thought leadership, peer learning, and technical assistance

Include counterparts at all level of governments and private sector

Open to regional collaboration in Asia, Africa, Central and South America, and other regions

Establish third party partnerships to catalyze cooperation and support

Findings

EU-US COMMON GROUND

New Goals

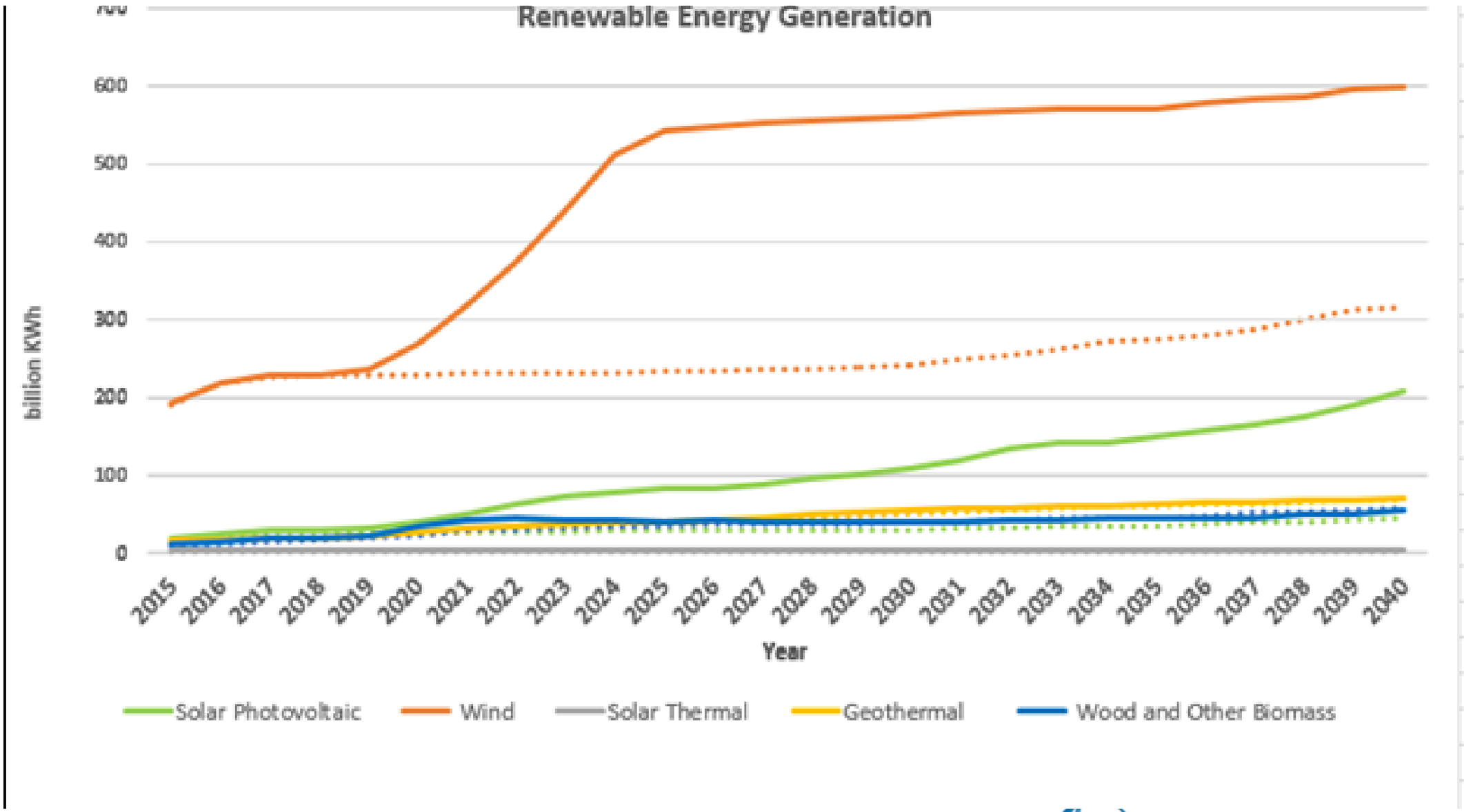
Federal/Regional level

- EU 2030 Goals: 40% GHG reduction below 1990, 27% renewable energy increase
- US Presidential climate goals
- US Section 111d of the Clean Air Act (Clean Power Plan)
- UNFCCC Commitments by 2020

