In our energy law classes at Cal, we like to start the day by talking about Energy in the News. The media never fails us. Every day, there are multiple energy-related stories of significance touching on resource development, new technologies, policy shifts, jobs, regional politics, prices, international relations, or the environment. Once you start looking for energy-related conversations, it seems like you can find them everywhere. The other thing we learn is that we can always expect something unexpected . That is why it would be risky to predict the top energy stories in the year ahead. At the same time, there are certain things of great importance that we know will capture our attention, whether or not they would make the top ten list when looking back at the year's end. Here are ten stories that it will be important to follow in the year ahead:

1. The Vanishing Fleet of Nuclear Power Plants

Is there a Nuclear Renaissance in our future? The jury is still out. In the meantime, we continue to hear about the permanent closure of nuclear plants in the U.S. In 2013, Vermont Yankee, California's San Onofre, Wisconsin's Kewaunee, and Florida's Crystal River nuclear plants captured headlines. But waiting in the wings are dozens of others that might operate for the next 30-40 years under existing or renewed licenses, or might shut down in the near future. Vermont Law's Mark Cooper has issued a report identifying 38 at-risk nuclear generating facilities in the U.S., including California's remaining nuclear station at Diablo Canyon. Continuing the life of these plants often requires billions of dollars in upgrades and overcoming realities that were not evident at the time that initial operating licenses were issued. All of this is occurring at time when natural gas prices are low and renewable energy costs are still falling. Despite its expense, nuclear remains attractive as base load supply without significant greenhouse gas emissions at the smokestack. In 2014, will the decline in nuclear generation slow down, or will it accelerate?

2. Renewable Energy Backlash II

From the perspective of an electric utility, renewable energy use is no longer just someone else's dream – it is a factor that has to be dealt with now. Regardless, of how any individuals in the industry might feel about the benefits of renewables, the growth of wind and solar production make the utilities institutionally uncomfortable. Maintaining grid stability when much of the power is intermittent is more difficult and expensive. Much of the power is coming from facilities the utilities can't profit from. When the renewables are located on customer sites, it can mean loss of utility sales. When customer generators are credited for power they return to the grid, it

might mean higher rates for everyone else.

It is no surprise that utilities and fossil fuel producers have put pressure on various state legislatures to roll back on renewable energy incentives and mandates. As just one example, the Center for the New Energy Economy counts 25 bills introduced in state legislatures last year to weaken renewable energy mandates such as the one requiring 33 percent of California's power to come from renewable sources by 2020. Most of those bills failed. In fact in California, a new law opens up the possibility for mandates that go beyond the current 33 percent. Will the conventional power interests give up, or will we hear about new efforts in 2014 to water down renewable energy policy? What do you think?

3. Hydraulic Fracturing
States and federal regulators continue to grapple with this growing phenomenon that has so dramatically increased natural gas and oil production in the U.S., contributing to lower gas prices, and raising so many questions about land use and environmental protection, as well as public health and safety. Here is what Jayni Hein, Executive Director of Berkeley Law's Center for Law, Energy & the Environment and coauthor of research on this topic has to say about the year ahead:

"In California, industry and the environmental community will be closely tracking and participating in the environmental review process for fracking, as mandated by Senate Bill 4. As we continue to experience one of the driest periods in California history, water usage and water sourcing in fracking operations will come under more intense scrutiny, and protection of underground aquifers will remain critical. Nationally, natural gas produced by fracking will continue to displace coal as a steady power source. Smart policies should promote the continued growth of the renewable energy industry, using fast-ramping natural gas as a complement to intermittent renewables. "

4. Federal Tax Credits
Tax credits designed to stimulate investment in and production from wind farms expired at the end of 2013. Congress failed to extend them prior to the end of the year. Solar tax credits are set to expire in 2016. This is part of a pattern that has been in place since 1992 – Congress creates and periodically renews the credits, but refuses to approve them for more than a few years at a time. The result is that the wind industry, in particular, vacillates between feast and famine, especially when there is a gap in the availability of credits, as there is right now. This year's

debate about the renewal of credits comes along with broader discussion about tax reform and pushback from oil, gas and coal-producing states. Will the credits be renewed, abandoned, or weakened? If they are renewed, for how long will that be? And will there be a pledge this time to permanently end the incentives at some point?

