

FLAT WORLD
PARTNERS
RENEWABLE ENERGY
POST ELECTION

FAR
FROM A
BLACKOUT



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"A nation that destroys its soils destroys itself. Forests are the lungs of our land, purifying the air and giving fresh strength to our people."

—Franklin D. Roosevelt

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With or without America, self-interest will
sustain the fight against global warming

—The Economist

The day after the election, investors wondered if the sun had set on renewable energy. Stocks such as First Solar sank almost 7% two hours into trading and SunPower fell 18%, while Exxon Mobil rallied. Though this initial market reaction may seem inauspicious for renewables, the reality is that renewable energy is here to stay.

Why? The fundamentals are good, financing is available, projects can be profitable with or without the support of the government, and investing in renewables is a better alternative to fossil fuels (stay tuned... we'll get to it). The key driver of long-term growth in renewables is economics; technological improvements and falling costs are key. The price of solar panels has declined by 90% since 2009, and the average cost of wind generation has fallen by 80% since 2008. US wind and solar generation is now competitive with gas and cheaper than coal.

Myron Ebell (Trump's pick to lead the transition of the Environmental Protection Agency) may not believe in global warming but investors certainly do.

By some estimates, they are at risk of losing \$4.2 trillion across their portfolios because of global warming between now and the turn of the next century. On November 26, 2016 the Economist's Leader report , the Burning Question, noted, "Private investors were always going to have to stump up lots of cash to fund climate-change action; the onus on them will now be heavier." The upside is that there is upside. Renewables investing is not the same as it was in the early 2000 where many lost their shirts. It is not without its risks, but with a focus on strong manager and project selection, we believe competitive market returns can be achieved. In our view, the future looks pretty bright for investing in renewable energy. Here's our case.

The Fundamentals Are Good

The US has a robust renewable energy market. Solar, wind, hydropower and biomass now provide 13% of the country's energy supply. Consumption for renewables grew by 20% in 2015, with fossil fuels falling by 2%... Why? For one, production costs have come down. Solar panel prices have fallen steeply, and the time it takes to install a residential system in the US has gone from several days to 4 hours. Consumers prefer renewable energy now that it's cost-competitive, and innovations in system financing have made switching almost a nonissue. On the flip-side, coal has been displaced by cheap shale gas (not Barack Obama's regulations, as some would have you believe).

These investment fundamentals are good news for workers. The renewable energy sector has been creating jobs at a faster rate than in the oil and gas industry and in the economy as a whole. This growth puts the level of clean energy jobs at double that of the coal industry. The issue for former coal country is that many of those new jobs are located in the Sunbelt and skilled labor is required – but jobs are jobs. Policy solutions focused on economic and workforce development in those areas could go a long way in offsetting the impact of a shift to renewables.

On the other side of the coin, the fundamentals of oil and gas aren't great. Climate change advocates have been arguing for years that the oil held in reserve by exploration companies won't be worth much if it never comes out of the ground. This "stranded assets" argument holds sway with large and small investors alike.

Put it this way: analysts put a time horizon on oil companies' reserves of about 10-15 years, just about matching the timeframe of most private equity investments. And HIS estimates that 80% of the value of listed oil companies is based on these proven reserves. Revenues could drop by more than \$22Trn in the next 25 years as their renewable competitors heat up. Recently, the New York State Attorney General and the SEC announced that it would investigate the accounting practices of Exxon Mobil to determine whether or not Exxon's books overstate the value of its reserves. It leaves investors asking, why spend all that money getting oil and natural gas out of the ground if you can't sell it?

Some of the largest asset managers are starting to translate this uncertainty as a new kind of risk. BlackRock estimates that asset management firms repping \$3.4Trn have pledged to divest from fossil-fuel companies. So why subject yourself to that kind of volatility?

More than
2.5 Million
People
Work in
the Clean
Energy
Sector in
the U.S.



A Chinese Proverb

Great that Trump wants to bring back old school, low-paying manufacturing jobs to the U.S., because China has moved on. China now hopes to become a clean-energy superpower by producing cheaper solar panels, batteries, and electric cars, as well as the systems and infrastructure that are required to tie them together. So guess where we'll be importing all our renewable technology from once our reserves run out? #deficit

Renewable energy is heavily supported in China with the government building green infrastructure and requiring banks to finance green projects. China is doubling down on adapting to climate change and plans to have nearly 150 gigawatts of installed solar capacity by the end of the decade, triple what it has today, becoming the world's largest solar generator.