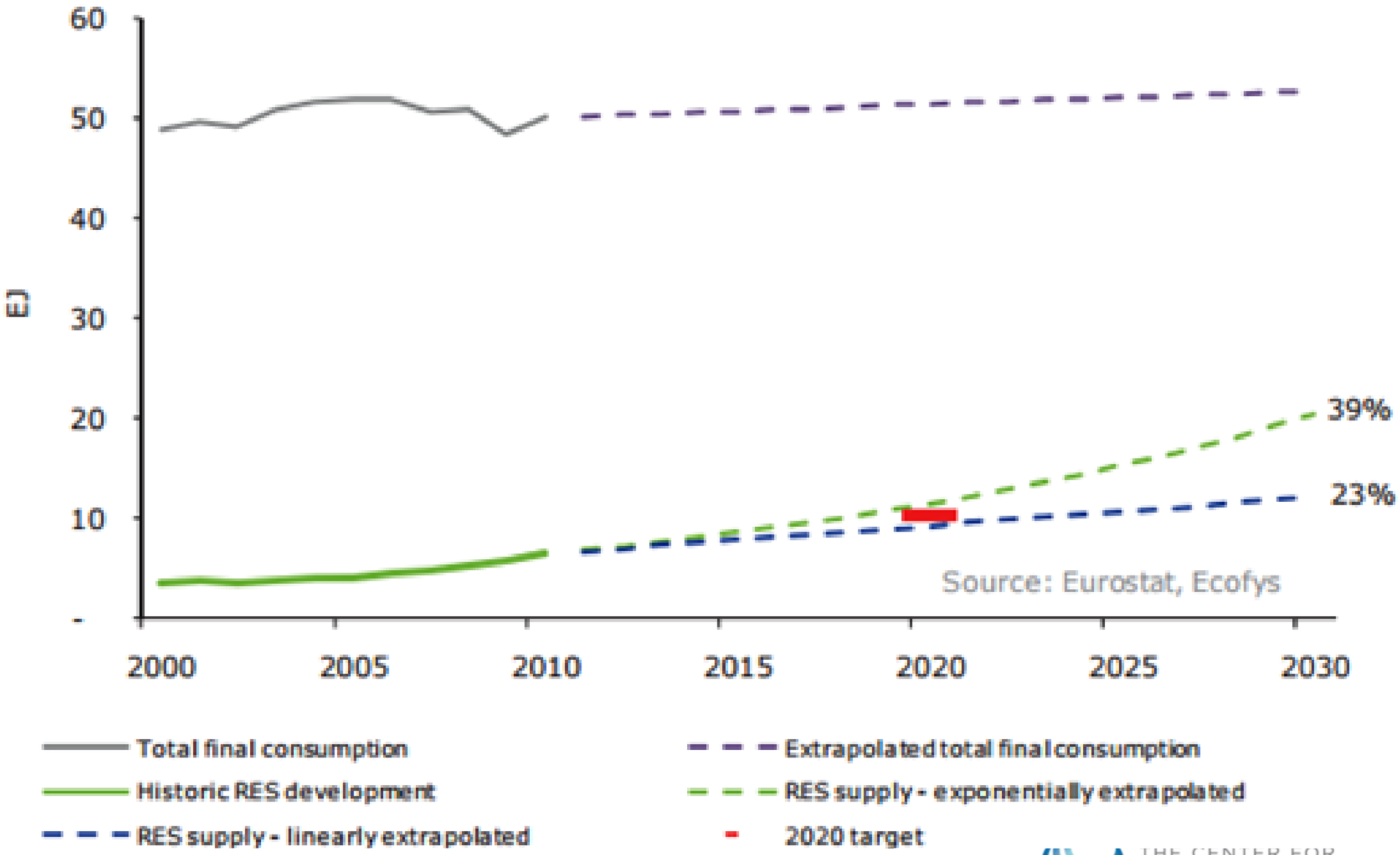
US State/EU Member States level

- California, New York, other states RPS targets
- EU Member States' target in the process of being assigned

US Clean Power Plan



EU Goals



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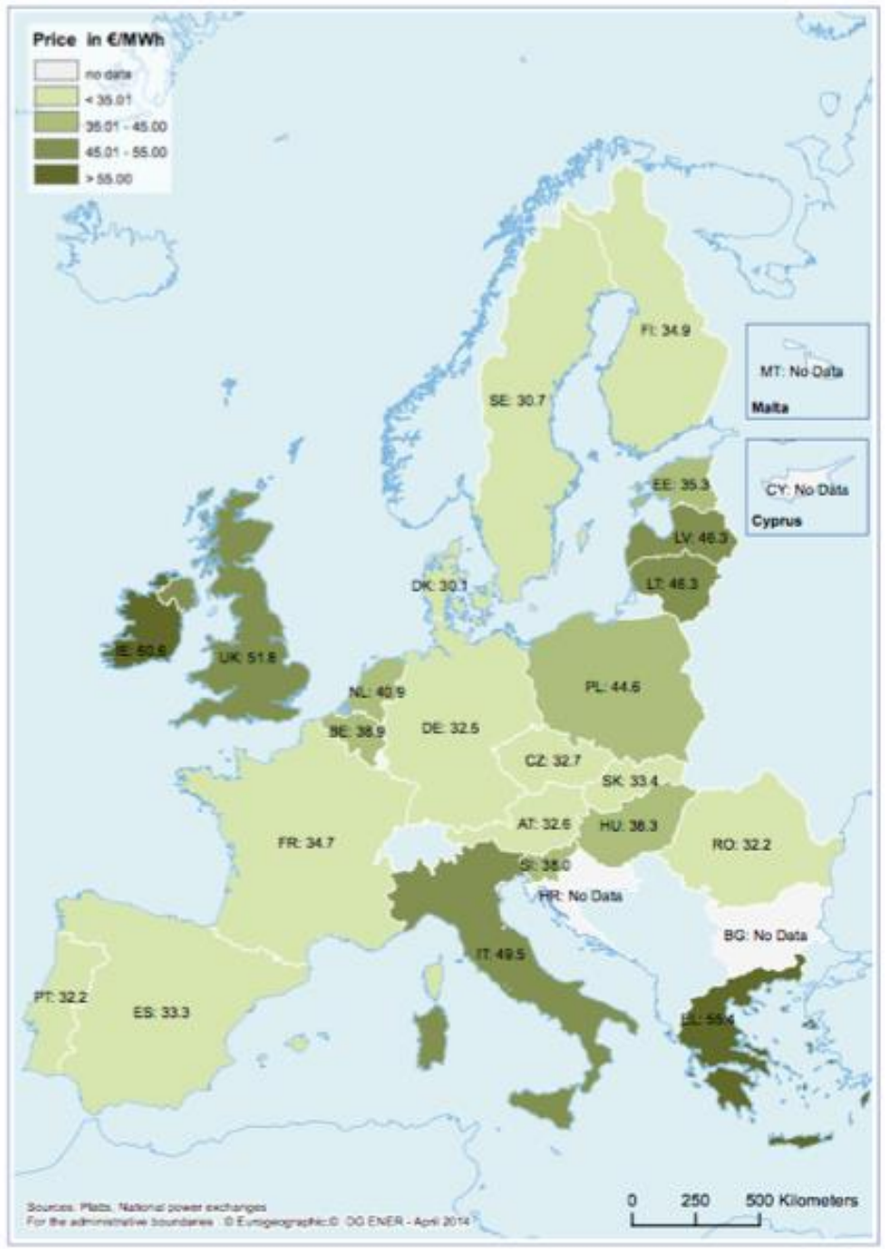
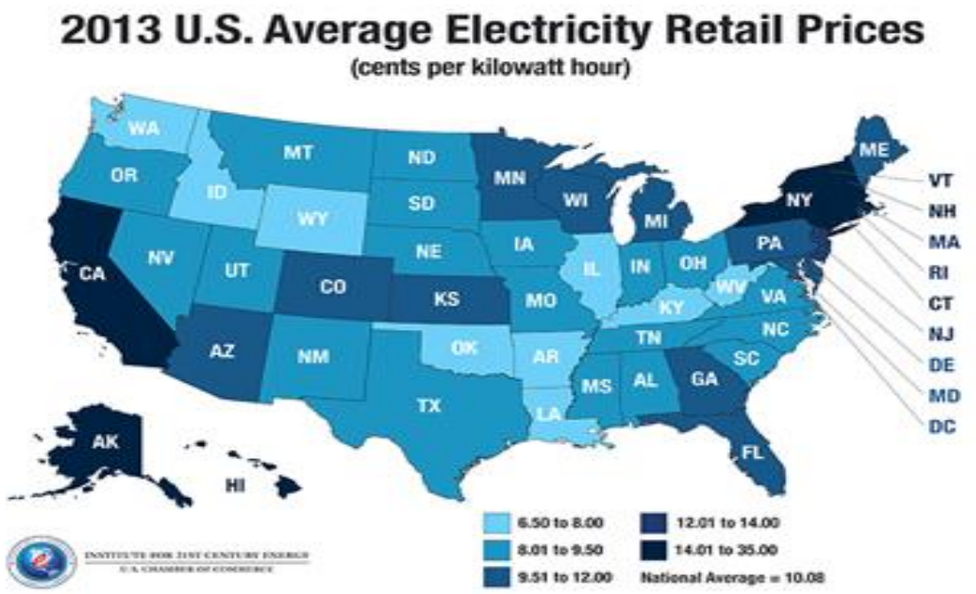
Regional Price Variation





