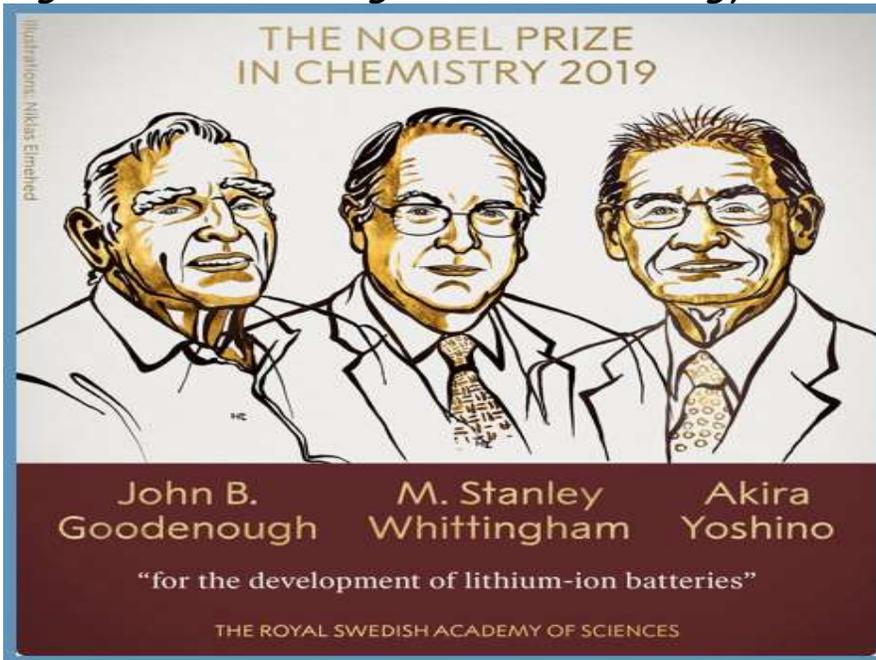


# E.Q Trendwatch™

## Storage and the evolving business of energy



Venable Park Investment  
Counsel Inc.

33 Clapperton St.  
Barrie ON L4M 3E6

Tel: (705) 792-3991  
Toll Free: 866-792- 3991  
Fax: (705) 792-3992

Cory Venable

CIM, FCSI, CMT  
Market Analyst

Danielle Park

LL.B., CFP, CFA  
Portfolio Manager

Venable Park Investment Counsel Inc.



www.venablepark.com

*“At the time we developed the [Lithium-ion] battery it was just something to do...I didn’t know what electrical engineers would do with the battery. I really didn’t anticipate cellphones, camcorders and everything else.”—Dr. John Goodenough, co-inventor lithium-ion battery, 2019 Nobel Prize in chemistry*

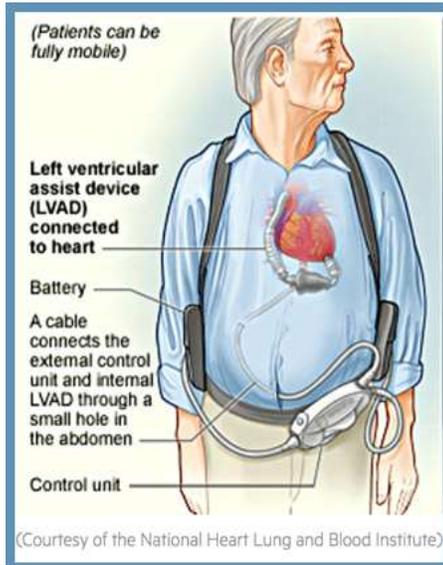
This month, the Nobel Prize in chemistry was awarded to three scientists credited with inventing the rechargeable, lithium-ion battery upon which mobile phones and other modern technologies depend.

All three chemists have been working in energy storage for decades and continue to this day. The eldest, John B. Goodenough now 97, works with a design team at the University of Texas, Austin. Their latest ‘solid state’ battery uses a glass electrolyte rather than liquid, and sodium (cheap and plentiful) rather than lithium (scarcer), charges faster and holds more energy. Brit Stanley Whittingham (age 77), also working on scaling solid state, was originally hired by oil giant Exxon to devise energy storage during the 1970’s OPEC crisis.

Often innovations arrive long before their depth of use and ubiquity are readily apparent. As noted in our opening quote from Dr. Goodenough, when originally devising the lithium ion battery in the 1970s and 80s, the inventors had no inkling of the myriad of electronic devices it would enable.

This publication is intended to convey information only. It is not to be construed as a solicitation or offer to buy or sell any of the securities mentioned in it. The author has taken all usual and reasonable precautions to determine that the information contained in this publication is accurate and efforts to summarize and analyze such information are based on approved practices in the industry. However, the market forces underlying investment value are subject to sudden and dramatic changes and data availability varies from one moment to the next. Consequently, the author cannot make any warranty as to the accuracy or completeness of information, analysis or views contained in this publication or their usefulness or suitability in any particular circumstance. You should not undertake any investment or portfolio assessment or other transaction on the basis of this publication, but should first consult your advisor. The author accepts no liability of whatsoever kind for any damages or losses incurred by you as a result of reliance upon or use of this publication in contravention of this notice. All performance data represent past performance and are no indication of future performance.

Not long ago, phones and drills all had cords; today, they are considered an antiquated and undesirable limitation. Rechargeable batteries are used in all manner of devices from construction tools to 'Left Ventricle Assist Devices' (lower left) that maintain patients until a heart donor is available, to pacemakers for Arrhythmia.



As the cost of lithium-ion batteries fell 84% between 2010 and 2019 and average energy density improved 70%, their application range has exploded.



As Wharton Professor and international technology consultant, Jeremy Rifkin explains in his 2011 book, *The Third Industrial Revolution* (a video presentation of which is [available on our blog here](#)), evolution driven by new technology is a constant theme. In the nineteenth century, the so-called first industrial revolution was driven by the advent of coal powered steam-engines that enabled national railway systems and high-speed printing presses. The second industrial revolution in the twentieth century was enabled by an abundance of cheap oil, internal combustion engines, road systems,

centralized electricity, telephone, radio and television.