China is finally taking on air pollution in its cities as it is becoming a drag on GDP—a recent study found that air pollution contributes to the deaths of 1.6m people in China each year. Switching from burning coal to cleaner forms of energy makes sense twice over.

India has also seen the light in the move to solar. Its target is to produce as much as 100 GW by 2022—a potential \$100 billion investment in the sector. India isn't just doing this to give access to electricity to the million who live without power, but needs climate action as insurance against extreme weather. India has spent hundreds of millions in the wake of storms, floods and other events. Private firms are getting involved as well – not as good Samaritans, but as groups that see a profitable endeavor. Power requirement in India is estimated to grow at an average of 5.2% during the next 10 years .

How about that Mexican Wall? It might just be made of solar panels. According to Lazard, recent power auctions in Mexico price renewables at 3.3 cents per kilowatt compared to an equivalent cost of coal around 6 cents/KW and 21 cents/KW for natural gas.



CHINA

- China employs nearly 3.5 - million people in renewables. That's almost a million more people than those employed by the Chinese Oil & Gas sector.
- 10% of GDP is lost to Asthma in China each year.
- Air pollution contributes to 1.6 million deaths a year in China.

INDIA

- 300 million people live without access to electricity
- India currently requires 1,068,923 million units of electricity annually, but the supply falls short by 3.6%.
- By 2019, India could achieve grid parity between solar and conventional energy sources.

MEXICO

- "Trump's environmental and energy rhetoric support an argument that natural gas prices will decrease in the US, which would further damage the country's renewable energy industry and which, ironically, will allow Mexico to benefit," Don Walter, CEO of US firm Sonora Energy Group
-

A WORD FROM OUR PRESIDENT-ELECT



The concept of global warming was created by and for the Chinese in order to make U.S. manufacturing non-competitive.



Any and all weather events are used by the GLOBAL WARMING HOAXSTERS to justify higher taxes to save our planet! They don't believe it \$\$\$\$!



The entire country is FREEZING - we desperately need a heavy dose of global warming, and fast! Ice caps size reaches all time high.

"The best time to plant a tree was 20 years ago. The second best time is now." - Chinese Proverb

When we talk about financing and finding ways to invest in renewable energy, we have to talk about project scale. Large projects – those that fuel large utility-scale systems ($\geq 100\text{MW}$) – have access to financing from banks and private equity firms. Purchase Power Agreements are a standard contract to provide transparency in the amount of cash flows in these projects making returns predictable and financing efficient. A secondary factor making these projects stable is that the inputs – sun and wind – are less subject to the supply and demand shocks that affects the oil and gas markets. This stability opened the gates to institutional financing.

It is these large-scale projects that are the focus of concern regarding the possible loss of the investor tax credit (ITC) under a Trump Administration. The ITC enables producers to pass on low power prices to the utilities. Without the ITC, renewable energy producers will have to negotiate higher prices and try to remain competitive with oil and gas. It's also not clear that it's going away. The ITC enjoyed bipartisan support in Congress and was renewed in 2015. By the time it expires, the cost of production will be lower, making the tax credit even less necessary to make these projects economically viable. Even without the tax credit, the capital efficiency of solar and wind is much more attractive than fracking or deep ocean exploration, so we see continued interest in this space even if there's no assist from the tax code.

Mid- and small-scale projects face a much more fragmented market for financing. We're excited to see institutional funds starting to come into mid-sized commercial projects. Institutional backing should bring down the cost to borrow and drive more development. Small commercial projects are benefiting from the entrance of digital players using desktop underwriting and online interactions to reduce the cost of lending to drive more available and dependable financing to small projects. Creating economies at this small scale will have a large positive impact on driving distributed energy. The impact of all this – well – **IT'S GONNA BE HUGE**.

US wind farms receive a tax credit of \$0.23/kWh, and US solar farms receive a tax credit of 30% of capital invested. These credits were extended for 5 years in December 2015.

Some managers we spoke with have given up on the use of ITC's, as pricing has come down and the complexity of receiving these tax incentives outweighs the benefits.

PTC and ITC were created under Republican presidents; George H.W. Bush and George W.

Infrastructure spending Plans

Infrastructure spending could extend to the renewable energy sector through spending on smart grids and upgrading deteriorating energy distributions systems. In any case, Investors won't back projects that install pipelines or power lines headed for obsolescence over the next decade. Banks are also stepping in, refusing to finance new coal mining projects and mountain top mining.

