

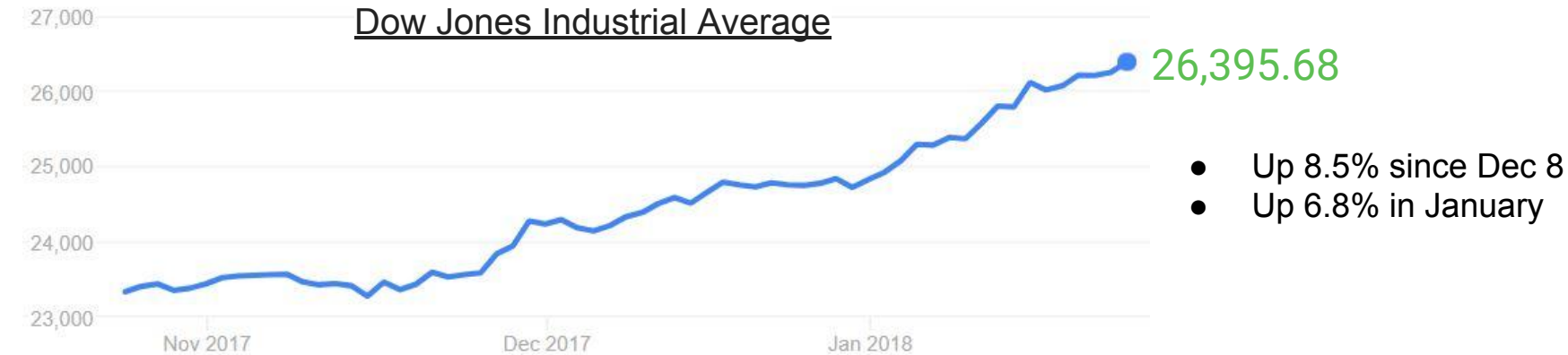
Investment Club 1/26/18

Market Update
Wind Energy
Long Blockchain (Long Island Iced Tea)

Market Update

Ryan Monteyne, Anthony Giudice, Sam Klearman

General market upswing



Our holdings

- Amazon's HQ2
- Apple potential
- Boeing/Embraer talks



20 Metro Area Contenders for Amazon's HQ2

B Metropolitan Policy Program
at BROWNSVILLE



■ New models ■ Old models

6 and 6 Plus



6s and 6s Plus



7 and 7 Plus



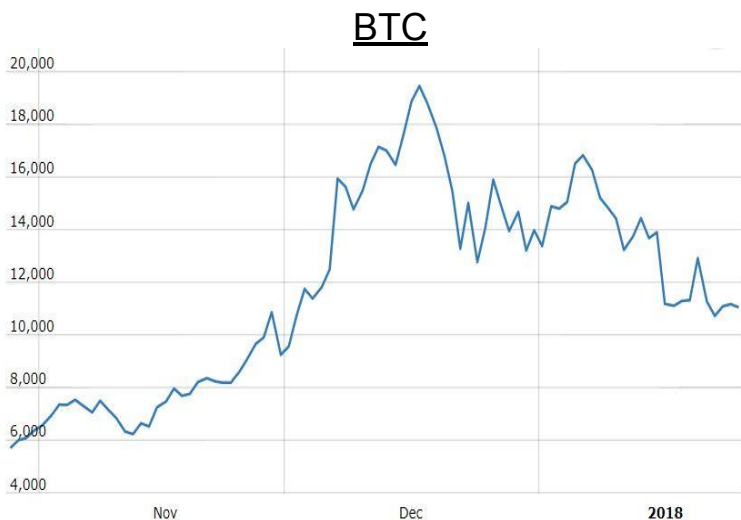
X 8 and 8 Plus



Source: Consumer Intelligence Research Partners

Cryptocurrency still volatile

- Bitcoin no exception; currently at ~\$11,000
- Altcoins spike, fall
- Major investment talk



GOP Tax Bill Review

- Lower individual taxes
- Limited deductions
- Estate tax threshold doubled
- Corporate tax rate slashed
- No more individual mandate



Other news

- Softbank purchases 15% stake in Uber
- Dropbox IPO
- Walmart/Sam's Club/online retail
- London