2013 U.S. Average Electricity Retail Prices

(cents per kilowatt hour)

Alabama	9.02	Kentucky	7.54	North Dakota	8.19
Alaska	16.52	Louisiana	8.00	Ohio	9.16
Arizona	10.16	Maine	11.87	Oklahoma	7.81
Arkansas	7.82	Maryland	11.65	Oregon	8.39
California	14.57	Massachusetts	14.51	Pennsylvania	9.83
Colorado	9.80	Michigan	11.26	Rhode Island	13.91
Connecticut	15.68	Minnesota	9.52	South Carolina	9.14
Delaware	10.98	Mississippi	9.15	South Dakota	8.83
Dist. of Columbia	11.85	Missouri	8.96	Tennessee	9.22
Florida	10.30	Montana	8.58	Texas	8.77
Georgia	9.53	Nebraska	8.69	Utah	8.18
Hawaii	33.27	Nevada	9.04	Vermont	14.46
Idaho	7.61	New Hampshire	14.31	Virginia	9.01
Illinois	7.99	New Jersey	13.70	Washington	7.06
Indiana	8.63	New Mexico	9.24	West Virginia	7.91
Iowa	8.12	New York	15.62	Wisconsin	10.64
Kansas	9.57	North Carolina	9.18	Wyoming	7.55

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Economic Success Strategies

Center for Climate Strategies, 2012

Cost effective approaches increase economic efficiency and expansion

Energy savings cut energy costs, stimulate labor investment

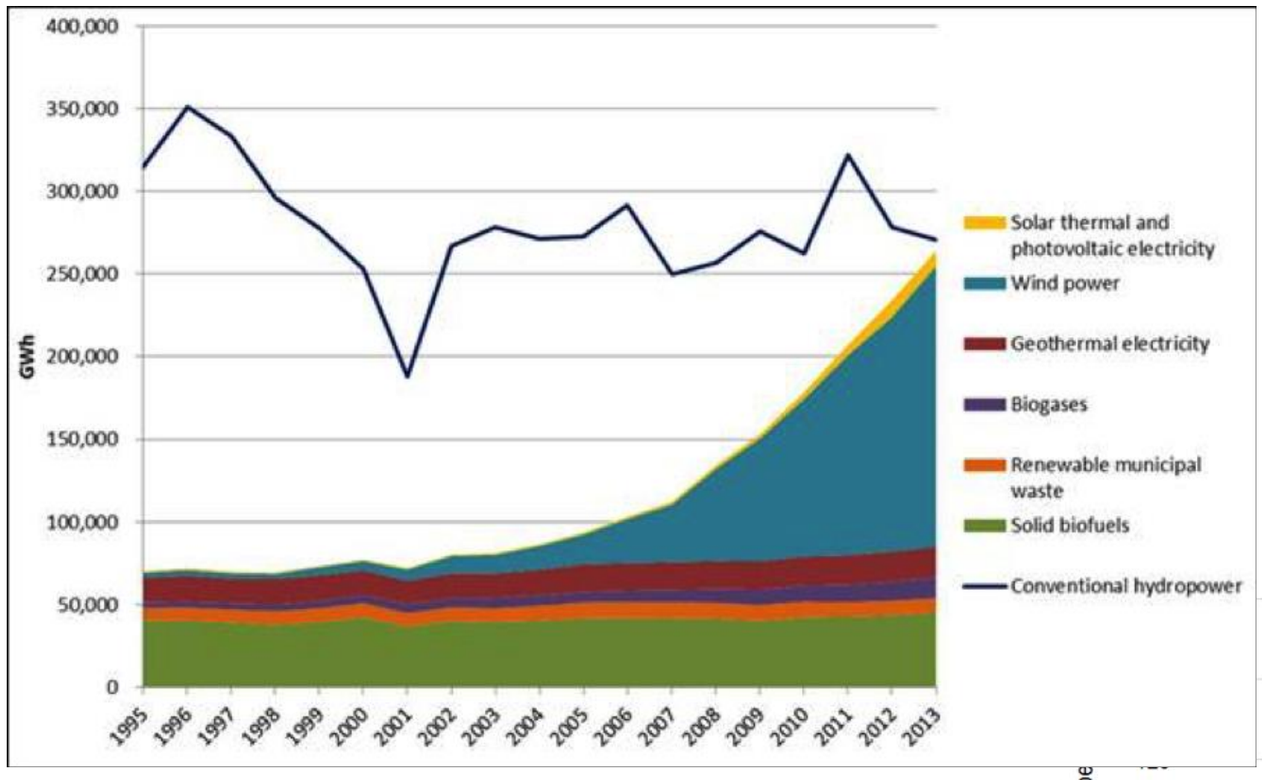
Shifts to indigenous vs. imported resources cut job outflows

