Drumbeat: June 29, 2011

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IEA eyes oil release 'extension'

The International Energy Agency(IEA) could decide by mid-July whether the release of strategic oil reserves needs to be extended for a month or two, an official said.

The move would be in defiance of Opec's criticism of the IEA's decision last week to release 60 million barrels over an initial 30-day period to fill the gap in supplies left by the disruption to Libya's output.

Richard Jones, deputy executive director of the 28-member agency, said he believed the release would be temporary since demand would likely drop in the fourth quarter.

Upstream oil, gas project costs rising fast -IHS

CALGARY (Reuters) - The costs of building and operating upstream oil and gas facilities rose by the largest margin since the recession over just six months, according to consultancy IHS Cambridge Energy Research Associates.

Construction costs, measured by an IHS CERA index, rose 5 percent between the third quarter of 2010 and the first quarter because of rising costs of steel, equipment and labor.

Operating costs of oil and gas facilities inched up 2 percent in that time as higher oil prices pulled up the costs of chemicals, and transportation and labor became more expensive, the research group said on Wednesday.

Expectations of stronger oil and gas demand is buoying costs as exploration and production (E&P) companies race to get new hydrocarbon sources into production.

Oil is back

It was less than a week ago that the price of crude oil was pummelled, following a decision by the International Energy Agency to release 60 million barrels of oil from strategic reserves — a blow to energy speculators and anyone else who entertained visions of triple-digit oil prices. And now? On Wednesday afternoon, oil traded close to \$95 (U.S.) a barrel, up about \$2 and marking a 4.7 per cent rebound from last week's lows. That's right, the price of oil is now higher than it was before the IEA

U.S. oil refining capacity highest in 29 years-EIA

WASHINGTON (Reuters) - U.S. oil refining capacity increased by 152,000 barrels per day by the beginning of this year to the highest level in nearly three decades, but refining operations remain well below historical highs seen in the 1990s, the Energy Information Administration said Wednesday.

There were 148 refineries operating in the U.S. at the beginning of 2011 with a capacity to produce 17.7 million barrels of petroleum products a day, up 0.9 percent from the pervious year, the EIA said.

Lower 48 U.S. April natgas output up from March-EIA

NEW YORK (Reuters) - Gross natural gas production in April in the lower 48 U.S. states rose 1.1 percent from upwardly revised March output, its second straight monthly gain, data released on Wednesday by the U.S. Energy Information Administration showed.

Shell Shares Safe Shale Principles

Today, from the 2011 Aspen Ideas Festival, Shell makes its Global Onshore Tight/Shale Oil and Gas Operating Principles available to the public with examples of how the company delivers them. Shell has a rigorous set of five global operating principles that provide a tested framework for protecting water, air, biodiversity, and the communities in which Shell operates.

Shell is openly sharing these operating principles to address public concern about tight/shale oil and gas development - especially regarding hydraulic fracturing – encourage feedback and challenge from our stakeholders, and drive continuous improvement. Shell also supports regulation and enforcement that reinforces responsible operating practices and continues to improve the industry's overall performance.

<u>Debate on Gas Drillers' Impact Fee Put Off</u>

Hours after a threatened veto, Republicans who control the state House pulled the plug Tuesday on a planned debate over a local impact fee for natural gas drillers, saying they'll take up the issue this fall.

The 180-degree turn came as lawmakers worked to put the final pieces of a \$27.15 billion budget into place so they could send it to Gov. Tom Corbett before the new fiscal year starts on Friday.

Fracking Foes Resort to Rest Area Prank Signs

The professionally printed sign bearing the banner message "SAFE TO DRINK" and affixed to a drinking fountain in the Pennsylvania Turnpike's Midway Service Plaza looked official at first glance, even if it seemed to state the obvious.

But something didn't look quite right to Tonya Markiewicz, who stopped in for a drink June 8 while on a trip to Philadelphia and New York City, and it had nothing to do with the stream of cold water arching from the fountain.

The message of the sign, which bore what purported to be a Pennsylvania Department of Environmental Protection logo in the upper left hand corner and has since been discovered in several other turnpike service plazas, was coyly equivocal. It read: "This water is most likely safe. If you have any concerns about contamination due to hydraulic fracturing, expose water to flame."

U.S. oil firms see no impact from tropical storm

(Reuters) - Tropical Storm Arlene was too far south and too weak to affect operations at U.S. Gulf of Mexico refineries, offshore platforms and drilling rigs, oil companies said on Wednesday.