5. Advanced Biofuels Production

In 2005, Congress created a requirement that transportation fuel refiners include a specified amount of biofuels in the mix. This led to a boom in the development of corn-based ethanol – a fuel choice of questionable environmental and economic merit. In response to criticism, Congress expanded the mandate 2007, but required increasing reliance on "advanced biofuels" using more efficient techniques and different feed stocks. Every year since then, production of advanced biofuels has failed to come anywhere close to achieving the levels required by law and the federal Environmental Protection Industry has been forced to lower the targets, as allowed by law. In the past couple of years, the EPA has tried to push the envelope by retaining targets higher than likely production. The courts have not reacted favorably to this approach, and the EPA has been forced to reconsider its approach. What levels of advance biofuels will the industry provide this year, and where will the EPA set the next round of targets?

6. Keystone XL Pipeline

In 2014, the U.S. State Department and the President should make a final decision about whether to approve the infamous pipeline which would facilitate increased deliveries of oil to the U.S. from the environmentally-treacherous tar sands fields in Alberta. This issue has been raised to a higher profile by prominent environmentalists, concerned about potential water contamination along the route, greater loss of habitat in Alberta as a result of increased tar sands production, and the much-higher carbon footprint of tar sands-derived oil. This is seen as a critical moment in efforts to create a sense of accountability in the U.S. for carbon emissions it underwrites in other countries. Will the pipeline be denied, or approved with conditions? If it is denied, will Alberta succeed in building a pipeline across British Columbia to the sea, find ways to increase deliveries through existing pipelines, rely on trucks and trains, or cut back on plans to increase production?

7. The Price of Natural Gas

Hydraulic fracturing has contributed to expanded supplies of natural gas and to lower gas prices. Those lower prices have helped speed the closure of some coal-fired power plants and encouraged the construction of even more natural gas power

plants. By making power cheaper than it might be otherwise, it has made it that much more difficult for more expensive renewables to compete and has undercut the incentive to make energy use more efficient. What will happen to gas prices in 2014, and how will it affect energy planning on both the demand side and supply side?

8. Natural Gas Export Terminals

Traditionally, natural gas has been a domestic product, with its distribution limited by the ability to move it from the wellhead to the customer. This has meant that gas is generally sold at places along fixed pipelines. It also means that prices are set based on domestic supply and demand. When domestic supplies were thought to be low, there were plans to construct many import terminals, allowing for denser liquefied natural gas to be shipped in from other countries. Some import terminals were constructed before perceptions about domestic supply changed. Now, the push is to build export terminals, to enable U.S. producers to increase sales by sending gas oversees. The Federal Energy Regulatory Commission approved a few export terminals in 2013, and has 13 proposals currently pending, with total export capacity exceeding 18 billion cubic feet of gas per day. By comparison,the use of gas for residential purposes in the U.S. reached 13.5 billion cubic feet per day in 2013. Senator Ron Wyden and others have resisted such a dramatic increase in export capability for fear that it will lead to higher natural gas prices in the U.S. Will FERC approve more export terminals in 2014? What are the implications of a movement to a world natural gas price, much like the world price for crude oil that exists today? What would be the effect of greater exports on the cost of energy in the U.S., on national security, and on the environment?

9. More Fall-out From Renewable Energy Policy Retrenchment in Europe

In 2008, one-half of all photovoltaics installed worldwide were located in Spain. Germany and France also have been among the world leaders in the deployment of wind and solar. This is because of generous payments offered to renewable energy producers through a mechanism called a Feed-in Tariff. For various reasons, the leading nations in Europe have now cut back on prices offered to new projects and, in the case of Spain, reneged on earlier payment commitments for existing projects. The result has been a dramatic reduction in renewable energy business, especially in Spain. The changes first hit the photovoltaic industry the hardest, with its dependence on a continual increase in customer-installation. By the end of 2014, industry advocates expect that wind and solar construction jobs will dry up. Some firms are looking for business in other countries, other may be fading. How will

these changes continue to play out across Europe, and what lessons does this story offer for those considering a reduction of renewable energy incentives in the U.S.?

10. Everything Putin

It is fair to argue that Russian President Vladimir Putin's ability to take on a more aggressive role in foreign policy is dependent on the fortunes of Russia's energy industry – most notably its international sales of natural gas. Energy production brings much-needed revenue into the country, and the desire to purchase Russian natural gas makes some nations more interested in cooperating with Putin than they might be otherwise. The most recent example is Putin's success in luring the Ukraine away from the European Union by offering a package of incentives including reduced prices for natural gas. The power of such incentives is interesting, in light of the fact that Russia once cut off the supply of gas on the pipeline that runs through the Ukraine to the rest of Europe in order to demonstrate its displeasure with the government in Kiev. How will Russia create additional leverage with its energy supplies in 2014, and what affect might fluctuations in gas prices have on the nation's fortunes?

These are a few perches from which to observe the energy world in 2014. It will be intriguing to follow the unexpected opportunities and crises that will pop up along the way.