



Drumbeat: August 2, 2013

Posted by [Leanan](#) on August 2, 2013 - 9:20am

[The future of oil: Yesterday's fuel](#) - *The world's thirst for oil could be nearing a peak. That is bad news for producers, excellent for everyone else*

With billions of Chinese and Indians growing richer and itching to get behind the wheel of a car, the big oil companies, the International Energy Agency (IEA) and America's Energy Information Administration all predict that demand will keep on rising. One of the oil giants, Britain's BP, reckons it will grow from 89m b/d now to 104m b/d by 2030.

We believe that they are wrong, and that oil is close to a peak. This is not the "peak oil" widely discussed several years ago, when several theorists, who have since gone strangely quiet, reckoned that supply would flatten and then fall. We believe that demand, not supply, could decline. In the rich world oil demand has already peaked: it has fallen since 2005. Even allowing for all those new drivers in Beijing and Delhi, two revolutions in technology will dampen the world's thirst for the black stuff.

[China's Crude Conundrum](#)

The tremendous growth of the Chinese economy over the past two decades has vaulted China to second place behind the United States in oil consumption. But China's ability to continue its current economic growth trajectory is increasingly doubtful, adding to the uncertainty around global demand for many of the commodities the country has voraciously consumed, including oil.

[WTI Gains for Second Day as U.S. Manufacturing Strengthens](#)

West Texas Intermediate crude headed for a weekly gain before U.S. employment data that may add to evidence the economic recovery is on track. Brent exceeded \$110 for the first time since April, before paring its advance.

Futures rose as much as 0.9 percent, bringing their gain this week to 3.2 percent. Government data today may show employers added jobs in July at about the same pace as in the previous month, trimming the unemployment rate. The Institute for Supply Management's U.S. factory index expanded at the fastest rate in two years, the Tempe, Arizona-based group said yesterday. Libya's head of oil security quit as labor protests shut export terminals in the country.

"The string of macro indicators from the U.S. is increasing optimism before the

employment figures today,” said Thina Saltvedt, an analyst at Nordea Bank AG in Oslo. “Oil demand is picking up in the U.S., so that’s a good sign.”

[Natural Gas Drops to 5-Month Low on Above-Forecast Supply Gain](#)

Natural gas futures slid to the lowest price in more than five months in New York after U.S. stockpiles increased more than forecast last week.

Gas dropped 1.7 percent after the Energy Information Administration said supplies rose 59 billion cubic feet in the week ended July 26 to 2.845 trillion. Analyst estimates compiled by Bloomberg showed a gain of 56 billion. Commodity Weather Group LLC said the weather may be mostly cooler than average in the eastern two-thirds of the U.S. through Aug. 15.

[Iran, Russia, Qatar agreed to prevent gas prices from falling](#)

The Gas troika of Iran, Russia and Qatar have agreed on stabilizing the gas prices, and preventing them from falling, Mehr news agency quoted Iranian Deputy Oil minister Javad Owji as saying.

According to Mehr, the troika achieved the agreement during the second summit of the Gas Exporting Countries Forum (GECF) which held in Moscow in July.

[Oil Prices and the Ship of Sad Fools](#)

History shows, the sad fool is he or she who doesn't understand that fundamentals are not driving crude oil's long-term price trends. What *does* drive them is the collective psychology of investors, which unfolds in observable Elliott wave patterns on crude oil's price charts.

[What is "Business as Usual" in terms of now to 2030 ? 2050 ?](#)

Gail is wrong about how much oil, gas and coal that can be obtained and the price of it. The amount of resources will still go up for several decades.

[Russia's July oil output falls, seasonal factors blamed](#)

MOSCOW (Reuters) - Oil output from Russia, the world's biggest producer, fell 1 percent in July from the month before, hit by lower production at Gazprom and a drop in output from projects with foreign partners, data from the Energy Ministry showed.

The decline could be a worrying sign for Russia, as it needs to grow production to

maintain its share of supplies to Europe and ramp up output to China.

[Gazprom CEO: Shale gas not Russia's concern this century](#)

While the booming 'shale revolution' is being increasingly criticized by environmentalists, Russia shouldn't care too much about it, at least this century, says Gazprom Chief Executive Aleksandr Medvedev.

Has Russia misjudged and misinterpreted the shale revolution and is it being left behind by new rivals? What's there for Russia in a 'shale revolution'?