Arlene, the first named storm of the 2011 Atlantic hurricane season, formed Tuesday afternoon in the Bay of Campeche off the Mexico's coast, was forecast to come ashore Thursday morning south of Tampico, Mexico.

Alberta posts smaller deficit as royalties climb

CALGARY, Alberta (Reuters) - The Western Canadian province of Alberta, a major exporter of oil to the United States, posted a C\$3.4 billion (\$3.5 billion) budget deficit for the 2010-11 fiscal year on Wednesday, C\$1.4 billion under its February estimate, as oil royalties rose.

Nigeria oil reform needs further review -outgoing min

ABUJA (Reuters) - Nigeria's energy reform bill will need further revision by lawmakers, the outgoing oil minister told the Senate on Wednesday, which could add to years of delays that have cost billions of dollars in lost investment.

The Petroleum Industry Bill (PIB) is a mammoth piece of legislation aimed at overhauling Africa's biggest energy industry but its wide-ranging policy plans have prompted drawn-out negotiations between stakeholders.

A Russian Insult to Belarus, via Airwave

MOSCOW — Russia's irritation with its neighbor Belarus became more apparent on Wednesday after a state-controlled television station here broadcast a documentary damning the Belarussian president for mismanaging the economy, after which a Russian utility cut off about an eighth of his country's electricity, claiming it had not been paid.

A Belarussian utility was able to compensate for the loss with other sources of electricity, and no blackouts were reported.

Medvedev calls for higher subsoil tax on gas sector

The tax burden on the gas sector needs to be further increased to boost budget revenues, Russian President Dmitry Medvedev said in his budget address to parliament on Wednesday.

Russia's Norilsk Plans to Invest \$370 Million to Double Arctic Shipments

OAO GMK Norilsk Nickel, the largest Russian mining company, plans to spend \$370 million to double its shipments across the Arctic Ocean by 2016 as global warming allows the route to rival the journey through the Suez Canal.

Norilsk will raise deliveries of metal and coal through the Northern Sea Route from Russia's Murmansk port, near Finland, to China and South Korea, Deputy Chief Executive Officer Sergey Buzov said. The company shipped 10,000 metric tons in 2010.

AP Interview: Shell President Odum optimistic on chances for 2012 Arctic waters drilling

ANCHORAGE, Alaska - Shell Oil President Marvin Odum says he has faith that his company can develop vast reserves in the Chukchi Sea off Alaska's northwest coast.

But he says he'd like to get on with exploratory drilling to tap into a resource that could be crucial to meeting the country's energy needs.

Protesters, police clash in Cairo

CAIRO — Protesters clashed with Egyptian security forces for a second day Wednesday over the pace of police brutality prosecutions and other grievances, raising the prospect that the country's popular upheaval is far from over.

The clashes, which erupted outside the Interior Ministry late Tuesday, have left more than 1,000 people injured, the government said. It was some of the worst violence since the 18-day revolt that erupted five months ago and eventually forced President Hosni Mubarak to cede power to a military council.

Libya rebels 'to review oil deals'

Libya's rebel council said today it would review all contracts, including lucrative oil deals, signed under Muammar Gaddafi's government were it to come to power and axe any where it found signs of corruption.

<u>Iraqi</u> Kurdish leader promises extra, free power supply in summer to disputed city

BAGHDAD — The president of Iraq's semiautonomous Kurdish region said Wednesday he is giving free electricity to the oil-rich northern city of Kirkuk, where he wants to wrest control from the central government in Baghdad.

President Massoud Barzani of the Kurdistan Regional Government promised to give the residents there about three additional hours of electricity each day, which is to be doubled to six hours next month.

Abu Dhabi bonds sale delayed over Greek crisis

Dolphin Energy has delayed plans to sell bonds because of market volatility caused by the debt crisis in Greece.

The Abu Dhabi energy producer was expected to announce the pricing after hiring banks to hold investor meetings last week.

BP comes out ahead in Alaska spill appeal

(Reuters) - A U.S. appeals court sided with BP Plc (BP.L) in a securities fraud lawsuit arising from a 2006 Alaska oil spill, but the case isn't over.

BP discovered two oil spills in Prudhoe Bay, Alaska, in 2006, and a corporate subsidiary later pled guilty to a single count of violating the Clean Water Act, according to court documents.