**Rifkin explains that in the twenty-first century, we are now twenty years into the third Industrial Revolution built on a 'smart' infrastructure of semiconductors, sensors and storage connecting every 'thing', with every human being in a digital neural network extending around the globe.** This has given rise to a new sharing economy that is transforming the way we manage, power and move economic life. A twenty-first century fixated on **smaller, faster, smarter, cheaper**, cleaner, reusable products and systems has a booming need for data and efficient energy. The next iteration of the transition is driven by three pivotal technologies now available: an ultra-fast 5G communication internet, a renewable energy internet, and a driverless mobility internet, all connected to the Internet of Things.

The Internet of Things (IoT) is a term first coined in 1999 for a system of interrelated computing devices, mechanical and digital machines, objects, animals and people that are provided with unique identifiers and the ability to transfer data over a network without lags and intermediaries. For the first 13 years, the dream preceded cost effective connectors, however between 2012 and 2013, the cost of radiofrequency identification chips needed to monitor and track things fell 40% in just 18 months. Suddenly the efficiencies of 'smart' infrastructure were no longer theoretical.

Increasingly, participants are able to engage directly, share, recycle, and bypass many of the global companies that were trade intermediaries and dominant rent collectors in the 20<sup>th</sup> century. This is happening faster than most expected, and is rapidly disrupting the communication, construction, energy, transportation, utilities and food systems.

Already, the marginal cost (*the cost of producing an additional unit after fixed costs have been covered*) of

many goods and services in the digital economy is approaching zero. This is counter to traditional economic presumptions of steadily inflating prices and Gross Domestic Product. It didn't occur to most that there would be an integrated technology platform so hyper-efficient in providing goods and services that it would challenge long-standing norms. This demands new ways to produce and distribute goods and services while still generating jobs, capital for investment and profits.

**Internal combustion engines (ICE) were the anchor of the Second Industrial Revolution. As discussed in our May letter, The Next Big Shift, new battery technology, 75% lower operating costs, and extended vehicle life, are now making electric vehicles (EVs) proliferate.** Worldwide sales are projected to leap from 1.1 million in 2018 to 30 million by 2030. Within 4 years, their unsubsidized purchase price is expected to dip below ICE vehicles (BNEF). The cost advantage is tilting in favour of EVs even as fossil fuels and ICE vehicles continue to receive billions in taxpayer subsidies.

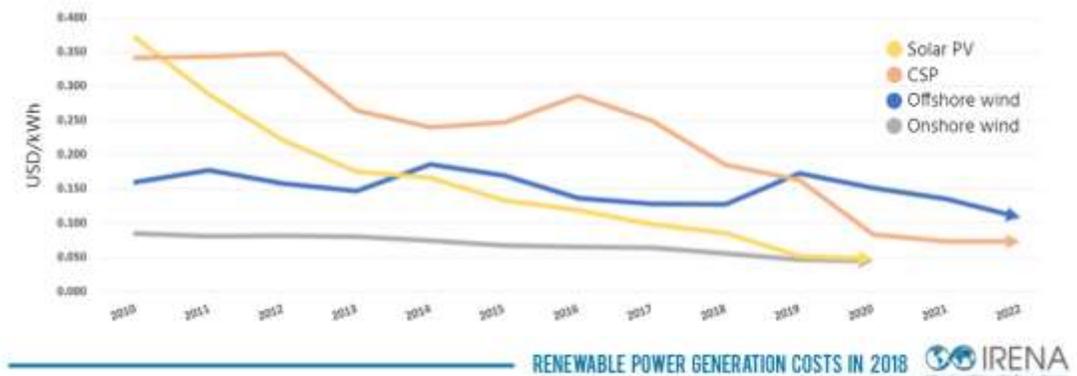
In response to rising EV demand, Japan's Panasonic—the world's largest battery manufacturer—has quintupled production over the last three years, while China's CATL—the second largest—has quadrupled it. The increased output has helped the price of EV batteries fall 84% between 2010 and 2018 as the standard range per charge doubled.

One of our relatives works in Reno, Nevada for Panasonic and was explaining to us this month how the factory is continually upgrading battery mixtures near monthly, to enhance energy density and quicken recharge times. Incoming solid-state batteries promise to increase energy density a further 70%+, on faster recharge while eliminating the risk of thermal break-away (fire).

To put solid state energy density gains into perspective, the longest-range EV currently available has a range of 600kms on a single charge. A 70% increase in energy density means a “bump” to approximately 1,000 kms per charge and everyday chemists the world-over are feverishly working on the next break through battery tech. A recent BNP Paribas report confirms that EVs are already 6-7x more energy efficient at the wheel than gas-powered vehicles (see [Wells, wires and wheels, Energy Return on Capital Invested \(EROCI\) and the tough road ahead for oil](#)).

**Ten years ago, wind and solar power was too expensive and intermittent to be a competitive supply of electricity. Now with plunging costs and back up storage, that's no longer the case.**

**By 2020, onshore wind and solar PV will be a less expensive source of new electricity than the cheapest fossil fuel alternative.**



As noted by the International Renewable Energy Agency (IRENA), the costs from all commercially available renewable power generation technologies globally have fallen dramatically over the last decade. Unsubsidized onshore wind and solar PV is now less expensive as a source of new electricity than the cheapest fossil fuel alternative in nearly every country in the world (graphic last page).

Here's a brain burner: Each hour, the sun hits the earth with 430 quintillion Joules of energy (430 with 18 zeroes)—more than the 410 quintillion Joules total energy that all humans currently use in a year.

On top of sunlight, a study of offshore wind capacity by the International Energy Agency (IEA) released this month found that if windfarms occupy all useable sites no further than 60km (37 miles) off the coast, and where waters are no deeper than 60 metres, they can generate 36,000 terawatt hours of renewable electricity a year and easily meet the current global electricity demand for 23,000 terawatt hours per year.



From just 0.3% of global power generation today, the IEA predicts offshore wind will grow 15-fold to emerge as a \$1 trillion industry over the next 20 years.

The IEA further notes that global supplies of renewable electricity are growing faster than expected and could expand by 50% in the next five years on plummeting costs and new technological breakthroughs which include turbines close to the height of the Eiffel Tower and floating installations that can harness wind speeds further from the coast and generate enough energy to meet the world's total electricity demand 11x over by 2040.

Though cheaper, easier and much quicker to install than nuclear, coal or gas-powered plants, the intermittency of wind and solar power meant fossil fuel 'Peaker plants' would still be needed to backup demand spikes and periods of interruption.