Underlying permit regulatory pull-backs may benefit the renewables sector by adding new energy infrastructure (specifically for pipelines) making it easier to add transmission and distribution lines for renewable energy projects.

Tax Incentives

Only projects structured with tax equity would be affected (mostly utility scale and higher end distributed utility/solar). Lucky for them, the ITC was renewed by a Republican congress in Dec 2015 and has a built-in expiration date of 2020.

Any change would have to go through both houses of Congress, and wind power is built predominantly in red-states. Democrats and some Republicans would oppose repeal efforts, and GOP leaders will not want attention focused on why they are not considering the elimination of fossil fuel subsidies at the same time.

There is a possibility that these are adjusted under comprehensive tax reform; offsetting benefits may come from making renewable generating assets eligible for an alternative tax advantaged vehicle like Master Limited Partnerships. (This was all the rage for investors 2 years ago.)

The Upside To Trumpanomics

Solar is an economic engine that is driving job creation and contributing hundreds of millions of dollars to local economies; solar sector employs ~300k compared to ~150k for the coal sector.

The renewable energy sector has become an asset class that is widely accepted by the largest financial institutions, providing competitive market rates of return

Public support has hit among 90% of the American population for advancement in the amount of power we produce from renewable energy. This includes a majority of Republican voters.

A VIEW FROM OUR MANAGERS

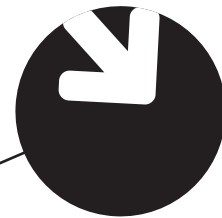
Grid parity
approaching

GRID PARITY

Due to lowering costs of solar projects, the industry can already support itself in some regions based on underlying financial returns, and not government interventions or incentives. Within a few years, federal incentives will be unnecessary.

- Price/watt has fallen from \$4 in 2008 to \$0.60 today.

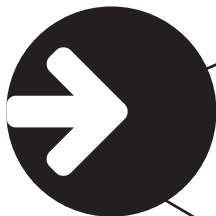
- Solar is now at grid parity with fossil fuels in many states across the country and this trend will continue as solar decreases in cost.



Grid regulation risk

REGULATION RISK

The strongest state markets for solar energy – California, Texas, New York, Massachusetts, and New Jersey – should be unaffected by a Trump Presidency, except to the extent that Trump can use power grid regulation to limit renewable capacity additions. He can attempt the latter, but would face legal opposition.



Clean Power Plan

CLEAN POWER PLAN

Currently many states are litigating against it and it may stall; however, 19 states are moving forward with the plan on their own.

The plan would accelerate the switch to clean energy by regulating carbon emissions from power generation. There could be some regulatory hurdles as the next challenge of the plan will be heard in January 2017, but the Supreme Court may overturn the plan when all is said and done.

Regardless, individual states and corporations may elect to have independent initiatives reducing carbon emissions.

Low risk to COP21

COP21

The Paris Agreement is meant to hold the increase in global temperatures below 2 degrees. For the U.S. it is a 3 year binding agreement and participants have to give 1 year notice after that so it's unlikely the US could withdraw during Trump's 4-year term. Good thing Trump has recently stated that he is 'open-minded' about the agreement.

In the unlikely event that the US withdraws, the momentum and economics of renewable energy are such that it will continue to grow regardless. The fear comes from a foreign policy perspective, where other countries may reconsider their participation and a negative shift in global warming sentiment.



So what's the downside?

It would be a shame for anything, much less politics, to put a halt to the progress we're making in addressing climate change. But here's a list of what could slow renewable energy's roll:

- U.S. withdraws from COP and destabilizes it by influencing other countries to abandon their carbon emissions reduction targets.
- U.S. puts trade sanctions on China, making solar panels and batteries more expensive.
- Falling oil prices could make oil more attractive on a short term basis, but the higher costs of exploration will continue to make oil and gas unattractive from a cost of capital perspective.

Where do we go from Here?

We see the fundamentals of renewable energy remaining sound. Technological improvements in solar panels and battery storage will only make these systems more and more economical. However there's no telling what impact misinformation could have on public perception of the viability of renewable energy. As in many areas of investing, when the crowd runs in the other direction, therein lies a buying opportunity.

\$4.2 TRILLION

The amount private investors are at risk of losing between now and the turn of the next century because of a warming planet.