Actions supported by local supply chains cut job outflows

New investment from outside sources stimulates labor investment at home

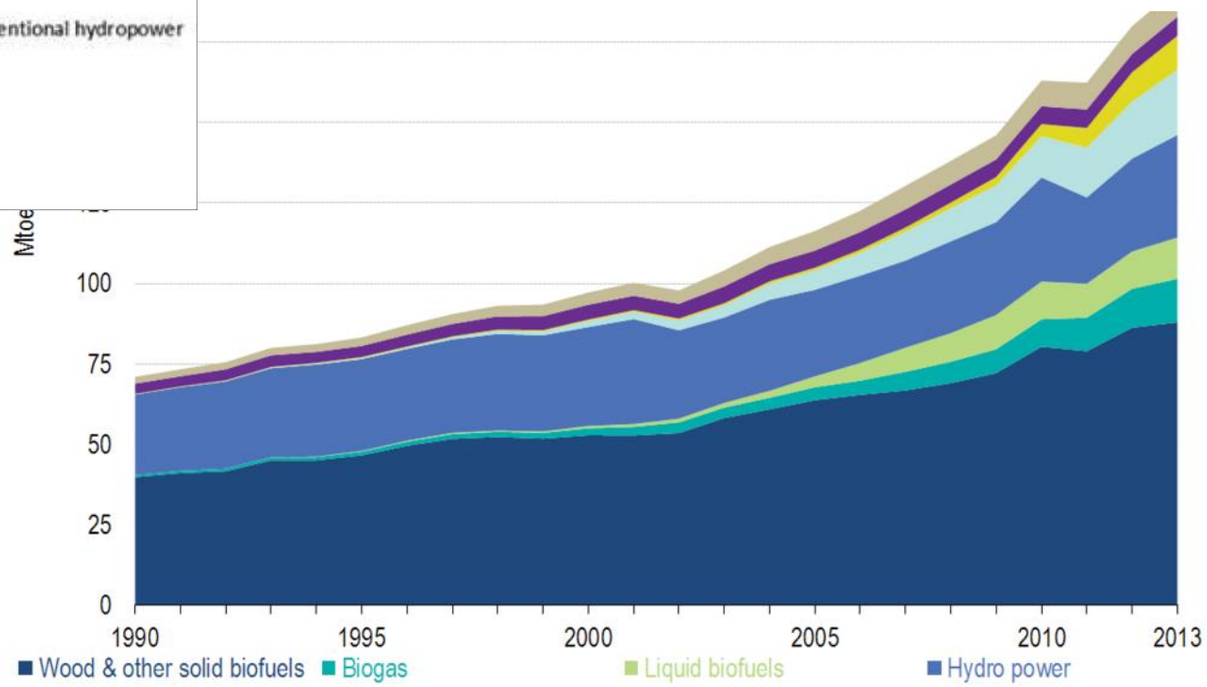
Labor intensive activities create more jobs, even if at higher cost (up to a point)