A proposed class of investors sued the company, alleging that BP knew about corrosion in pipelines but did not take corrective action.

Peak Oil Investments

Unfortunately, U.S. sentiment toward domestic oil production is a case of foggy optimism.

Look at the facts: U.S. production peaked at just slightly over 10 million barrels per day in November 1970. Domestic production that year averaged approximately 9.6 million barrels per day. *That's it*.

There's no getting around it. To think we'll *ever* return to our glory days is nonsense. It won't happen.

Yet despite this decline, we still see rampant optimism.

Oil: The Biggest Bear Market Rally of All

Second, the long-term case or "well known fact" as we like to call it becomes universally accepted. In this "bear market" rally there are two widely accepted long-term cases. Peak oil theory is the belief that all of the oil in the world is known and peak production is very soon. In this logic, higher future demand outstrips supply and prices soar. Malthusians like Jeremy Grantham and numerous Texas oil barons support this theory. The other universally accepted long-term case is emerging market economic growth leads to demand hugely outpacing supply. We call this the "more people" theory. China has seen uninterrupted growth of around 10% per year for 20 years without any significant economic contraction. Those that champion this long-term case believe that the command economy executed by a totalitarian communist government has divorced this country of 1.3 billion people from the laws of economics and economic cycles.

TEPCO execs weather 6-hour storm of fury

Harsh questioning by Tokyo Electric Power Co. shareholders over the Fukushima nuclear crisis and anxiety over the survival of the company dragged out the utility's annual meeting to more than six hours.

More than 9,000 investors flocked to the meeting at a Tokyo hotel Tuesday. TEPCO had prepared five separate conference rooms in anticipation of a large crowd, but with only 6,500 seats available, many shareholders had to stand or listen in from the corridors.

TEPCO should heed its angry shareholders

What lessons can Tokyo Electric Power Co. take from its own shareholders' recent stern criticism as it reforms its management? The utility has a heavy responsibility to take these lessons on board.

TEPCO's annual shareholders meeting held Tuesday in Tokyo became stormy due to the crisis at its Fukushima No. 1 nuclear power plant. About 9,300 shareholders attended, nearly three times the number at last year's meeting. The session lasted more than six hours. Both the number of attendees and the length of the meeting greatly surpassed the utility's past records.

10 Existential Threats To Global Agriculture

I tend to be a "glass half full" sort of person, particularly about the prospects of successfully feeding the 9-10 billion people we expect by 2050. My optimism is based on daily contact with the innovative public and private entities who develop technology for agriculture. It is also based on the track record of small and large farmers who integrate these new options into their production systems. Farming has the largest physical "footprint" of any human enterprise, so it will never be without consequences. I believe that feeding 10 billion people well while preserving the environment in within the realm of possibility. Even so, I have some concerns about how we are going to pull this off.

The Wealth of Nature - A New Book by John Michael Greer

Greer does not believe in a sudden, total collapse into the sort of feral existence depicted in the film *The Road*, he thinks it will be more of a long, slow decline, punctuated by periods of "business as usual" and economic crisies, as the tertiary economy reveals itself to be an illusion, and the amount of real wealth represented by money contracts to more concretely represent the amount of material goods in the world (the tertiary economy is worth trillions of dollars more than all the goods and services in the world put together).

One of the most interesting and radical parts of the book is where he suggests penalties and remedies for the corporations that degrade our environment, which consists of prosecuting their principals, where necessary, but also "imprisoning" their wealth, for a term, so that the money generated can be used constructively to benefit society and form a tax on predation by corporate shareholders. He suggests that the \$250 billion poured away during the 2008 financial crash, would have been much more valuably employed rebuilding the U.S. Railroad system. Every natural resource of any kind used by the secondary economy should be subject to an extraction or pollution tax to more accurately reflect its loss to the commons of humanity.

UAE Minister: IEA Move Less Effective Than Gulf Production Hike

STOCKHOLM -(Dow Jones)- The International Energy Agency's release of 60 million barrels of oil to offset the disruption of Libyan production is less effective than a move by some Gulf states, including the United Arab Emirates, to increase supplies, the UAE's foreign minister said Wednesday.

"The decision by several Gulf countries to increase supplies to the market, we believe that it is more sustainable and effective," Sheikh Abdullah bin Zayed Al Nahyan said here. "I am not arguing against the agency's decision, but I am not sure how effective it will be."