80%

Drop in the cost of batteries since 2008

\$324Bn

of clean energy investments in 2015, the largest in history

2:1

Investment in renewables to fossil fuel for power capacity

CONCLUSION



2.5M U.S. Jobs in the energy efficiency sector



23%

The potential drop of global income by the end of the century due to warming effects of climate change.

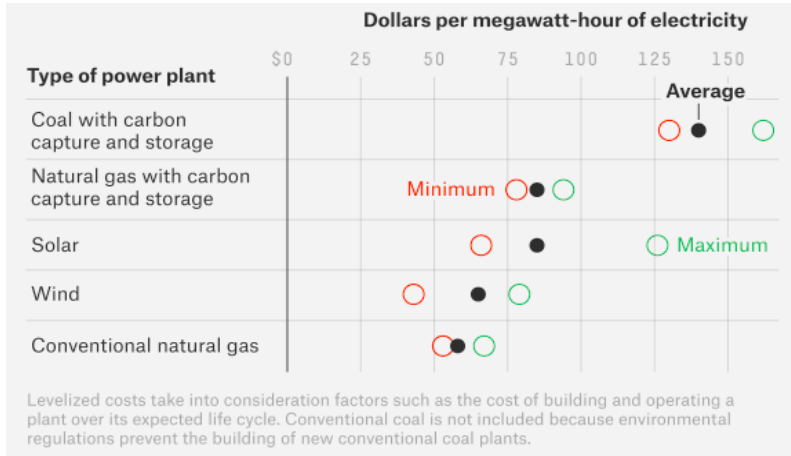
26%

Feasible renewables % of U.S. electricity by 2020

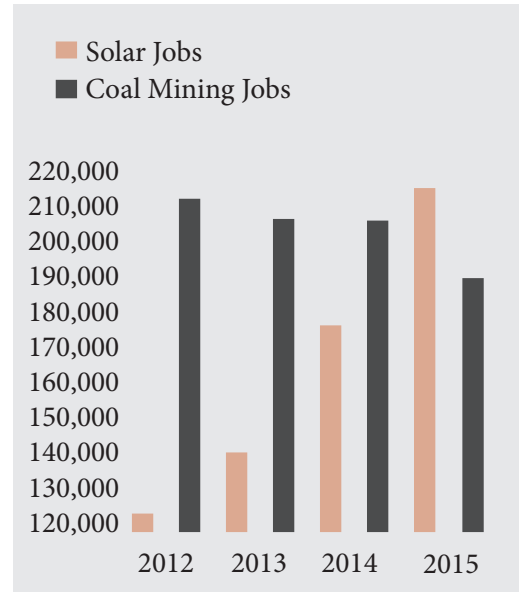
71%

Renewables investment to fossil fuels in Power Capacity,

New Power plants range in cost



Source: Energy Information Administration



Source: International Renewable Energy Agency, U.S. Bureau of Statistics

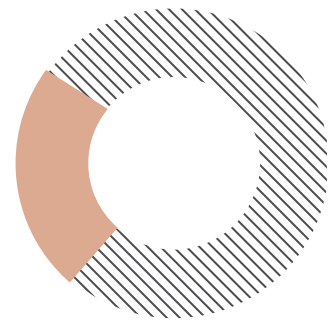
What Asset Owners Care Most About (E-S-G)



57%
Environment



23%
Society



20%
Governance

Source: Barclays Research, Barclays survey of large fixed income asset managers (2016)

Appendix

<http://www.eia.gov/totalenergy/data/monthly/index.php> - summary

http://pv.energytrend.com/price/PV_Cell_Makers_Have_Lowered_Production_to_Survive_the_Off_Season_as_Prices_Along_the_Solar_Chain_Reach_New_Depths.html<https://www.lazard.com/media/2390/lazards-levelized-cost-of-energy-analysis-90.pdf>

<http://www.carbontracker.org/report/stranded-assets-danger-zone/>

<http://www.ft.com/content/fb178154-7faa-11e6-8e50-8ec15fb462f4>

<https://www.ft.com/content/fb178154-7faa-11e6-8e50-8ec15fb462f4>

<https://www.nrdc.org/experts/anjali-jaiswal/climate-bright-spot-indias-growing-solar-market>

<http://www.economist.com/news/leaders/21710807-or-without-america-self-interest-will-sustain-fight-against-global-warming-climate>