[Banks Replacing Enron in Energy Incite Congress as Abuses Abound](#)

The U.S. government permitted Wall Street firms to expand in the energy industry a decade ago, when the collapse of Enron Corp. and its army of traders left a void in the market. The results aren't pretty.

JPMorgan Chase & Co. settled Federal Energy Regulatory Commission claims this week that employees engaged in 12 bidding schemes to wrest tens of millions of dollars from power-grid operators. A Barclays Plc trader stands accused of bragging he "totally fukked" with a Southwest energy market. Deutsche Bank AG workers, faced with losses on a contract, allegedly altered electricity flows to make it profitable instead.

The FERC's investigations are fueling a debate among lawmakers and the Federal Reserve over whether to reverse more than a decade of policy decisions that let Wall Street banks keep or build units handling commodities and energy. Senators examining the firms' roles have said they may call bankers and watchdogs to a September hearing amid concern traders are abusing their ability to buy and sell physical products while betting on related financial instruments.

[Norway's cash cow sees income cut](#)

Norway's state oil holding company Petoro saw its second-quarter income slashed due to lower oil and gas prices and technical glitches that hit production, cutting cash flow to the government.

[Shell Profit Declines 20% on Nigeria, U.S. Shale Charges](#)

Royal Dutch Shell Plc missed earnings estimates by the most since 2008 after oil theft in Nigeria and writedowns in North America led to a 20 percent slump in results. The shares fell the most in two years.

Profit excluding one-time items and inventory changes slid to \$4.6 billion in the second quarter from \$5.7 billion a year earlier, Shell said today in a statement. That fell short of

the \$6 billion mean estimate of nine analysts surveyed by Bloomberg and was the biggest miss since the fourth quarter of 2008.

[Chevron Profit Declines as Crude Prices Fall With Output](#)

Chevron Corp., the world's second-largest energy company by market value, said net income fell for a second straight quarter as crude oil prices declined and output from the company's wells dropped.

[Iran's top Asian clients slash further oil imports](#)

Iran's top four oil clients have cut their imports from the Middle Eastern nation by more than a fifth in the first six months of the year, but are soon to face increased pressure from the United States to reduce shipments still further.

The cuts by China, India, Japan and South Korea point to the United States' and European Union's success in reducing Tehran's vital oil cash flows as they try to force Iran to halt a disputed nuclear programme. Oil shipments from Iran are down about 60 per cent on average compared to pre-sanction levels.

[Shell to pull out of Niger Delta](#)

Anglo-Dutch oil giant Shell is to pull out of its oil activities in Niger Delta, its managing director in the country told the NRC in an interview on Friday.

'We are leaving,' Mutiu Sunmonu told the paper. The 'recklessness' and size of oil thefts are forcing Shell to halve its activities in the country.

[TransCanada to Proceed With \\$12 Billion Pipe to East Coast](#)

(Bloomberg) -- TransCanada Corp., the country's second-biggest pipeline operator, plans to go ahead with a C\$12 billion (\$11.6 billion) pipeline that will ship oil from Western Canada to the East Coast.

The Energy East project would have a capacity of 1.1 million barrels a day and be in service by the end of 2017 for deliveries to Quebec and to New Brunswick in 2018, the Calgary-based company said today in a statement.

[All-Canadian conflict over new oil pipeline](#)

In another era, the economic nationalists at the Council of Canadians would have been

cheering. But not this time. That's because the Council of Canadians now backs a new kind of economic nationalism, that of protecting Canada and the world from environmental collapse. The Council spells out its argument against such projects in its report, No Pipeline No Tankers.

The position taken by the Council of Canadians and those with similar views is what makes so many of us conflicted. If you believe, as the vast majority of scientists do, that pouring carbon into our atmosphere is creating a slow-moving global catastrophe, then this project, by facilitating increased carbon use, is an all-Canadian pathway to Armageddon.

[Kyrgyzstan hopes to transit Turkmen gas to China](#)

Turkmenistan, Ashgabat - One of the branches of the transnational gas transmission line which will transfer energy from Turkmenistan to China, may pass through Kyrgyzstan, the Kyrgyz media quoted the Minister of Energy and Industry of Kyrgyzstan Osmonbek Artykbaev as saying.

[Halliburton, Schlumberger Accused in Fracking Price Suit](#)

Halliburton Co., Schlumberger Ltd and Baker Hughes Inc. were sued over claims they conspired to raise prices and crush oilfield service competitors in the booming U.S. market for hydraulic fracturing services.