The minister also said his country very much regretted the "non-decision" by the Organization of Petroleum Exporting Countries earlier June, after the oil producing group failed to reach agreement on raising its output quotas.

Saudi influence should calm an angry OPEC

Will OPEC retaliate against the western countries' release of strategic oil stocks by tightening its own supply to drive prices higher again? That question has haunted the oil market for the past week.

If you pay attention to the rhetoric, the answer could be yes. Abdullah al-Badri, OPEC secretary-general, has made strong comments against the International Energy Agency. "I hope this practice will be stopped and stopped immediately," he said. "We don't see a good reason to release this quantity and I hope the IEA will refrain from using this practice."

Yet a closer look at the fundamentals of the oil market, recent price action and the silence of Gulf countries suggest that Saudi Arabia and its allies at the OPEC cartel will make good on their promise to boost output.

Kuwait Approves Spending \$14.5 Billion to Build Nation's Largest Refinery

Kuwait may seek private investors to help build its largest oil refinery after a government council revived the 4 billion-dinar (\$14.5 billion) project, which stalled two years ago amid political opposition.

Philippines to seek more oil in South China Sea

MANILA, Philippines - The government said Wednesday it would grant more permits to private firms to search for oil and natural gas in the South China Sea, where it has a simmering territorial dispute with China.

A total of 15 exploration contracts would be offered Thursday for mostly offshore prospects off the western island of Palawan, the energy department said in a statement.

Gazprom could raise investments to \$44 bln in 2011

MOSCOW (Reuters) - Russian gas group Gazprom could raise investments in 2011 to 1.24 trillion roubles (\$44.2 billion) from the 1.18 trillion earlier planned for the year, a company official said on Wednesday.

Venezuela gets 1.5 bln dollars oil loan from Japanese banks

Venezuela's state-run oil company, Petroleos de Venezuela (PDVSA), has signed a financial agreement with Japanese banks to secure a loan of 1.5 billion U.S. dollars, the government said Tuesday.

According to Rafael Ramirez, Venezuela's energy and oil minister, the loan would be

provided by the Japan Bank for International Cooperation, and eight other Japanese banks, along with two Japanese trading houses.

Report: 25 years since global temps were below average

WASHINGTON — It's been more than 300 months since the average global average temperature was below average, scientists and the U.S. government said in the annual State of the Climate report released Tuesday.

The experts tracked 41 climate indicators during 2010, four more than in the previous year, and "they all show a continued tendency," said Tom Karl, director of the National Climatic Data Center. "The indicators show unequivocally that the world continues to warm."

Halliburton eyes big opportunity in Polish shale gas

(Reuters) - U.S. oilfield service firm Halliburton Co sees a big growth opportunity in Poland where oil majors are hoping to open up a shale gas basin, the company's senior vice president for Europe and Africa said on Wednesday.

"You've got Chevron kicking off their shale gas in Poland, you've got all the majors getting their drilling plans together - Talisman , ENI , Exxon . It'll be pretty active next year in drilling in Poland," said Brady Murphy on the sidelines of a conference in London.

OCP Ecuador Plans Pipeline Extension to Gather Colombian Oil, CEO Says

Oleoducto de Crudos Pesados Ecuador SA, operator of the nation's heavy crude pipeline, plans to extend its operations into Colombia as production ramps up, Chief Executive Officer Andres Mendizabal said.

Russia cuts off electricity to crisis-hit Belarus

MOSCOW (Reuters) - Russia cut electricity supplies to Belarus on Wednesday over \$43 million in unpaid debts, upping pressure on President Alexander Lukashenko who is grappling with one of the worst economic crises of his 17-year rule.

Russia's troubled western neighbour, struggling with a balance of payments crisis that has forced it to devalue its currency, ran up arrears on electricity imports that make up around 10 percent of its power needs.

Oil rose in New York, extending the biggest gain in six weeks, amid concern OPEC may reduce output in response to the International Energy Agency's move to release oil stockpiles.

Jeff Rubin: Why is the IEA tapping strategic reserves?

Just why did the United States and the International Energy Agency decide to release 60 million barrels of oil next month from their strategic petroleum reserves?

The IEA cites the loss of 1.5 million barrels of Libyan production but that's been going on since February. So why has it taken until July for them to respond?

We are filling a gap in oil supply, IEA head insists

The head of the International Energy Agency, the group that orchestrated the release of 60 million barrels of oil from major consuming nations last week, defended the move.