<http://www.bnamericas.com/en/news/oilandgas/trump-victory-raises-questions-about-mexico-us-energy-cooperation>

<http://solarindustrymag.com/sunedisons-indian-solar-wind-projects-snagged-by-greenko>

<http://elecrama.com/why-indias-solar-sector-has-turned-into-a-100-billion-investment-magnet/>

<http://fivethirtyeight.com/features/its-hard-to-tell-whether-trump-supports-renewable-energy-and-that-may-not-matter-much/>

Additional Sources:

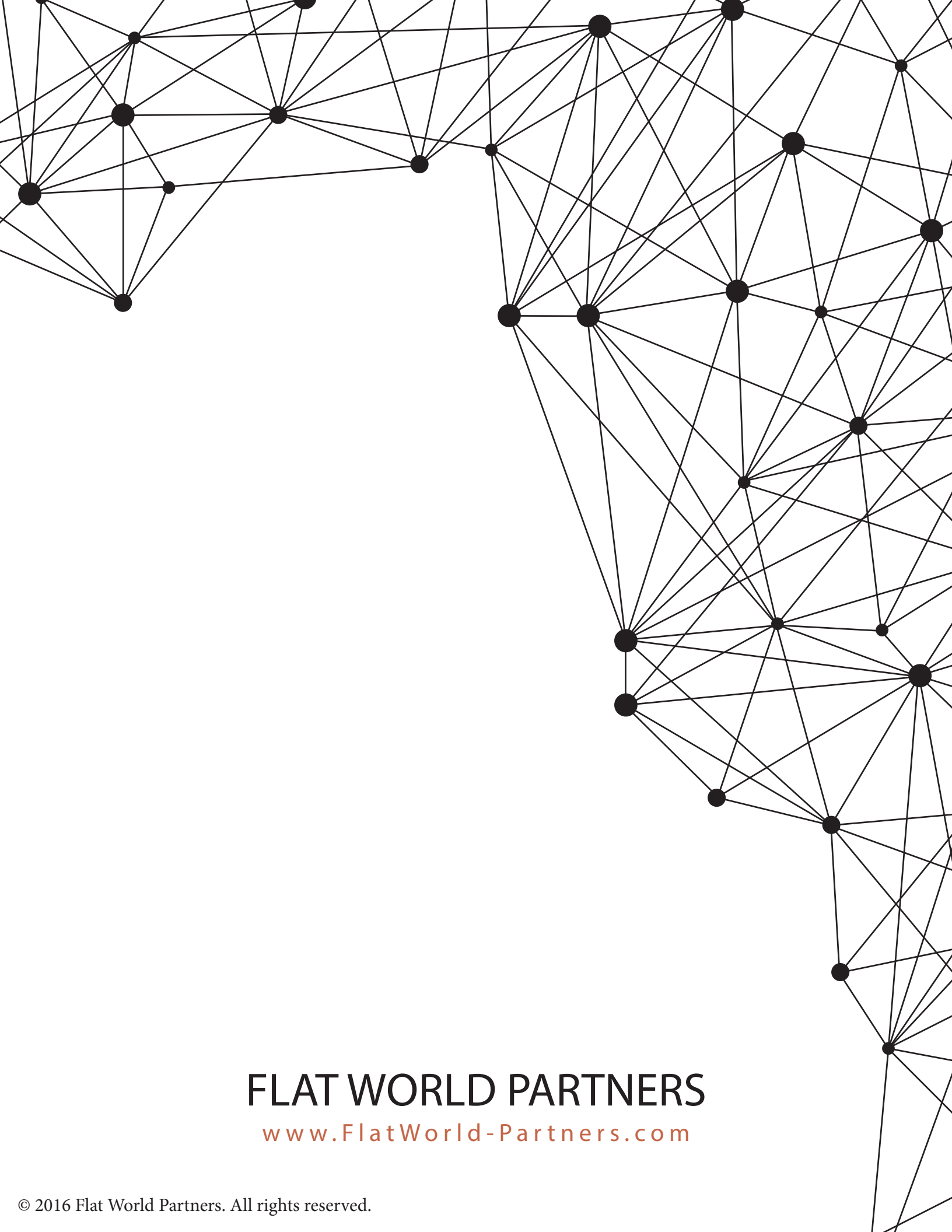
Flat World Partner's approved manager responses to internal survey

Published clean energy research :

- Deutsche Bank
 - UBS
 - JP Morgan
-
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