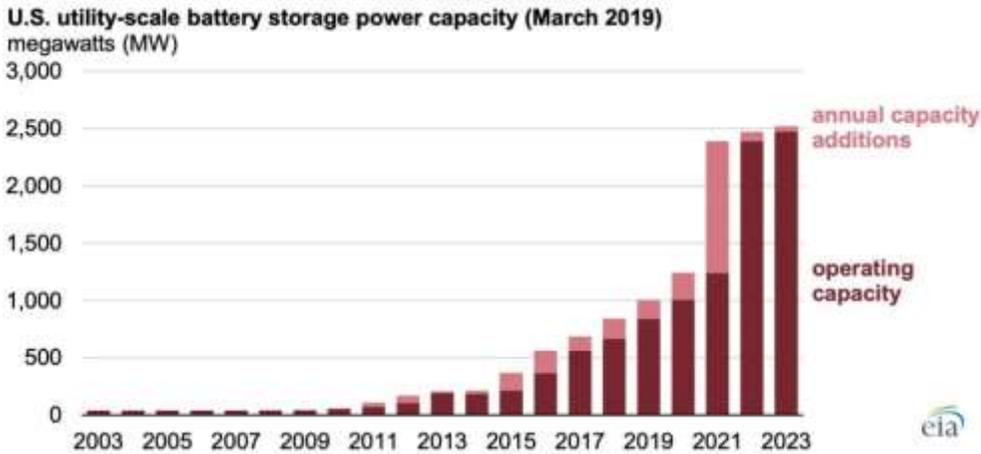
But in the last decade, large scale energy storage systems have dramatically exceeded expectations with a 90% drop in cost per kwh, along with leaps in capacity. Now, utility companies are cancelling Peaker plant projects they had on deck and ordering storage systems instead. Importantly, the motivation is primarily economic— lower costs, faster installation, greater flexibility and improved energy security.

Gas plants take years to build and have a 30-year expected service life. Spending billions to build, fuel and maintain them elevates the cost of supplied electricity throughout. Increasingly, those are now closing down before the cost of capital can be recouped.

Globally, energy storage installations are set to leap in all developed economies over the next 20 years. And storage capacity is not just lithium batteries. Other systems gaining popularity with utilities are pumped-hydro storage, utility mega-packs, molten salt and compressed-air batteries. An hour south of Milan, Italy, a tower made of massive, 35-metric-ton bricks is being built to demonstrate a new award-winning Swiss technology that uses gravity to store energy as it raises and lowers bricks. The company is the winner of Fast

Company's 2019 World Changing Ideas Awards in the Energy category. (Read more about how it works here).

As shown below, in the US alone, despite an unfriendly federal government, utility-scale battery storage capacity more than quadrupled from the end of 2014 (214 MW) through March 2019 (899 MW), with a similar rise planned over the next 3 years.



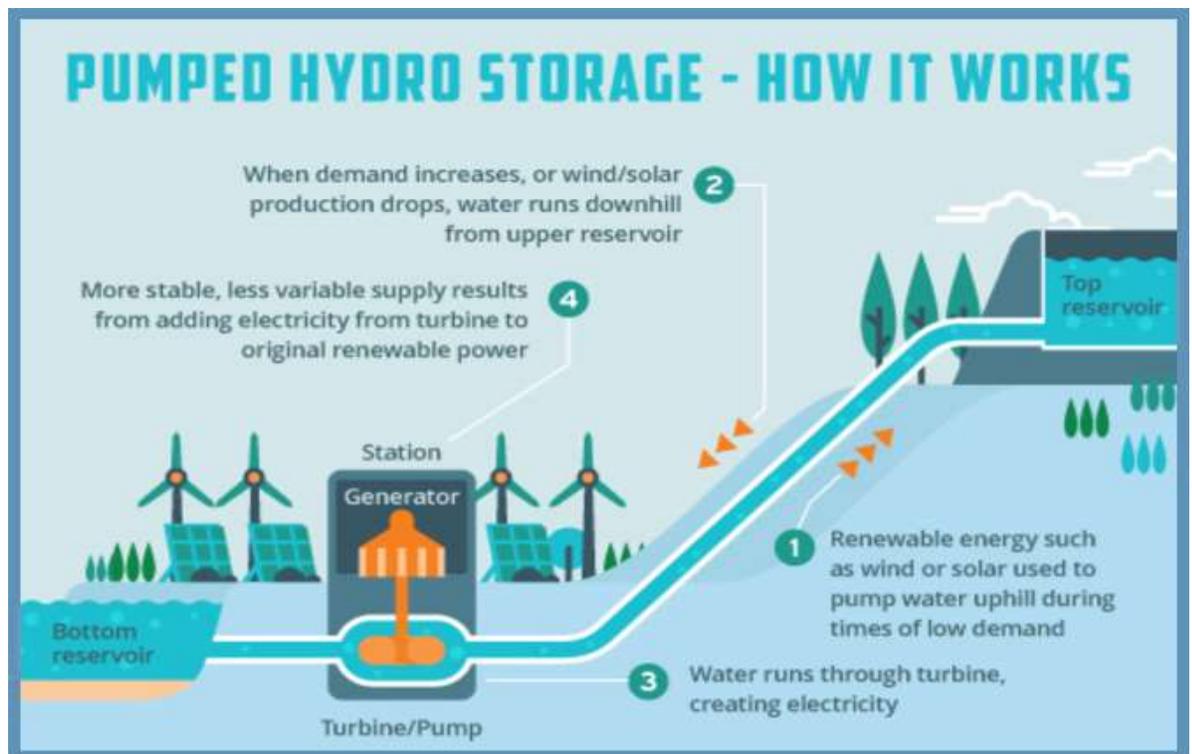
Where topography permits, pumped hydro (below) can use renewable energy to pump water to an upper holding reservoir at a higher elevation. When backup power is required, the water is released to the

lower reservoir through a large pipe turning a turbine that generates electrical current as required. Currently, some 97% of energy storage systems worldwide are pumped-hydro versions. They can also aid in water management, providing irrigation in times of low rain and flood protection at the lower extreme of the bottom reservoir.

### Utility Mega-Packs.

Three years ago, Hornsdale, Australia was hit by the biggest storm in fifty years, knocking out much of its electrical infrastructure state-wide. Nearly two million people were without power and

some without water, as well-pumps require electricity. The next spring brought record temperatures that spurred roving blackouts across the same area. In response, the government tendered for alternative systems that would improve energy security and provide for summertime peak loads as necessary.