Hot inflation puts heat on Carney

Canada's annual inflation rate jumped to the highest level in eight years last month, rising to 3.7 per cent as big increases in gasoline prices pushed the index to a new post-recession peak.

Morgan Stanley Said to Suffer Trading Loss After Wager on U.S. Inflation

Declining crude oil prices disproportionately hurt the value of TIPS maturing within five years because they have fewer remaining interest payments that can benefit from a rebound in prices.

Russia Close To Decision On Unified Oil Export Duty

MOSCOW -(Dow Jones)- Russia is close to making a decision on a unified export duty on crude and refined oil products, which will be implemented in 2012 or 2013, President Dmitry Medvedev's economic advisor said Wednesday.

Oil-hungry China welcomes alleged war criminal al-Bashir

BEIJING — If there's one thing that gets discussed a lot regarding China's relationship with Sudan, it's the oil interest.

As the world's largest energy consumer and one of the fastest-growing economies, China

needs oil. Since 1995, it has invested heavily in Sudan's oil infrastructure via the China National Petroleum Corporation (CNPC).

"We cannot exaggerate the importance of Sudan oil to the whole of China's oil input," said Dr. He Wenping of the Chinese Academy of Social Sciences.

Qaddafi Charges Raise Stakes for U.S. Leadership on Libya: View

The chances of a diplomatic resolution to the war in Libya are now close to zero.

Today, the International Criminal Court in The Hague issued arrest warrants on charges of crimes against humanity for the country's leader, Muammar Qaddafi, one of his sons and his intelligence chief, who is also his brother-in-law.

What's the Endgame for the Arab Spring

The less Pollyanna view of uncertainty in the Arab world is potential oil supply disruption. Concern about "peak oil" is matched by concern about unfriendly Arab regimes coming to power. We have said before that peak oil, like peak copper or iron ore, is really about needing higher prices to bring new "lower grade" sources to the table. These are found in the oil rich Middle East as much as anywhere else.

Cuomo Takes Tough Stance on Nuclear Reactors

ALBANY — One of Gov. Andrew M. Cuomo's top advisers met with the operators of the Indian Point nuclear plant last week and told them that the governor was determined to close the plant.

Mr. Cuomo is not the first politician or the first governor to take that position, but newly passed state legislation will make it easier for him to do so.

A Long Road Ahead for a Flooded Reactor

Federal officials say that the Fort Calhoun nuclear plant, which is surrounded by floodwaters from the Missouri River, is safe for now, as I wrote in Tuesday's Times. But it may be a very long way from reopening.

Tepco, Chubu Rally Around Japan Nuclear Future, Defying Growing Opposition

Tokyo Electric Power Co. led Japanese utilities in rallying around a nuclear future, defying growing public opposition to atomic energy after the worst radiation accident in 25 years.

Beyond Japan's Fukushima exclusion zone, shuttered shops speak to radiation doubts

People just outside the exclusion zone won't let children play outside and worry about food contamination.

The White House Blog - Our Energy Independence: Join the Live Chat Wednesday, 6/29, 2 pm EDT

As many of us hit the road to celebrate America's independence this upcoming 4th of July weekend, we must once again confront the reality of our country's economy, environment and security dependence on foreign oil.

On Wednesday, June 29th, at 2:00 pm ET, please join Dr. Arun Majumdar at Energy.gov for a frank, two-way discussion about the investments the federal government is making in innovative research and technology today that will move us off of foreign oil and toward the clean energy infrastructure of the future.

Google's Green Energy Wish List

For a moment, re-imagine Aladdin as an engineer. He finds his magic lamp in an industrial park in Silicon Valley or Boston or the Research Triangle in Raleigh-Durham, and the genie who emerges offers him three technological wishes. What should Aladdin wish for? Could any of his wishes go wrong?

On Tuesday morning, Google released a study of the potential impacts of "aggressive hypothetical cost breakthroughs" in clean energy technologies, from electricity generation and storage to electric vehicles to natural gas. The genie was not offering any energy efficiency wishes this time around, although Google acknowledges that those are crucial and says it has taken major steps to improve energy efficiency in its operations.

Sales of wind turbines for home use are going strong

A growing number of people are investing in small electricity generating wind turbines for residential use, despite the bad economy, and backers of wind power say they expect advances in technology and manufacturing to make them even more popular.

Can Biofuels Save Sub-Saharan Africa?