The allegations against units of the companies are pegged to the U.S. Justice Department's July 25 announcement that it is investigating the "possibility of anticompetitive practices" in the hydraulic fracturing, or fracking, sector of the oilfield services industry, according to the proposed class-action, or group, suit filed in federal court in Corpus Christi, Texas.

[End this love for dirty fuels](#)

That blaring noise you can hear could be the sound of the UK missing the boat. A succession of crises over more than a decade revealed the UK's dependence on fossil fuels, increasingly imported, to be both perilous and expensive. The fuel protests of 2000 showed the interconnected vulnerability of our food and fuel systems, while the oil price spike of 2008 revealed the economy as hostage to volatile market.

You'd think then, that if only as an exercise in prudent government – forget about climate change for a moment – aggressive energy diversification into abundant, domestic renewable sources would be a good idea.

Yet, if anything, flip-flopping on feed-in tariffs and scaldingly negative remarks from the chancellor, George Osborne, and others have, wilfully or not, undermined a whole UK industrial sector just as it could be growing, creating jobs and being a world leader.

[Fracking firm begins tests at Balcombe oil site as protests enter ninth day](#)

The energy firm Cuadrilla has started testing equipment ahead of exploratory oil drilling in West Sussex as anti-fracking protests at the site entered a ninth day.

[Duke to Halt New Florida Reactors in Settlement Deal](#)

Duke Energy Corp. will halt plans to build a new nuclear plant in Florida and seek to recover as much as \$1.47 billion in costs associated with a shuttered reactor in the state under a settlement with regulatory staff.

Duke will record a \$360 million pretax cost from the settlement in the second quarter, the Charlotte, North Carolina-based company said in a statement today. The agreement is subject to review by and approval from the Florida Public Service Commission.

[Taiwan Lawmakers Brawl in Parliament Over Nuclear Plant Vote](#)

Taiwan lawmakers put each other in headlocks and wrestled on the floor of the legislature as the opposition party moved to occupy the president's pulpit in a bid to stave off a vote on a nuclear power plant.

Democratic Progressive Party legislators, who oppose further construction of the plant in northern Taiwan, grappled with ruling party Kuomintang lawmakers today, local cable news networks reported.

[Japan orders Fukushima-1 operator to report situation](#)

Japan has called on the Fukushima-1 nuclear power plant's operating company, Tokyo Electric Power, to inform the public immediately on the situation at the power plant.

[Cut-rate wheels: P2P car rental services popular among travelers](#)

There's a new and cheaper way to rent a car — get it from someone who lives near the airport.

On a recent flight to Washington, D.C., Denise Williams rented a 2010 Toyota Corolla from Edward Salwin through RelayRides, the nationwide peer-to-peer car sharing site.

"The price was excellent," she said. "My rental was about \$25 per day and all the rental car places at the airport wanted at least \$50 a day, so I literally cut my price in half."

[And the most fuel efficient car in the US is ...](#)

Americans looking for the most fuel-efficient ride, the winner has been declared: The Toyota Prius costs just 7.2 cents per mile to operate, according to a recent survey by GasBuddy.com.

That's less than a quarter what it costs to fuel the big Chevrolet Suburban, which costs 21.2 cents a mile. Put in perspective, if a Suburban driver and a Prius driver clocked the same 1,500 miles, the Prius driver would have spent \$310 less.

[New Tools for Keeping the Lights On](#)

RENSSELAER, N.Y. — After the lights went out for 50 million people from the Northeast to the Midwest on Aug. 14, 2003, investigators found readings from two obscure instruments that would have given them an hour's warning — plenty of time to solve the problem if the devices had been wired to provide a stream of critical data.

Now, a decade after the largest blackout in American history, engineers are installing and linking 1,000 of those instruments, called phasor measurement units, to try to prevent another catastrophic power failure. When the work is done, the engineers say, they will have a diagnostic tool that makes the old system seem like taking a patient's pulse compared with running a continuous electrocardiogram.

[Free power on Saturdays? Look a bit closer](#)

Good-o! British Gas owner Centrica is considering offering free power on Saturdays to nearly one million of its customers. How foolish we were to even think that it had been profiteering and this was just another fat cat power company. How responsive they have been to our complaints. Let's all turn up the heating, and spend our weekends cooking humongous roasts and doing all the washing.