The South Australian Government decided to work with renewable energy company Neoen and installed a 100-megawatt powerpack system connected to Neoen's Hornsdale wind farm (shown left). The Hornsdale facility stores energy to supply more than 30,000 homes. Now completed, it is estimated to have already saved some \$40 million dollars in costs, while stabilizing and balancing South Australia's electrical grid. The success of the Hornsdale project has prompted demand for similar installations.



Six US cities are already running on 100% renewable power and another 141 have committed to achieving that target within next 15 years (see more here).

The Stanford University based Solutions Project has completed engineering plans to transition all US States to 100% renewable power (primarily wind and solar), as well as 139 other countries (Canada too), and most of the world's major cities. [Outlines are available here on their website.](#)

**Plagued by aging equipment that has been sparking wildfires, rolling blackouts and lawsuits, bankrupt utility Pacific Gas & Electric (PG & E) and its California customers are looking for new ideas.** In the Moss Landing Project, the state is improving reliability and reducing power costs by installing zero-emission 'mega-pack' batteries that back up solar and shutter gas-fired plants.



**San Diego** is California's second largest city and, this month, the [Republican Mayor explained how the city is working to lower energy costs, create jobs and improve air quality with a transition to 100% renewable power.](#) **San Jose** is California's third-largest city and the most populous one dependent on PG&E for power and water. This month, the city proposed to convert its utility into the country's largest customer-owned system. Mayor Sam Liccardo said in an interview that the time has come for the people dependent on PG&E for essential services to propose a new utility better able to meet customers' needs: *"We need to align the financial interest with the public interest,"* Mr. Liccardo said. (See WSJ: [San Jose proposes turning PG&E into giant customer owned utility.](#)) Other cities and states are following suit.



The Florida Power & Light (FPL) company is [building the world's largest solar battery](#) (409 mega-watts equal to 100 million iPhone batteries) as part of modernization plan that will accelerate the retirement of two fossil fuel generation units from its grid. When it begins serving customers in late 2021 the battery will be charged by an existing 500-acre FPL solar power

plant in Manatee County. By deploying energy from the batteries at times of higher demand for electricity, FPL says its goal is to save customers money by avoiding fuel costs.

**Texas—America’s largest oil-producing state—began directing infrastructure investment into wind and solar ten years ago.** Now, Texas is the nation’s largest wind-generating state with more installed capacity than all but five other countries in the world. The Electric Reliability Council of Texas, which manages the Texas electric grid, is expanding this lead with many more wind, solar PV and storage projects underway. (See: [Texas proves booming renewable energy doesn’t bring electricity price Armageddon](#)).

**Europe is far ahead of North America in renewable energy and storage.** In the North Sea, the UK, Denmark, the Netherlands, Belgium and Germany have created the largest [offshore wind](#) power cluster in the world. By 2011, 68% of all new electricity generation in Europe was coming from solar and wind and new capacity is added every week. In Germany, energy production is so high that at times it overwhelms the national electrical grid. This has led to ‘white outs’ where residents are urged to burn off excess power. With additional storage and an interconnected grid with other European countries, Germany is now better able to share, store and manage its excess energy.

**Tippling points.** Many are skeptical that wind and solar, that made up just 3% of global energy capacity in 2017, could pose any meaningful competition to legacy fuels. However, history attests that when a new technology captures 3% of the market and exhibits accelerating growth, this is the tipping point for the incumbent’s decline. A seven-century history of energy in the United Kingdom from the perspective of changes in the efficiency and price of heat, power, and light, shows that this rule of creative destruction has held. One example: In the early 1900’s, gas lighting demand peaked when electricity accounted for 3% of lighting demand. (See [Heat, Power and Light: Revolutions in Energy Services \(2008\)](#)). Importantly, the catalyst for attracting investment capital to a new technology is not the size of the new market versus the incumbent, but rather the relative growth rate of each.

Transition seems fringe and gradual at first and then all-of-a-sudden. Recall that Kodak dominated 90% of global film sales and 85% of camera sales in 2007 when Apple’s first iPhone was introduced; five years later, Kodak was filing for bankruptcy.

According to a study by UK research group Carbon Tracker Initiative, the tipping point for renewable energy can be projected from the growth rate of global energy demand and the growth rate of solar PV and wind supply. (See [Myths of the Energy Transition: Renewables are too small to matter, October 30, 2018](#)):

*“If we make assumption for these two factors, it is possible to calculate the date at which fossil fuel demand peaks...assuming total energy demand of 1.3% (a slight fall from the 5-year average) and solar PV and wind supply growth of 17% (assuming a continued S curve of supply growth, with the growth rate falling over time from the current level of 22%). The date of peak fossil fuel demand is then 2023.”*

Of the 96 million barrels of oil currently consumed in the world each day, 62% was used for transportation in 2018, and that percentage is under assault. Bank of America estimates that EV’s will account for 40% of all

auto sales by 2030. Although battery density is not yet available for large jets and ocean tankers, hydrogen-powered fuel cells are. Recent breakthroughs in hydrogen processing can [separate it from water using wind and solar power](#), as [explained by researchers at the University of Houston in 2017](#):

*"Hydrogen (H<sub>2</sub>) produced from water splitting by an electrochemical process, called water electrolysis, has been considered to be a clean and sustainable energy resource to replace fossil fuels and meet the rising global energy demand, since water is both the sole starting material and by product when clean energy is produced by converting H<sub>2</sub> back to water."*

As of January 2020, new global emission restrictions from the International Maritime Organization of the United Nations will cut marine pollution by 80% in international waters by banning ships from using fuels with a sulfur content above 0.5% compared with the current 3.5%. Lower sulphur fuel will increase shipping costs by an estimated 20% to 50% depending on the route and drive migration to cheaper options like hydrogen fuel cells and batteries. (See: [Hydrogen fuel cells gain momentum in maritime sector](#)).

A similar catalyst for hydrogen cells, hybrids and batteries is building in the airline industry, where steadily rising carbon taxes are set to significantly increase operating costs. A Citi bank study estimates that over the next five years the cost of carbon offsetting for economy flights will grow to \$3.8 billion per year. This will either be absorbed by the consumer through higher ticket prices, or the airline through lower profits—and it's already a slim margin business. (See: [Could cost airlines billions, Citi says](#)).

To be competitive with the near-zero marginal cost for wind, solar and storage, [analysis done by BNP Paribas suggests that the market price of oil will need to be in the U\\$10 to \\$20 per barrel range](#) over the next decade and cheaper thereafter.