Renewable Energy Growth

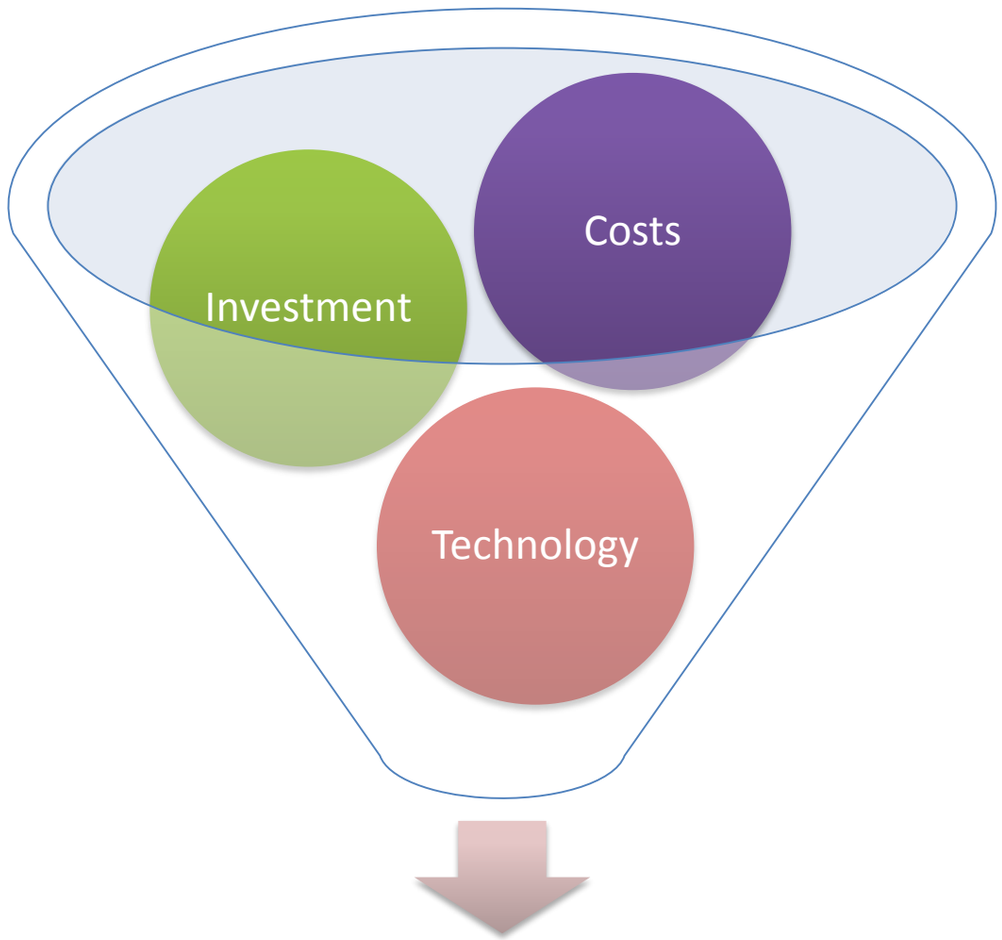


US renewable electricity production by source , IEA

EU renewable growth EUROSTAT



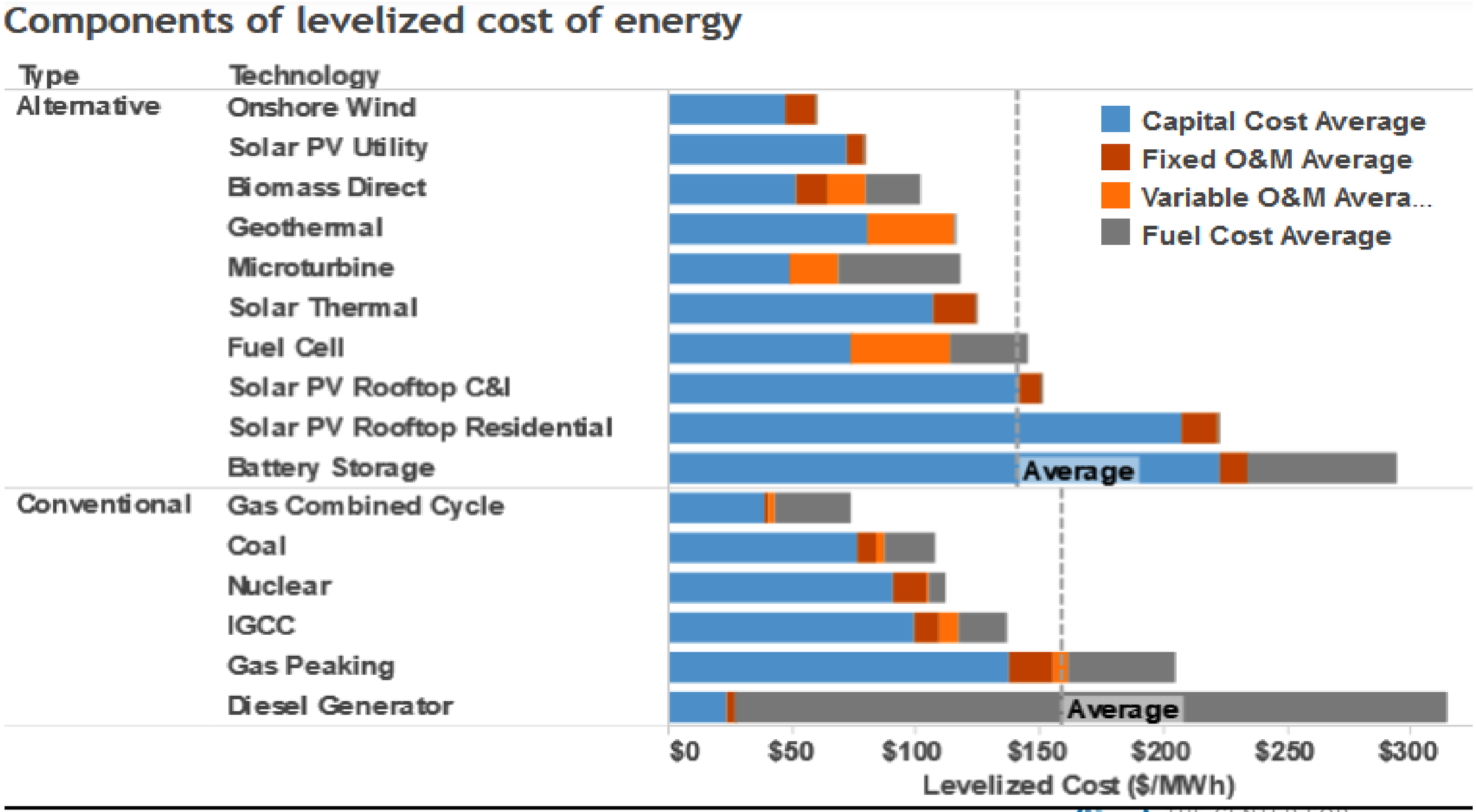
Market Penetration Barriers



Market Availability

Cost Components

Levelized cost of energy in the US, 2014 (Lazards)