When soaring food prices, climate change, growing energy demands, poverty, international politics and social justice are in the mix, you have a tried and true recipe for heated debate with just about anyone. I'm referring, as you may have guessed, to the hot-button topic of biofuels.

Rethinking Silly Car Trips

The goal is to make cities more livable and environmentally responsible places by rebalancing the rights of automobile drivers with those of pedestrians, bicyclists and people who use public transportation. As I toured Zurich with Andy Fellmann, its chief transportation planner, he emphasized that he did not dislike cars or drivers per se. But he believes that private cars are generally not appropriate for city centers, where the pollution and traffic detract from the cityscape.

Think Tank: China's Assertiveness Could Lead to Armed Conflict in Asia

The Australian think tank, The Lowy Institute has warned that risks are growing that the incidents at sea involving China could lead to a war in Asia. The risk-taking behaviour of the Chinese military, its resource needs and greater assertiveness has raised the possibility of armed conflict that could draw in the United States and other powers.

Oil, water and war a potent mix: report

Critical energy and water shortages combined with climate change could provoke wars within the next 15 years, warns a newly released analysis by the Department of National Defence.

"Global reserves of crude oil could become problematic by 2025," wrote Maj. John Sheahan in a draft version of the report, Army 2040: First Look.

"This implies that (barring the discovery of significant new reserves, and barring the adequate adoption of substitute fossil fuels or alternative fuel and energy sources) critical energy shortages will develop in the time frame of (and perhaps prior to) 2025."

Peak oil is 'getting closer' but the world is not ready

The end of cheap oil has got governments panicking to control prices rather than planning for a post-oil era.

Stuart Staniford: Peak Oil is not Synchronous

- Peak oil consumption arrives on a rolling basis at different times around the world. It very likely arrived in some places as early as 1995, and some countries will probably still be growing their oil consumption in 2020 or later. So it's a multi-decadal event that we are somewhere in the middle of.
- 15 years after their oil consumption peaked, places like Italy, Germany, and Japan are pleasant and civilized countries to live in. So while peak oil certainly means higher oil

prices, more economic weakness, and more stress on many individuals, it doesn't have to mean the end of life as we know it.

Richard Heinberg - The Shrinking Pie: The End of "Development"?

Throughout the past two centuries economic growth has translated to an increased capability to support more humans with Earth's available resources. More energy, more raw materials, more jobs, more trade, better sanitation, and key medical advances have all contributed to higher infant survival rates and longer life expectancy in general. Human population growth can be seen as an indication of our success as a species.

But now, as economic growth ends, higher population levels pose an enormous vulnerability. Declining energy, declining minerals and fresh water, and reduced global trade will challenge our ability to maintain existing food and public health systems, perhaps even in currently wealthy countries.

Higher Mileage Cars Can Send Message to the Market

The aim is to break the market psychology of the oil complex. Right now producers assume that the value of proven reserves will continue to climb, that pumping oil even at current prices is a sacrifice of future profits. Once they believe prices are headed down permanently, prosperity will arrive.

The real "peak oil" refers not to production but to price. Getting past that "peak oil" requires massive investment in higher-mileage cars, in renewable energy, and in technologies for reducing energy demand generally.

Population bomb: 9 billion march to WWIII

Worldwide population doubled to 3.5 billion between the Great Depression and the Great Society. One generation, from the '30s to the '60s when "The Population Bomb" was published. Since the '60s, we've doubled again. This year global population shot past seven billion. Two billion living in poverty, surviving on less than two dollars a day. We do live in a globalized economy. And the math is simple: One death, two births.

Warning: This economic bomb will not stop tick-ticking any time soon. Why? Scientific American said population is "the most overlooked and essential strategy for achieving long-term balance with the environment." No wonder Bill McKibben, author of "The End of Nature," warns: "Act now, we're told, if we want to save the planet from a climate catastrophe. Trouble is, it might be too late. The science is settled, and the damage has already begun."

<u>Climate change could double flood risk to central Russia says Emergencies Ministry</u>

The volume of annual runoff of almost all of Russia's rivers will be substantially affected by global climate change, the Emergencies Ministry's Natural Disaster Center said on Wednesday.

"Owing to the expected shifts in temperature and rainfall amounts, the annual runoff of rivers located in the Central and the Volga federal districts will change significantly by 2015 - in comparison with today's levels, winter river runoff will increase by 60-90 percent and the summer runoff will rise by 20-50 percent," the center's head Vladislav Bolov said.

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