**Canada's fossil fuel resources were a key building block of our nation's economic progress in the second industrial revolution. In the process, 85% of our nation's conventional oil stores were consumed.** The Alberta oil sands represent 97% of our remaining reserves and it is some of the most expensive oil in the world with a breakeven cost approx. \$40 per barrel, even with government subsidies, and before further carbon taxes hit.

Presently, Canadians use 5x more oil and natural gas per capita than the world average and 51% of it is used by our energy intensive extraction and mining industries (oil, gas, mining, chemicals). This is an inefficient energy return on capital investment (EROI).

A remaining 23% of Canadian oil and gas consumption is used in transportation, 14% to power and heat residences, and 12% for businesses—all of which can be shifted to cheaper wind, solar and storage-backed grids. While some hold hope that natural gas will continue indefinitely as a back-up fuel, competitive large-scale storage systems make it increasingly uneconomical.

The erosion of Canada's benefits from the oil and sector has been underway for some time. Though oil production doubled in Alberta since 1980, royalty revenues to the province fell 90% and corporate taxes from producers are down 51% since 2006.

**Canada and Alberta need each other in this major transition.** Oil and gas extraction now account for less than 3% of Canadian jobs and 12% in Alberta. More than half of those are construction jobs that end when a project is complete. Alberta is advantaged by a highly skilled workforce as well as better than average wind and solar exposure. See [Solar power is the red-hot growth area in oil-rich Alberta.](#)

Rather than continue subsidizing profits for 20<sup>th</sup> century oil companies, taxpayers make more productive investments in helping workers, businesses and households to migrate to 21<sup>st</sup> century energy systems. See [After oil and gas: Meet Alberta workers making the switch to solar](#) and also [Alberta town aims to be the first in Canada powered solely on solar panels.](#)

**The mistake many are making today is thinking that viable renewable energy is still many years away.** Already, it is more cost-effective to build new wind, solar and storage systems than it is to build new gas, coal or oil production, pipelines or nuclear:

*“Right now, we have 90-95% of the technology we need to transition cities, states and countries to 100% renewable energy. We already have wind terminals, solar panels, geothermal power plants, heat pumps for building heating, cooling and hot water. Aside from long distance aircrafts and ships—which we will need to transition using hydrogen fuel cells and hybrids—we have pretty much everything else we need.”*  
—Mark Jacobson, Energy Engineer, Stanford University, March 2019

As the Atlantic cod industry learned the hard way, it is best to be proactive in resource management, invest



and retrain workers for new growth areas. While public companies can pull out and move on, without new opportunities, workers are left stranded. Fort McMurray residents are already suffering. (See [From binge to bust: A Canadian oil town lines up at the food bank.](#))

As Suncor mechanic and head of the Fort McMurray amalgamated manufacturers' union told a crowd of members in December 2015: *“We hope we are seeing the end of fossil fuels for the good of everybody. But how are we going to provide for our families? We’re going to need some kind of transition.”*

**In Canada, while many oil and gas companies have been nibbling around the edges of solar and wind investment for some time, most have done so to lower their own operating costs and appear progressive in shareholder reports.** But like Kodak before them, sunk costs and status quo thinking have kept most producers from any meaningful shift in product focus to date. Concerns of peak oil supply have changed to concerns of lost market value in stranded assets that cannot be sold.



**Investors are already in retreat.** In 2019, new capital investment in the oil sands fell to the lowest level in 15 years (HIS Markit). Since 2014, nearly all the major U.S. and European oil

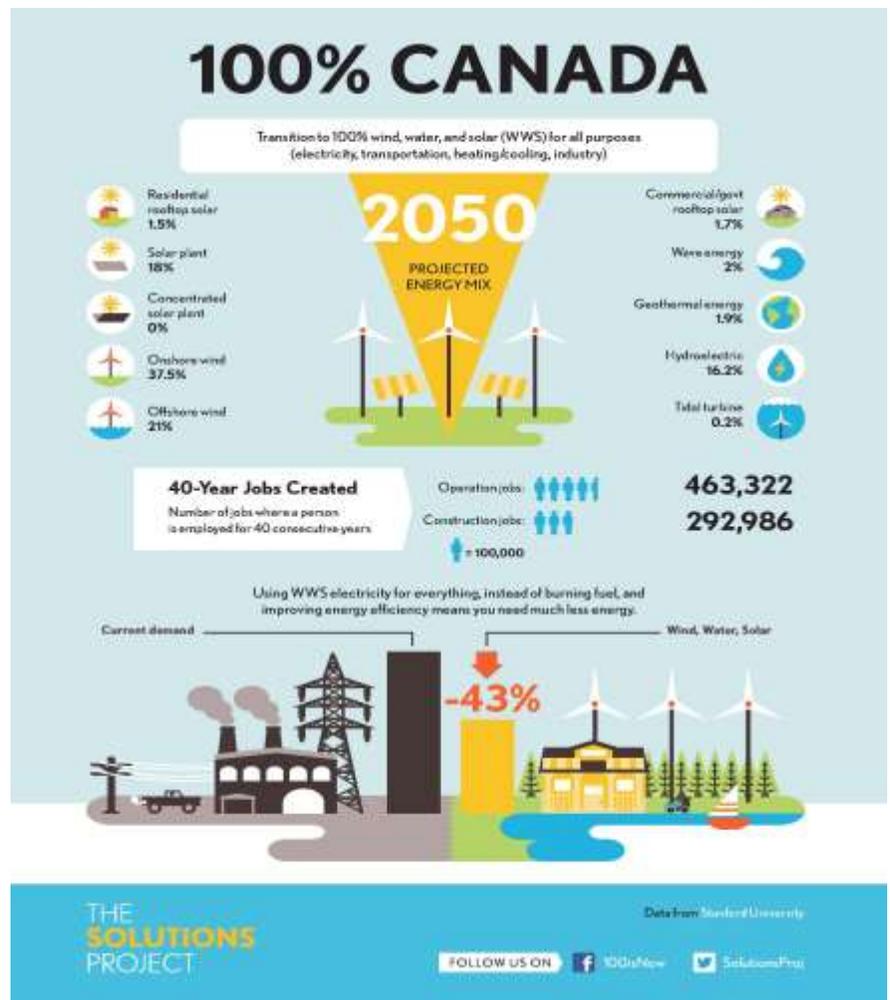
companies have either left the oil sands or reduced their interests.