UBER



Stock trading app Robinhood to launch bitcoin, ethereum trading in five states

- Robinhood Crypto will launch in February with no-fee buying of only BTC and ETH to users starting in California, Massachusetts, Missouri, Montana, and New Hampshire, though more will be added.
- Robinhood will have no investment minimums or maximums, and no withdrawal limits for cryptocurrency trading.
- The full list of coins you can track is Bitcoin, Ethereum, Bitcoin Cash, Litecoin, Ripple, Ethereum Classic, Zcash, Monero, Dash, Stellar, Qtum, Bitcoin Gold, OmiseGo, NEO, Lisk, and Dogecoin.



Starbucks Gives Raises Due To Tax Law

- This is because of the Republican tax plan which dropped the corporate tax rate from 35 ==> 21%
- Effects about 150,000 full time, part time, hourly, and salaried employees and over 8,200 company stores
- All U.S. employees will be able to earn paid sick time and parental leave benefits and it will include non birth parents as well
- Starbucks will start this pay raise in April which is its second pay increase this year
- Doesn't specify the raise but the average baristas make is \$9.60
- Give \$500 dollars in stocks to employees and \$2000 in stock grants to managers
- Will cost the company about \$250 mil



Wind Energy

David Perron and Jack Standbridge

Prospects for the future of US energy

- Most forecasts of future global energy demand show that sustaining even modest economic growth worldwide will require massive new investments in energy
- Although the share of non-fossil fuels is growing, oil, natural gas and coal will continue to play leading roles and are expected to supply approx. 77% to US energy needs and 79% of world energy needs by 2035
- Approximately 8% of U.S energy needs were supplied by renewable energy sources in 2010, and this is expected to grow to 14% by 2035
- Today I am discussing wind energy, but know that there are other renewable options out there (biomass, hydroelectric, geothermal, solar etc.)

10,000 Foot Overview



-The terms "**wind energy**" or "**wind power**" describe the process by which the wind is used to generate **mechanical power or electricity**. Wind turbines convert the kinetic energy in wind into mechanical power. This mechanical power can be used for specific tasks (such as grinding grain or pumping water) or a generator can convert this mechanical power into electricity to power homes, businesses, schools, and the like.

-Simply stated, a wind turbine is the opposite of a fan. Instead of using electricity to make wind, like a fan, wind turbines use wind to make electricity. The wind turns the blades, which spin a shaft, which connects to a generator and makes electricity

-Note that this is an extreme oversimplification of how wind energy works. For example there are different kinds of turbines and many different pieces that make up the turbines. (I would love to talk to any engineers who have experience with wind turbines)

Challenges w/ Wind Energy

- Except for natural gas and solar, Wind is very expensive compared to other forms of energy- think coal, oil, nuclear (American Energy Independence 2011)
- Costs involved in manufacturing, installing, and shipping wind turbines requires huge upfront capital
- If the wind speed is not high and consistent, technology is ineffective
- To convert as little as 20% of electrical energy generation in the united states to wind energy, 180,000 - 200,000 wind turbines must be installed (US Dept. of Energy 2007)



Challenges Continued

-Support for the development of a national transmission grid

- Before energy from wind is connected to our homes, it must be connected to an electrical grid that might be located in an area that is not in close proximity to the turbine (results in higher costs)
- The existing electric grid in the US was not built to transmit large amounts of power across great distances as would be required by the full development of wind power potential
- The full build-out of a national transmission grid is not only expensive but will require public policy support from the federal government-Continuation of federal subsidies for alternative energy production

-Continued government subsidies to encourage use of renewables

- Wind energy received subsidies of \$4.986 billion from the federal government for Fiscal Year 2010. This amount is equal to approximately half the cost of new wind power installed during that period

Cost Competitiveness

-Since wind energy tends to compete with the cost of fossil fuels used to produce electricity (mostly natural gas and coal in the US), a low price for natural gas is a problem because even greater subsidies will be required for wind energy to be competitive.