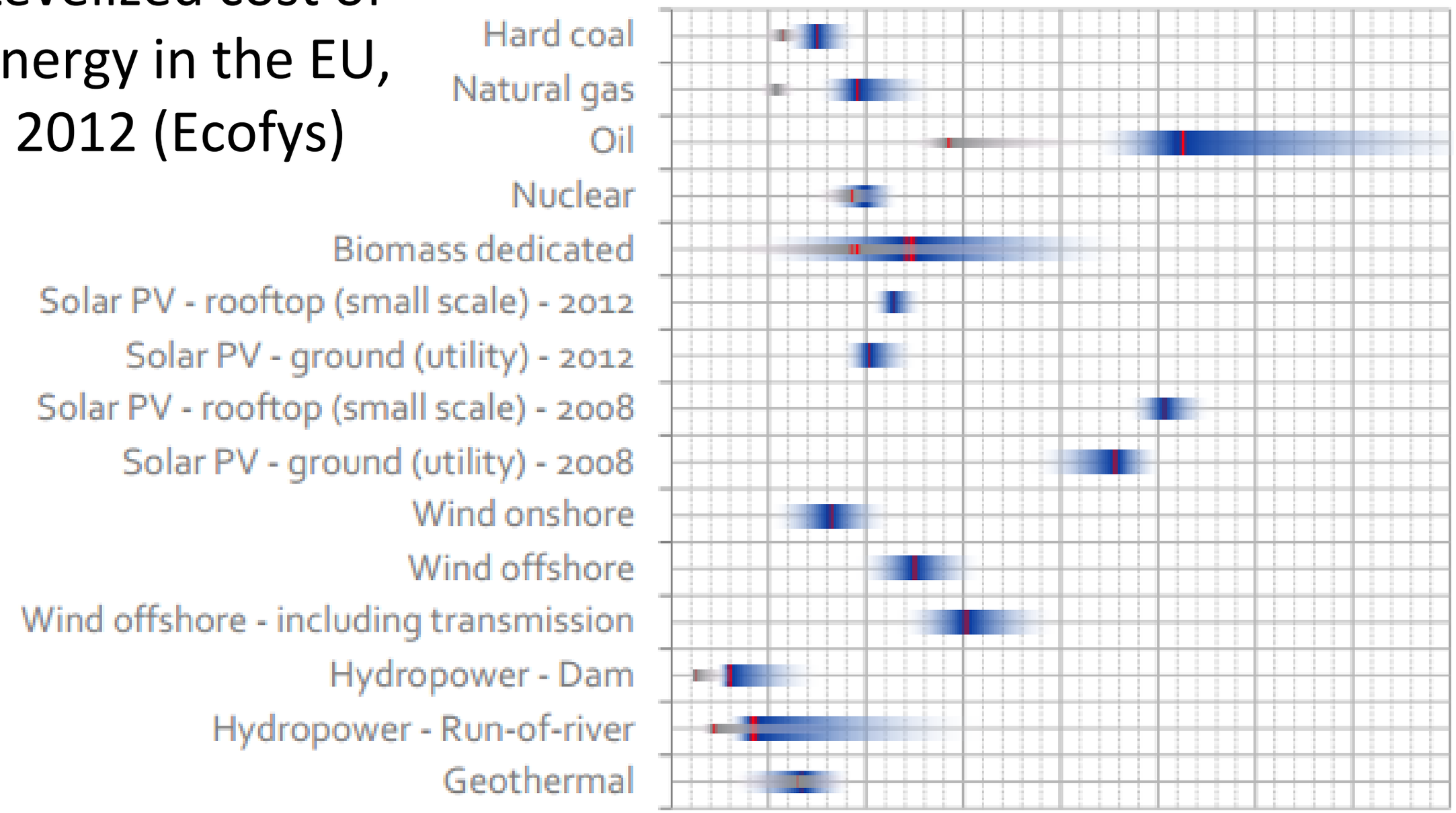
Cost Differentials

Appalachian Power, 10/27/15

Coal with Capture and Storage	Conventional Coal	Gas	Wind
$144 MWh	$95 MWh	$73 MWh	$73 MWh

Cost Comparisons

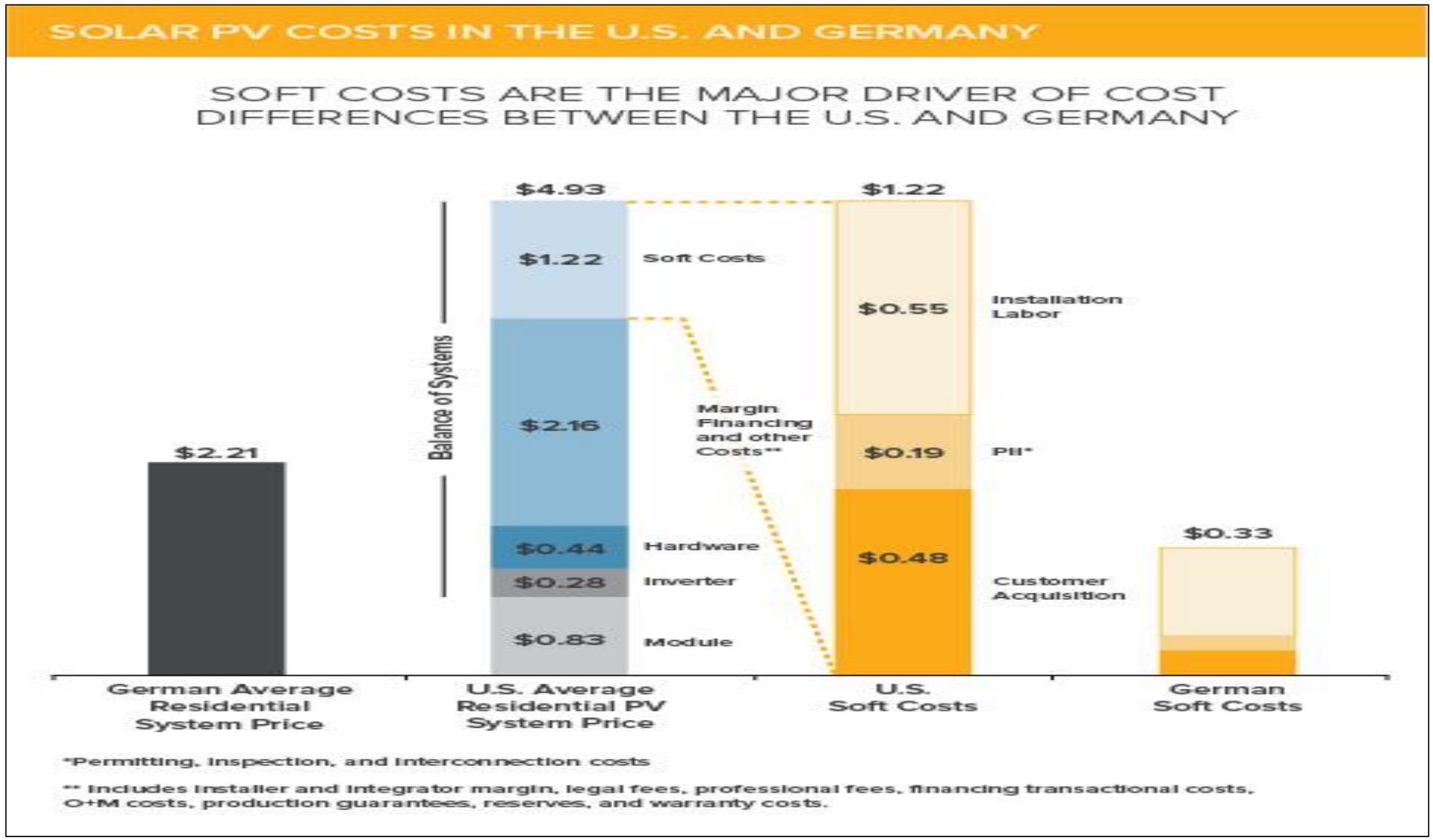
Levelized cost of energy in the EU, 2012 (Ecofys)