Only Exxon has committed new funds, and this month Exxon is on trial in New York for allegedly defrauding investors by understating the costs of their oil sands projects by billions, overstating profits, inflating the company's value and misleading investors. Exxon shares which generated returns of just 1.5% over the past decade, are one of the most widely held by public and private pensions and mutual funds. A conviction for accounting fraud would compound already negative sentiment around the sector and investment exodus.

**The Solutions Project has done the engineering plans for Canada to transition to 100% renewable energy via 31% residential, commercial and government rooftop solar, 50% on and offshore wind, and the existing 15% from hydroelectricity (graphic on right).**

The most efficient cost-savings are in conservation and this build out is projected to reduce our national energy consumption by 43% while creating some 700,000 new 40-year jobs (less than 200,000 Canadians presently work in oil and gas nationally). In 2018, the renewable energy sector employed 3.8 million in China and 3.3 million in the US and is one of the fastest growing sectors for employment in the world.

The third industrial revolution requires clean collar workers across many sectors from education/training, telecommunications, internet, electronics, wind and solar installations, storage, utilities, micro-grids, transportation logistics, electric and fuel-cell vehicles, EV charging stations, retrofits, construction, real estate, manufacturing, retail trade, sustainable agriculture, life sciences, travel, tourism; and the jobs are domestic, human intensive, not suited for robots or easily outsourced to foreign labour.



There is much work and investment to be done. The business and financial case for transitioning Canada for the third industrial revolution and its 21<sup>st</sup> century technologies is compelling. Missing this secular turn is not:

*"Countries that fail to get on this new shift are going to be the ones that are left behind in the new economy."* — Deborah Harford, Simon Fraser University, 2018

This publication is intended to convey information only. It is not to be construed as a solicitation or offer to buy or sell any of the securities mentioned in it. The author has taken all usual and reasonable precautions to determine that the information contained in this publication is accurate and efforts to summarize and analyze such information are based on approved practices in the industry. However, the market forces underlying investment value are subject to sudden and dramatic changes and data availability varies from one moment to the next. Consequently, the author cannot make any warranty as to the accuracy or completeness of information, analysis or views contained in this publication or their usefulness or suitability in any particular circumstance. You should not undertake any investment or portfolio assessment or other transaction on the basis of this publication, but should first consult your advisor. The author accepts no liability of whatsoever kind for any damages or losses incurred by you as a result of reliance upon or use of this publication in contravention of this notice. All performance data represent past performance and are no indication of future performance.

**U\$, here since 1990, weakened slightly against the loonie in October. Most of this was reversed in the last two days however, once the BOC signalled openness to upcoming rate cuts.** During periods of economic disappointment, the U\$ typically strengthens against the C\$ and emerging market currencies. The loonie bottomed with equity markets in 2002 and 2009 and we expect a similar pattern is likely to transpire in the months ahead, generating further capital gains in our accounts.

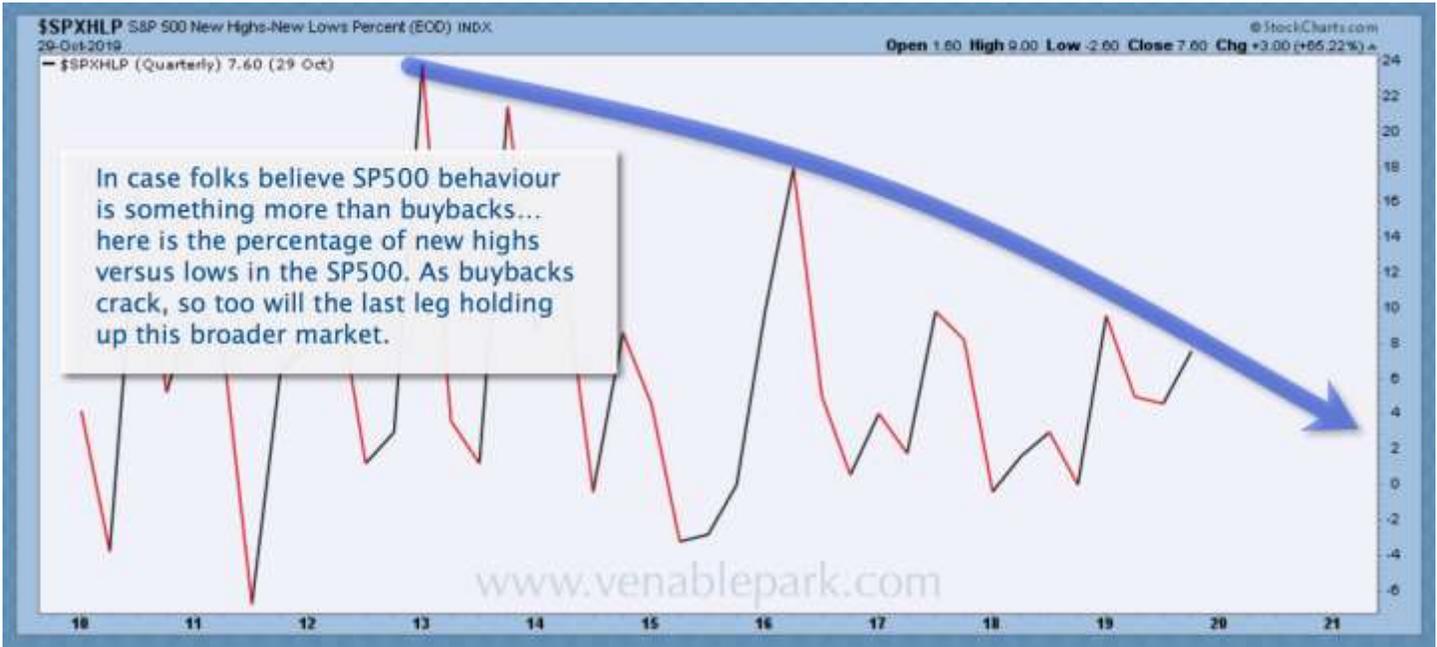


**Oil (WTIC), here since 2000, rose a bit in October on production cut extensions, however, the larger issue remains shrinking demand.** Crude bottomed with the economy/market cycle in 2002 and 2009 and could potentially test the \$25 area this cycle, with West Canadian Select (WCS) back in the low teens.