But who will really benefit from this offer? The company, which has made £1.58bn profit in the past six months, is not planning to give back anything. The finer details of next year's Saturday offer have not been made public, but we do know that anyone taking it up will have to agree to pay more for their electricity during the week, meaning there will almost certainly be no advantage for anyone who is house-bound, or who needs electricity to stay warm in the week. Moreover, the deal will only apply to those customers who have had a new smart meter installed. Here lies the real agenda behind Centrica's proposal of "free" power.

[Hamakua Springs nixes oil with shift to hydroelectric power](#)

Richard Ha says he first started thinking about using alternative energy to power his Hamakua Springs Country Farms in 2008 when a temporary spike in oil prices sent the cost of electricity in Hawaii soaring.

Even when prices settled back down, the thought of getting off of oil stuck with Ha, who introduces himself on his blog as "a Big Island farmer/businessman concerned about peak oil and the nexus of energy, the economy and the environment."

Now that his electricity bill has crept back up -- to about \$10,000 a month -- Ha is finally pulling the trigger. He recently completed a hydroelectric project that will power his entire operation with energy to spare. He's finalizing an agreement with Hawaii Electric Light Co. to feed the excess electricity into HELCO's grid at no charge to the utility.

"I'm a banana farmer, but it doesn't take a genius to see that we need to get off oil. Oil prices have quadrupled over the last 10 years. It creeps up on you, but as a farmer you see how each penny is spent," Ha said.

[Spain Hurts Solar With Plan to Penalize Power Producers](#)

Spain plans to make consumers pay for the clean electricity they generate and use themselves, a move unheard of in any other market.

A new draft bill on power consumption includes a fee for electricity that's generated by solar panels or other renewable sources and used on-site, the text shows. The draft is being reviewed by industry regulator CNE.

Spain is seeking to curb solar growth after payments to producers helped drive up power bills. The measures threaten its small-scale photovoltaic market, an industry in its infancy even as it booms in the U.K., Germany and North America. U.S. utilities have sought to limit payments for rooftop solar as they're forced to credit producers for power not used on site.

[Deepwater Wind To Develop Offshore Wind Off New England Coast](#)

The United States' industry leader offshore wind-power projects, Deepwater Wind, have announced that they were selected as provisional winner of two offshore wind energy sites located in federal waters off the New England coastline. The company plans to develop the Deepwater Wind Energy Center (DWEC), the largest offshore wind farm ever planned in the US, populated by up to 200 turbines.

[Milestone Claimed in Creating Fuel From Waste](#)

WASHINGTON — After months of frustrating delays, a chemical company announced Wednesday that it had produced commercial quantities of ethanol from wood waste and other nonfood vegetative matter, a long-sought goal that, if it can be expanded economically, has major implications for providing vehicle fuel and limiting greenhouse gas emissions.

The company, INEOS Bio, a subsidiary of the European oil and chemical company INEOS, said it had produced the fuel at its \$130 million Indian River BioEnergy Center

in Vero Beach, Fla., which it had hoped to open by the end of last year. The company said it was the first commercial-scale production of ethanol from cellulosic feedstock, but it did not say how much it had produced. Shipments will begin in August, the company said.

[US Renewable Energy Tops Record in 2012](#)

Renewable energy production hit an all-time high in the United States in 2012, according to a recent annual energy report.

A combination of government incentives and technological innovations has helped solar and wind power grow in the United States in recent years, the report suggests. From 2011 to 2012, solar energy production increased by 49 percent and wind energy increased by 16 percent, according to a Lawrence Livermore National Laboratory annual energy analysis published earlier this month.

"I attribute the steady growth to technological advancements as well as tax incentives and state mandates for renewable energy," said A.J. Simon, an energy analyst at LLNL, who wrote the report. "I would expect this to continue for a while."

[Energy Efficiency Making Good on its Promise](#)

Americans are finding new and innovative ways to do more with the same amount of energy or less. Good, old-fashioned American ingenuity is at work, offering constructive models for cutting utility bills and emissions.

As America considers how to ramp up energy efficiency as part of President Obama's new climate action plan, there's much we can learn — and build on — from a wide variety of encouraging, energy-saving programs already under way. Efforts at the federal, state and local levels prove we can meet the president's challenge to fight climate change and still preserve and create jobs, as well as a healthier environment.