Blue bars: Levelised costs at realised full load hours

EU vs. US Costs

Rocky Mountain Institute, 2013



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Investment barriers

Cost and price gaps	• Historic gaps vs. fossil generation • Renewable prices/costs falling
Economic hardship	• Impacts on priorities, pathways • Limits on demand and capacity • Adjustment and innovations
Expiration/Revision of cost mechanisms	• Policy shifts • Economic shifts
Competition for investors	• Risk/return barriers • Mechanism and policy gaps • Lack of policy/investment linkages

Technology barriers

Grid integration

Transmission line expansion

Storage systems

Generation efficiency

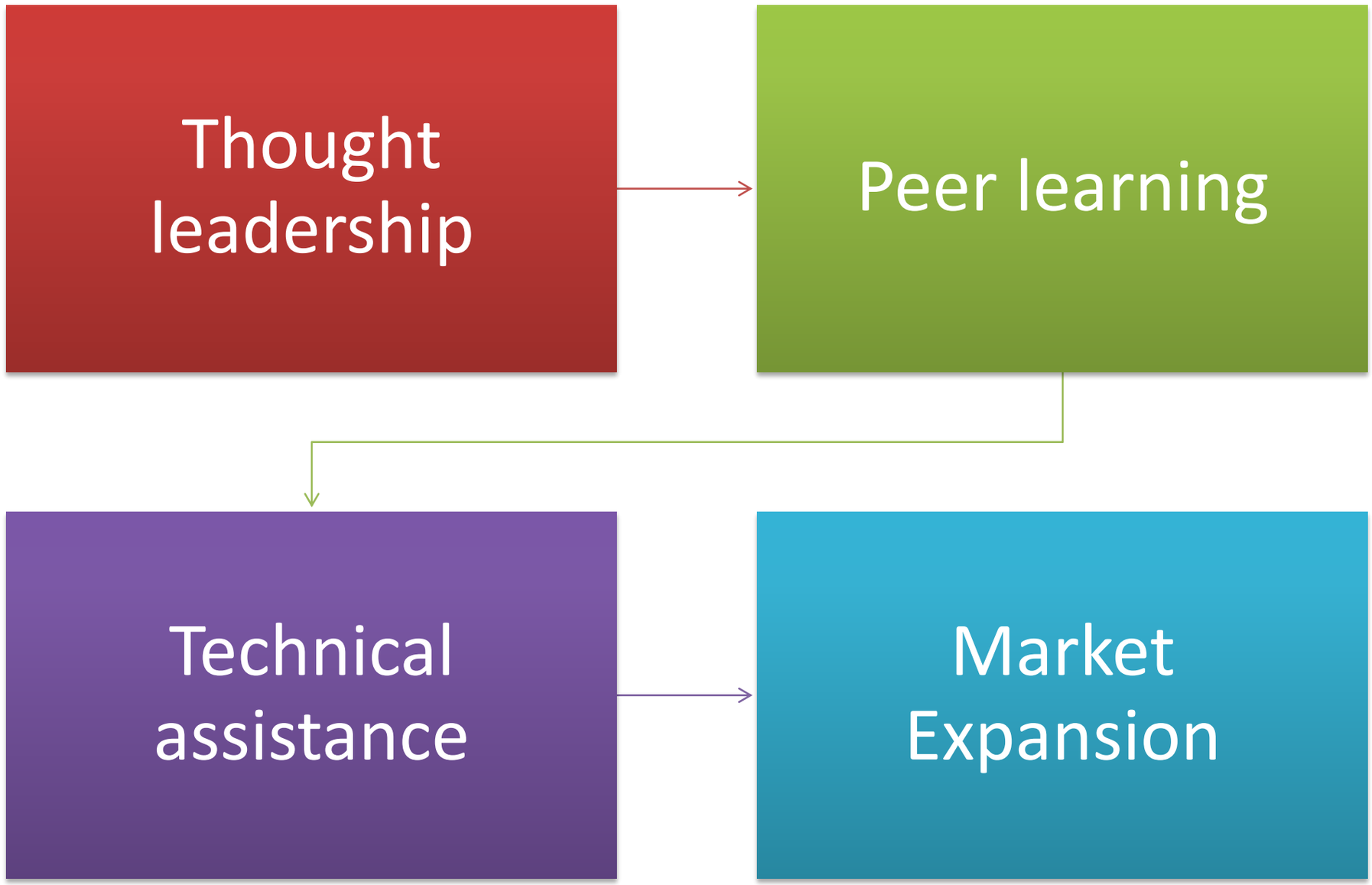
Collaboration enhancements

RECOMMENDATIONS

Enhanced Collaboration

Existing	• National • Periodic • Closed • Costly • Slow
New	• Subnational/Private • Live/Virtual • Low Cost • Open • Fast