This publication is intended to convey information only. It is not to be construed as a solicitation or offer to buy or sell any of the securities mentioned in it. The author has taken all usual and reasonable precautions to determine that the information contained in this publication is accurate and efforts to summarize and analyze such information are based on approved practices in the industry. However, the market forces underlying investment value are subject to sudden and dramatic changes and data availability varies from one moment to the next. Consequently, the author cannot make any warranty as to the accuracy or completeness of information, analysis or views contained in this publication or their usefulness or suitability in any particular circumstance. You should not undertake any investment or portfolio assessment or other transaction on the basis of this publication, but should first consult your advisor. The author accepts no liability of whatsoever kind for any damages or losses incurred by you as a result of reliance upon or use of this publication in contravention of this notice. All performance data represent past performance and are no indication of future performance.

Although the S&P 500 index made a marginal new high in October, participation was very narrow; just 7% of the 500 constituent companies made new highs, despite buybacks. Such broad weakness is foreboding.



Here since 2015, the large cap S&P 500 (in red) reflated year to date on large companies using cheap debt to buy their own shares, while the broader and more economically reflective Russell 2000 index of smaller companies with few buybacks (in blue) has remained moribund at the same level as October 2017.



This publication is intended to convey information only. It is not to be construed as a solicitation or offer to buy or sell any of the securities mentioned in it. The author has taken all usual and reasonable precautions to determine that the information contained in this publication is accurate and efforts to summarize and analyze such information are based on approved practices in the industry. However, the market forces underlying investment value are subject to sudden and dramatic changes and data availability varies from one moment to the next. Consequently, the author cannot make any warranty as to the accuracy or completeness of information, analysis or views contained in this publication or their usefulness or suitability in any particular circumstance. You should not undertake any investment or portfolio assessment or other transaction on the basis of this publication, but should first consult your advisor. The author accepts no liability of whatsoever kind for any damages or losses incurred by you as a result of reliance upon or use of this publication in contravention of this notice. All performance data represent past performance and are no indication of future performance.

Shown below since 2016, Canada’s TSX index (in red) has also been propped up by large companies buying their own shares, while the resource-centric small cap stock index CNDX (blue), more attuned to global demand, has tumbled 43% in the last two years. This warns that the economic cycle has turned down and large cap stocks are dreaming. Buybacks are an accounting trick that lower cash and don’t help revenue.

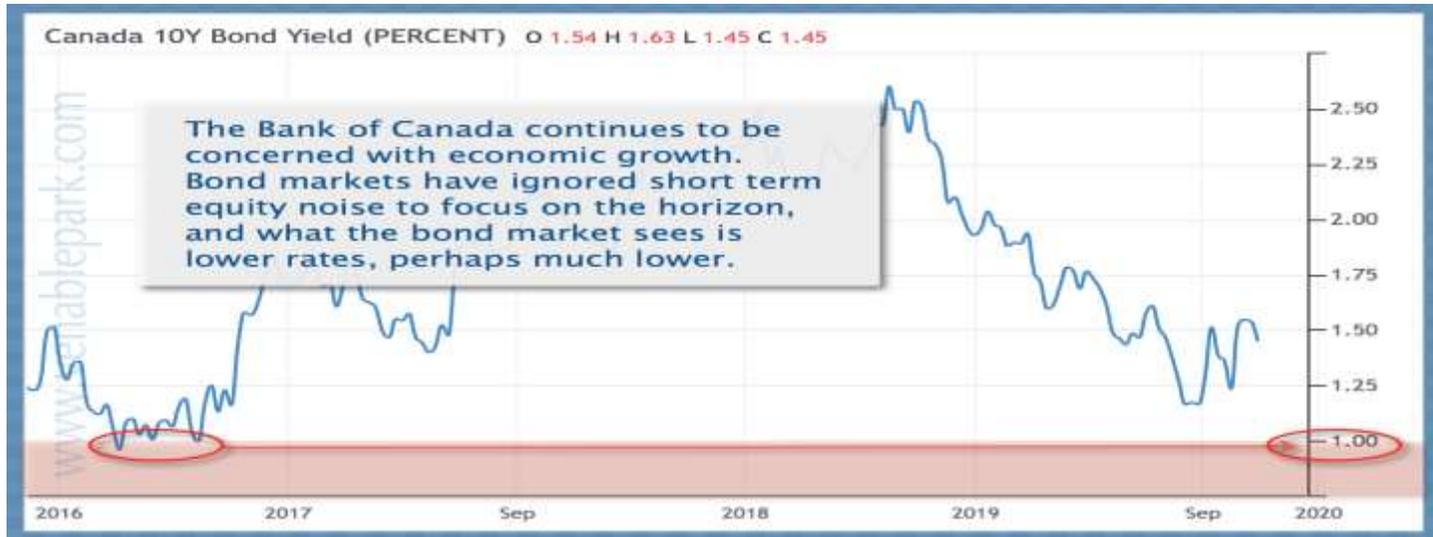


The lowest quality corporate ‘junk’ bonds (JNK) have lost ground to the highest-grade issues (LQD) since the fall of 2018 (below since 2009). Capital continued to move out of junk into higher quality credits in October.



This publication is intended to convey information only. It is not to be construed as a solicitation or offer to buy or sell any of the securities mentioned in it. The author has taken all usual and reasonable precautions to determine that the information contained in this publication is accurate and efforts to summarize and analyze such information are based on approved practices in the industry. However, the market forces underlying investment value are subject to sudden and dramatic changes and data availability varies from one moment to the next. Consequently, the author cannot make any warranty as to the accuracy or completeness of information, analysis or views contained in this publication or their usefulness or suitability in any particular circumstance. You should not undertake any investment or portfolio assessment or other transaction on the basis of this publication, but should first consult your advisor. The author accepts no liability of whatsoever kind for any damages or losses incurred by you as a result of reliance upon or use of this publication in contravention of this notice. All performance data represent past performance and are no indication of future performance.

Canada's 10-Year Treasury yield, here since 2016, moved marginally higher in October but has been falling with economic resilience since 2018. Yielding just 1.44 today, a retest of the .96 low of July 2016 (green band) is probable and would make our existing bond holdings rise further. The Bank of Canada (BOC), with just 1.75% of rate room to cut, is painfully short on stimulus power: already at record indebtedness, the Canadian household debt-service ratio rose year to date *even though interest rates declined*.