[Steve Jobs Creamed His Business Rivals. So Why Did They Make So Much More Money?](#)

So why are Microsoft founders so rich even as their company's lost pole position? Because meritocracy is a myth, even at the highest levels of the American economy. Good fortune and random chance are huge influences everywhere. And market rewards, tautologically, accrue to those who are good at making money rather than those who are good at doing things.

[What Don't People Do in Zombie Apocalypse Movies That You Would Do?](#)

Have a supply of emergency food that grows over time.

I buy 10-pound cans of freeze dried food from places like Mountain House and

Backpackers Pantry once a month. To be honest, this is not for zombies but just for emergencies. These cans last for 25 years: Buy them once, keep them forever. If you ever get stuck in a storm or disaster, you will never need to worry about food. Buying one or two cans a month, eventually I will have enough to last me many months, needing only water to rehydrate them.

Keep a 12-volt battery-powered water pump.

If the power goes out for long enough, so will your water and water pressure. I can turn on this pump and get enough water to fill several 50 gallon water barrels even if the water stops flowing on its own. The pipes in the house alone likely have many gallons.

[How to build your home from scratch for \\$35,000](#)

(CNN) -- Imagine if it were possible to build your own home, in this day and age, for less than \$35,000. Or to cut up some timber and piece your new home together like a giant jigsaw puzzle.

What if you could create, with your own hands, a home that collects its own rainwater and generates its own power, so you never have to pay a bill again?

[Fertility forecast: Baby bust is over; births will rise](#)

"The United States has seen marked declines in childbearing in the wake of the Great Recession, but we think that this fertility decline is now over," says Sam Sturgeon, president of Demographic Intelligence, a demographic forecasting firm in based in Charlottesville, Va. "As the economy rebounds and women have the children they postponed immediately after the Great Recession, we are seeing an uptick in U.S. fertility."

The fertility rate "says something about people's optimism for the future — their optimism about their economic circumstances," says demographer Mark Mather of the not-for-profit Population Reference Bureau in Washington, D.C.

[Obama orders review of safety and security procedures at chemical plants](#)

In response to the deadly explosion at a Texas fertilizer plant, President Obama on Thursday ordered a government review of safety and security procedures at U.S. chemical plants.

Led by the departments of Homeland Security and Labor, and the Environmental Protection Agency, the working group will try to improve coordination with state, local and tribal agencies, streamline information-sharing and update regulations.

[Hurricane Tips From Cuba](#)

“Cuba manages hurricanes well,” said Russel L. Honoré, the retired lieutenant general who commanded military relief efforts after Hurricane Katrina devastated New Orleans in 2005. He has since become a specialist on disaster preparedness and has traveled to Cuba three times in recent years. “We could be learning from them,” he added.

Cuba consistently weathers Category 4 and 5 hurricanes with relatively few casualties. The Center for International Policy, a research and advocacy group based in Washington, says a person is 15 times as likely to be killed by a hurricane in the United States as in Cuba. The island did suffer a body blow last fall from Hurricane Sandy, the second-biggest storm in Cuban history. Before it struck the United States’ Eastern Seaboard, Sandy slammed into Santiago de Cuba, the island’s second-largest city. Eleven people died, and President Raúl Castro said that Santiago looked “like a bombed city.”

[Forecast: Two hurricane landfalls for U.S. this season](#)

The U.S. should be slammed by two hurricanes this season, according to a new forecast released Thursday by scientists at Coastal Carolina University in Conway, S.C.

This is the first forecast that predicts the specific number of hurricane landfalls the nation should see; up until now, preseason hurricane predictions have traditionally been only for the number of hurricanes that are expected to form.

[Big Wildfires in the West: Why, How, What To Do?](#)

“Wildfires are not new. They have continuously occurred on Earth for at least the last 400 million years,” says Jennifer Balch of Penn State University. But, she adds, research shows that since the 1970s, the frequency of wildfires has increased at least four-fold.

According to this research — a study published in 2006 by a team led by A.L. Westerling of the Scripps Institution of Oceanography and the University of California, Merced — the total size of burn areas in the western U.S. increased at least six-fold in the later part of the 20th century. In addition, studies show that wildfires at high altitudes, which used to be rare, are increasing. (Thomas Swetnam of the University of Arizona discussed this finding during a 2009 National Science Foundation-sponsored teleconference.) This information means that large western wildfires are becoming more frequent and more intense.

[As climate change bites, Tasmania raises a glass to its grape expectations](#)

“There will be regions that move away from viticulture, due to more frequent heatwaves,” Webb told Guardian Australia. “Inland areas are warming more quickly than the coasts, so places such as north-east Victoria and NSW will find many wines are not in the optimal conditions.”