-The cost of natural gas is a critical determinant of economic viability of wind power generation

A real life example: T. Boone Pickens



-One of the nation's most successful businessmen, first building one of the nation's largest independent oil companies, Mesa Petroleum (now part of Pioneer Natural Resources), and later reinventing himself in his 70s as a hedge fund manager with BP Capital

-Pickens and other American Oil industry executives feel strongly that the US needs to become energy independent (if you want to read more check out this website <http://pickensplan.com/the-plan/>)

-His plan for American energy independence is as follows:

- Use America's abundant natural gas to replace imported oil as a principal transportation fuel for fleets and heavy-duty trucks;
- Build a 21st century backbone electrical transmission grid;
- **Develop renewable energy sources, including wind and solar power; and,**
- Increase energy efficiency in home and commercial buildings with technology improvements and upgrading insulation

Who cares about Boone Pickens? What does he have to do with wind energy?

-In 2007 Pickens announced he would make a HUGE bet on wind energy

-Since everything in Texas has to be big, Pickens' plan was to build the world's largest wind farm in West Texas

- The farm would have as many as 2,000 wind turbines, and some would be large enough to generate 2.5 megawatts each, and the plan in total would cost as much as \$6 billion

-<https://www.youtube.com/watch?v=eZgmLjMMCZY> (4 minutes in, Boone tells us about his experience in the wind business)

This sounds great. What could possibly go wrong...

- In 2009 Pickens postponed plans for his huge wind farm, and dropped the project in later years. Why? A few reasons...
- He was having difficulty securing financing for the project
- Between the credit crisis, falling oil and natural gas prices, and a general decrease in energy demand due to the state of the economy, it frankly would have been more surprising if the large wind farm in Texas got up and running as scheduled (Seeking Alpha)
- Wind turbines are expensive- The 667 wind turbines that Pickens' company purchased from GE came to a grand total of \$2 billion (this was less than originally anticipated too!)
- Wind farms tend to be out in the middle of nowhere. To get the electricity from the middle of nowhere to the middle of somewhere, transmission lines have to be strung
- The electrical grid in the U.S. is old and in need of repair and upgrading. New high-capacity transmission lines cost between \$2-4 million per mile (Pew Center on Global Climate Change)

The future?

-As we can see from the middle graph, the cost of wind power is decreasing

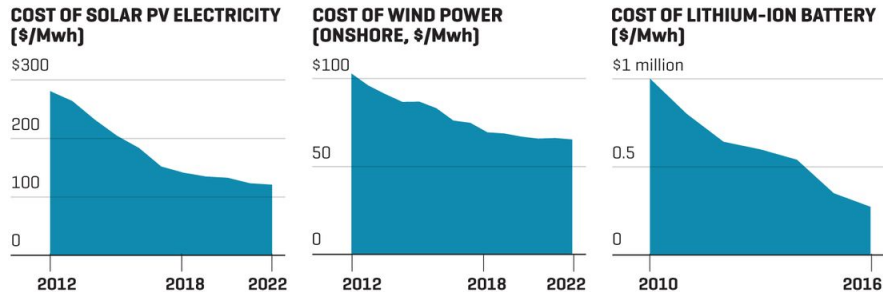
-Royal Dutch Shell, an oil and gas giant, has concluded that oil demand is likely to peak sometime between the late 2020s and the late 2040s because of an epic shift underway in the energy industry: a transition from petroleum to electricity (Fortune)

-I believe that natural gas in the near-term will be more popular than wind, given how cheap and accessible it is

- The U.S. has now become a net exporter of natural gas on an annual basis for the first time since at least 1957 (As of 1/10/18 Bloomberg)

CLEANER, AND GROWING CHEAPER BY THE DAY

The costs of alternative energy sources like solar and wind power, as well as of batteries such as those that power electric cars, have fallen dramatically, putting pressure on oil producers.



SOURCES: IEA (DATA FOR SOLAR AND WIND SHOWS LEVELIZED COST OF ELECTRICITY (LCOE) IN 2016 DOLLARS. DATA FOR SOLAR PV IS FOR COMMERCIAL SYSTEMS); BLOOMBERG

What does the future look like?