As shown below, Canadian treasury yields are below the Bank of Canada rate at every point out to 30 years a signal of economic weakness. Though the BOC did not cut its policy rate yesterday, it hinted it will do so soon noting "trade conflicts and uncertainty persist" along with "persistent weakness in oil-levered provinces". They expect Canada's GDP growth to soften to 1.3% in 2H 2019, with little improvement over the next 2 years: 2020 and 2021 growth forecasts were lowered to annualized rates of just 1.7% and 1.8% respectively.



This publication is intended to convey information only. It is not to be construed as a solicitation or offer to buy or sell any of the securities mentioned in it. The author has taken all usual and reasonable precautions to determine that the information contained in this publication is accurate and efforts to summarize and analyze such information are based on approved practices in the industry. However, the market forces underlying investment value are subject to sudden and dramatic changes and data availability varies from one moment to the next. Consequently, the author cannot make any warranty as to the accuracy or completeness of information, analysis or views contained in this publication or their usefulness or suitability in any particular circumstance. You should not undertake any investment or portfolio assessment or other transaction on the basis of this publication, but should first consult your advisor. The author accepts no liability of whatsoever kind for any damages or losses incurred by you as a result of reliance upon or use of this publication in contravention of this notice. All performance data represent past performance and are no indication of future performance.

US Treasury 10-year versus 3-month yield curve (here since 1990) has been inverted (near-term rates below longer-term rates) for more than two quarters. As we have mentioned before, it is the inversion followed by a sharp re-steepening of this curve (as the Fed cuts short rates) which marked the onset of recessions (grey bars) in 2001 and 2007 (red arrows). This month, the re-steepening was a whopping 50% widening of rates.



As shown in the S&P 500 below since 1999, despite pundit talk to the contrary, rate cuts by the Federal Reserve are not bullish for stocks. Rate cuts work into the economy at a lag of several months. The US Fed cut for the third time this year to 1.5% on October 30. With little slack left to offer, they hope to avoid further cuts from here. A recession and bear market for stocks will prompt them to cut what's left into the decline.



This publication is intended to convey information only. It is not to be construed as a solicitation or offer to buy or sell any of the securities mentioned in it. The author has taken all usual and reasonable precautions to determine that the information contained in this publication is accurate and efforts to summarize and analyze such information are based on approved practices in the industry. However, the market forces underlying investment value are subject to sudden and dramatic changes and data availability varies from one moment to the next. Consequently, the author cannot make any warranty as to the accuracy or completeness of information, analysis or views contained in this publication or their usefulness or suitability in any particular circumstance. You should not undertake any investment or portfolio assessment or other transaction on the basis of this publication, but should first consult your advisor. The author accepts no liability of whatsoever kind for any damages or losses incurred by you as a result of reliance upon or use of this publication in contravention of this notice. All performance data represent past performance and are no indication of future performance.

### Happy Halloween! **Quotes of the month:**

*“Optimism does not mean being blind to the actual reality of a situation. It means maintaining a positive spirit to continue to seek a solution to any given problem. And it means recognizing that any given situation has many different aspects—positive as well as problematic.”*

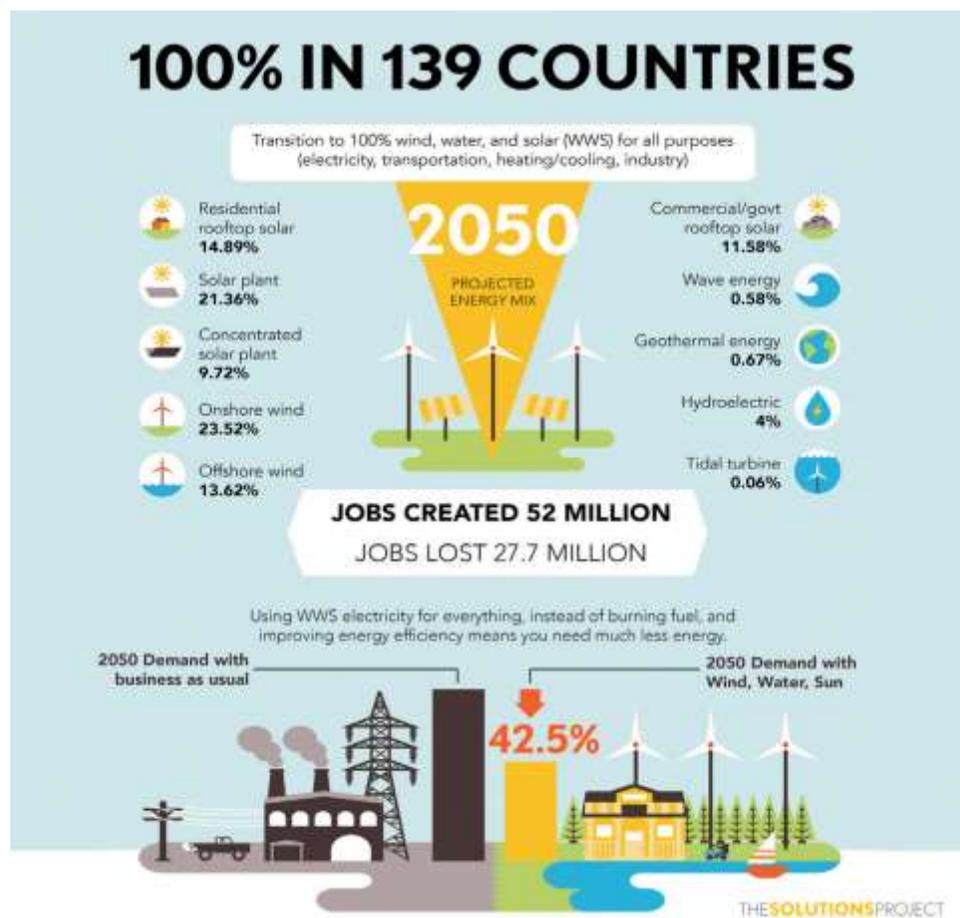
—Dalai Lama, Oct 21, 2019

*“There is a paradox in Canada’s relationship with its natural spaces that is older than the country itself, an awkward two-step attempting to balance the national economy’s deeply exploitive disposition toward resource development with a civil society increasingly oriented toward a gentler and more custodial role of sound environmental stewardship...Canada has always tried to have it both ways.”*

--The Patch: The people, pipelines and politics of the Oil Sands (2017), by Chris Turner

*“Identifying problems can be a solo sport, but finding solutions rarely is.”*

—Frances Frei, Harvard Business School



Don't forget to visit our blog [www.jugglingdynamite.com](http://www.jugglingdynamite.com) for daily charts and commentary.