But while areas such as the Hunter valley in NSW and the Margaret river region in WA will have to worry about sunburnt grapes, swaths of chilly Tasmania will become amenable to winemaking. If climate change has an upside, it can be found in the rapidly expanding Tasmanian wine industry.

[Google Scientists Want Google to Stop Funding Climate Change Denial](#)

In 2011, Google launched the Google Science Communication Fellows program, hiring 21 "early to mid-career Ph.D. scientists nominated by leaders in climate change research and science-based institutions across the U.S." On July 11, they threw a fundraiser for the reelection campaign of Senator James Inhofe (R-OK), a man who loudly dismisses climate change as a hoax.

Something, as they say, had to give.

[It's climate scientists, not concern trolls who champion the scientific method](#)

To be clear, Neil's comments were not "inconsequential technical mistakes." They were glaring errors, including ignoring 98 percent of the relevant global warming data and repeating long-debunked climate myths. That is not how to "promote an active understanding of climate science".

On this basis, it seems rather bizarre to ask whether these "sceptics" are "the real champions of the scientific method." In any case, this is a misuse of the term "sceptic." If one goes around repeating long-debunked myths as though they were reality, there are various adjectives that might apply, but "skeptical" is not one of them.

[Global warming may fuel wars](#)

WASHINGTON — A massive new study finds that aggressive acts like committing violent crimes and waging war become more likely with each added degree of temperature.

Researchers analyzed 60 studies on historic empire collapses, recent wars, violent crime rates in the U.S. and even cases where baseball pitchers threw at batters. They found a common thread over centuries: Extreme weather — very hot or dry — means more violence.

[Delaware rallies push climate change initiatives](#)

Delaware officials gathered in Wilmington and Rehoboth Beach on Wednesday as part of a nationwide chain of rallies supporting the Obama administration's new climate change initiatives, producing both calls for action and ominous warnings.

“We need to think through the various tradeoffs, the economics, but the only way we can do that is to keep it at the top of the agenda,” Department of Natural Resources and Environmental Control Secretary Collin P. O’Mara said. “The only way we can keep it at the top of the agenda is if all of you and all of us keep bringing it up over and over again.”

[Sahel villagers fleeing climate change must not be ignored](#)

Migration has always been a way of life in the Sahel, an arid belt of land that stretches across Africa just south of the Sahara. Many of the region's 100 million inhabitants lived for millennia as nomadic pastoralists who moved with their herds in search of water and pasture.

But recently, changes in rainfall patterns and rising temperatures have led to a disturbing form of population movement: climate displacement.

[Act now or rising seas will sink our country, Marshall Islanders tell the world](#)

The Marshall Islands, a sprinkling of coral atolls in the northern Pacific Ocean, are facing oblivion unless decisive global action is taken to combat climate change, a senior minister has warned.

Tony de Brum has been in Australia this week to try to alert his country’s larger neighbour to the plight of the Marshalls’ 55,000 citizens, living on 34 atolls just north of the Equator. With no land higher than two metres, sea level rises predicted by the end of this century would spell “the end of my country and many others like it”, he said.

[Researcher: Rising seas to put Galveston 25 percent underwater](#)

Galveston and 17 other Texas coastal towns are certain to lose land to rising sea levels at some undetermined point due to existing carbon emissions, at least one researcher says.

[‘We’re losing all the things that life depends on’: Melting Arctic sea ice has led to ‘mass mortality’ events, study says](#)

A review of the latest research on the Arctic says the accelerating loss of sea ice is kicking the legs out from under the entire northern dinner table with consequences for large animals and tiny plants alike.

“We’re losing all the things that life depends on,” said Ian Stirling, an adjunct professor at the University of Alberta and one of the co-authors of a study published Thursday in the prestigious journal *Science*.

The paper reviews dozens of recent studies on the Arctic in an attempt to provide a big-picture look at the overall ecological consequences of vanishing sea ice.

The conclusions are chilling.

[Climate Change Occurring Ten Times Faster Than at Any Time in Past 65 Million Years](#)

The planet is undergoing one of the largest changes in climate since the dinosaurs went extinct. But what might be even more troubling for humans, plants and animals is the speed of the change. Stanford climate scientists warn that the likely rate of change over the next century will be at least 10 times quicker than any climate shift in the past 65 million years.



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