- The Makani energy kite is an aerodynamic wing tethered to a ground station. As the kite flies in loops, rotors on the wing spin as the wind moves through them
- The Makani energy kite flies autonomously in loops averaging 250 meters in diameter. The airflow acting on a moving kite is many times faster than the wind experienced by a stationary object. This powerful apparent wind spins the kite's rotors, generating a large amount of electricity
- Makani is a part of Alphabet's X.
- A description of "X"- We're a moonshot factory. Our mission is to invent and launch "moonshot" technologies that we hope could someday make the world a radically better place. We have a long way to go before we can fulfill this mission, so today it's really an ambition.
- The company has a video on its website if you are interested in seeing how it works...



Please keep in mind there were many other topics that could have been covered in this presentation (the history of energy use and where many believe we are headed, more company specific examples, specific technologies etc.)

If you have questions please come chat after the meeting



Long Island Iced Tea?



By Marie Bucklin

Long Island Iced Tea becomes Long Blockchain

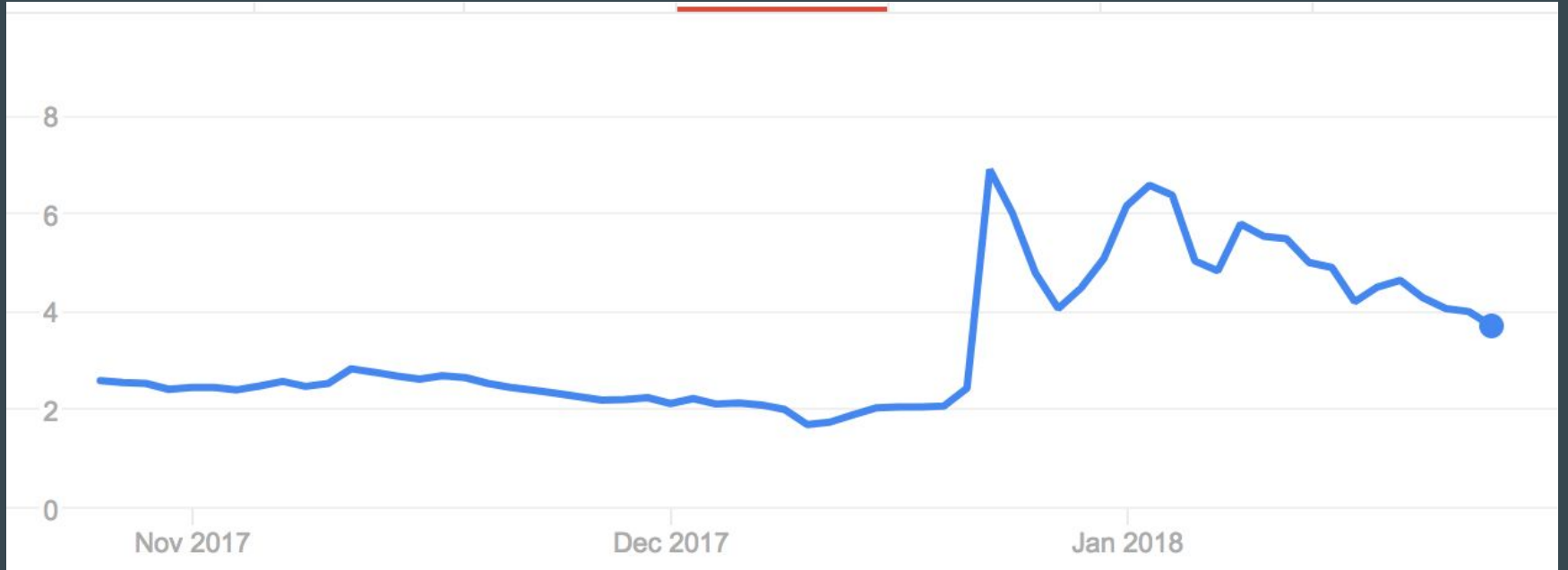
On December 21st, Long Island Iced Tea Corp. became Long Blockchain Corp.

Primary focus shifted from producing tea, which it still will do, to investments that leverage benefits from blockchain technology. -- Yahoo News.

Result: Stock soared from \$2.44 per share to \$6.91 per share.

Lafayette College Investment Club -- We, of course, sold our holdings prior to this jump.

Stock past 3 months



And Now?

Since then, the stock has resettled to a more reasonable price of \$3.72 per share

Still a significant jump from \$2.44 per share