Virtual Mechanisms



Counterparts

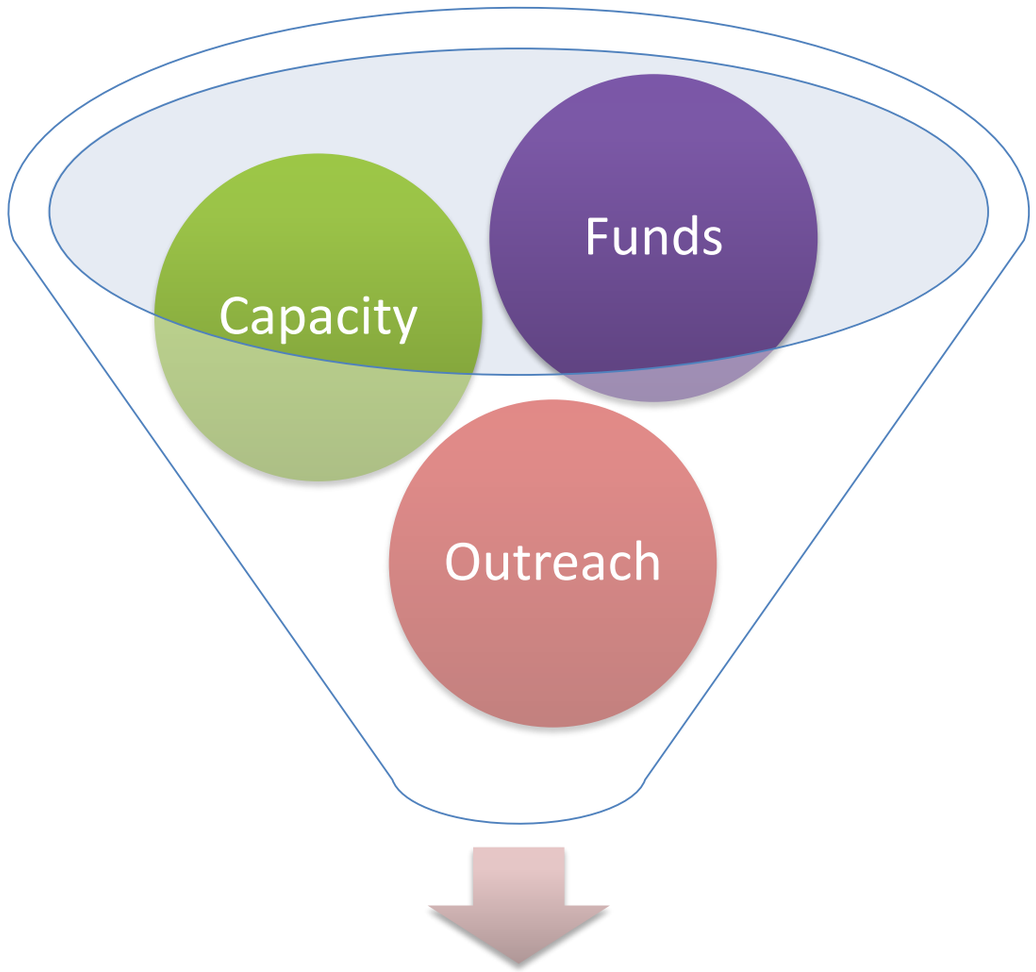
All Levels of Government

- Federal/Regional
- State/Member States
- Local Government

Stakeholders

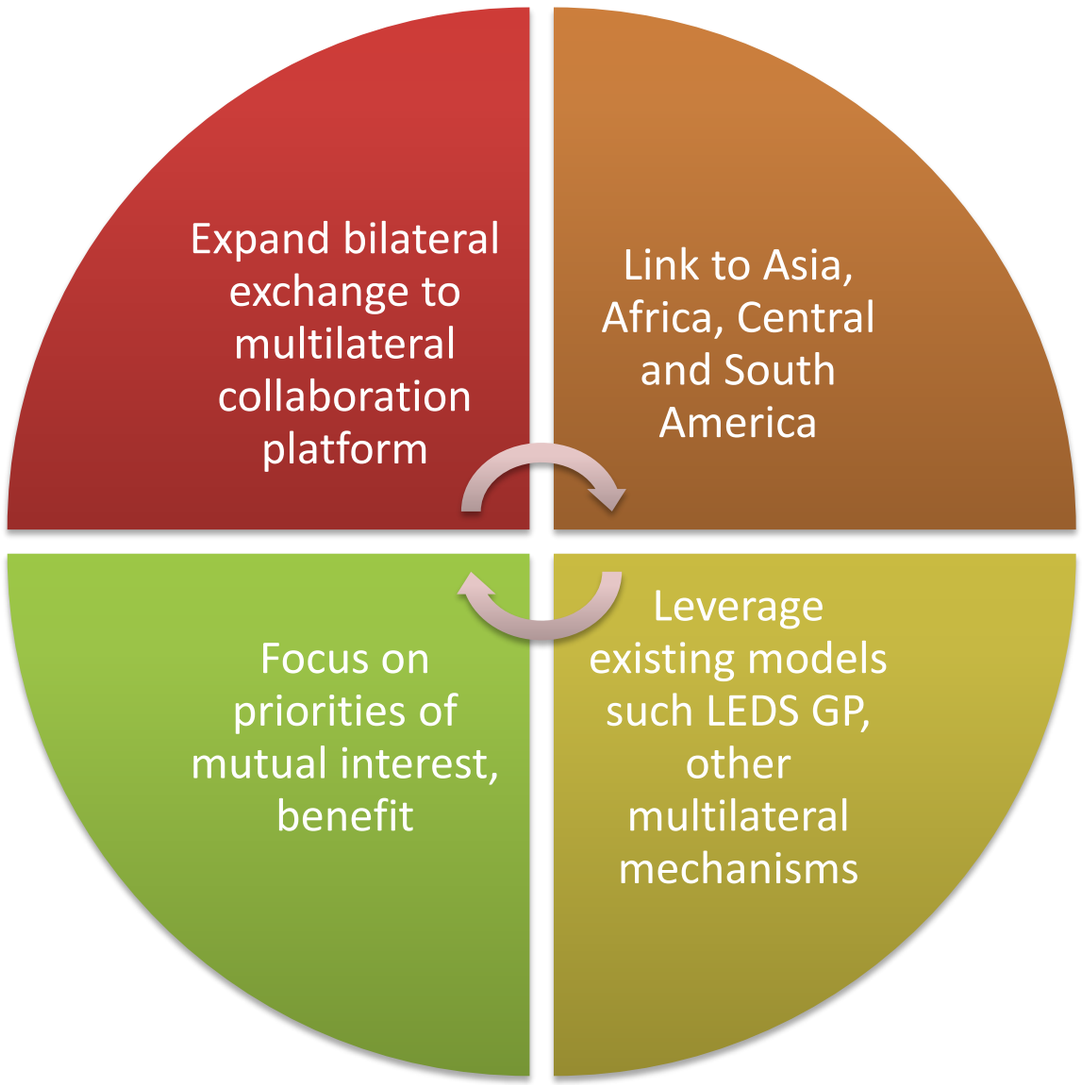
- Energy suppliers
- NGOs and institutes
- Donors and investors
- Knowledge providers
- Technology providers

Third Party Partnerships



Breakthroughs

Regional Collaboration



Report Completion, Endorsement, Transition

NEXT STEPS

Next Steps

Review and feedback on report findings, recommendations

Recommendations to policy makers, partners

Government and nongovernment responses

Thank you for your time and attention!

QUESTIONS?

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