



Cody Chandler recently completed the one-week advanced CDL program through New Mexico Junior College's Training and Outreach Department. He received his CDL the weekend following his training and is currently working for Bar Over Hat, a water hauling company in North Dakota.

Jobless New Mexican lands \$120,000 job after completing NMJC program CDL program can be life changer

RACHEL GALLAGHER
FOR THE NEWS-SUN

Living in eastern New Mexico and West Texas hasn't always been easy for Cody Chandler, who took odd jobs here and there to support his wife and two young children.

Just when he thought he had found a great, long-term position working as a ranch hand for a land and cattle company, the rug was pulled from under him. He was let go in the fall of 2014.

He tried to get small jobs wherever he could in his area but soon found himself desperate for a chance to bring in income for his young family.

"I was just about in tears," Chandler said. "I was raised different — that a man ain't much

if he can't support his family. I had to do something."

Chandler and his wife were forced to live off their savings and just before the money ran out Chandler made one step that would change his fortune for the better.

He decided to visit his local New Mexico Workforce Connection Office in Clovis in hopes of some assistance while unemployed. While at the office, staff proposed training to increase his skills and employability. Chandler had some prior experience driving semi-tractor trailers and while he did not have his commercial driver's license (CDL) he had obtained his learner's permit.

This allowed him to drive trucks with a licensed CDL driver. When his father was

recovering from surgery, Chandler had been able to drive the concrete truck normally operated by his father, with his father as the licensed driver.

After a discussion of his options, it was determined that Chandler might be a good candidate for a new program offered through New Mexico Junior College's Training and Outreach Department that could be paid for through the Workforce Investment Act. The one-week CDL training was developed through a \$2.5 million Trade Adjustment Assistance Community College and Career Training grant awarded to NMJC a year ago.

Chandler's prior experience made him an

SEE CDL, Page 20

Clean Power Plan: Lots of fuss, but little benefit

One year ago, Gina McCarthy, Environmental Protection Agency (EPA) Administrator, announced the controversial centerpiece of the Obama Administration's climate change legacy: the Clean Power Plan (CPP) — slated for finalization this summer.

Unions have protested against it. The North American Electric Reliability Corporation believes it risks the reliability of the grid. States, encouraged by Majority Leader Senator Mitch McConnell, are boycotting it. Yet, the EPA is pushing ahead, touting the plan's built-in flexibility for individual states in devising a compliance plan — uniquely suited to each specific state.

If states, as McConnell advocates, refuse to comply, the EPA will impose a Federal Implementation Plan.

While no one knows what the final plan will be, we can be sure that, at the least, it aims to severely reduce coal-fueled power generation and dramatically increase the implementation of renewables such as wind and solar. Industry experts expect the CPP will possibly force the premature closure of hundreds of coal-fueled power plants — and that, alone, without factoring in the higher-cost renewables, will raise costs to ratepayers.

The anti-fossil fuel movement would like us to believe we are just replacing one power source with another. The problem, however, is far bigger — as the real-world experience in New Mexico makes clear.

In New Mexico's Four Corners region, negotiations regarding bringing the San Juan Generating Station (SJGS) into compliance with Regional Visibility Rules under the Clean Air Act have been underway for more than a decade with the bulk of the shenanigans taking place during the past five years.

There have been State Implementation Plans, Federal Implementation Plans, lawsuits, back room deals, and hearings and protests. Yet, there is still no definitive solution. Read a full timeline here: <http://responsibilityenergy.blogspot.com/2015/05/background-on-closure-of-san-juan.html>.

In January, the New Mexico Public Regulatory Commission (PRC) held hearings on the plan



Marita Noon

Commentary

SEE NOON, Page 20

OPEC keeps oil target on hold, predicts low prices

VIENNA (AP) — OPEC decided to keep its oil output target on hold Friday and predicted prices would remain low for the foreseeable future — good news for both for oil-hungry international industries and consumers at the gas pump.

The cartel said its output level would remain at 30 million barrels a day despite the fact that prices were still low compared with a year ago. It left it to member states to restrain any overproduction, an acknowledgment of the cartel's inability to enforce its own limits as it struggles to control world supply and prices.

With non-OPEC oil producing countries ready to ramp up production if prices go much above present levels, OPEC's secretary general said the cost of crude will stay relatively low for a while.

"The reality now is that we cannot have these \$100 (prices) anymore," Abdullah al-Badri told

reporters.

The international price of crude was down \$1.62 at \$62.10 after Friday's announcement, having traded above \$115 a barrel in 2014.

While the Organization of the Petroleum Exporting Countries accounts for over a third of the world's oil, its power to determine supply and demand has been steadily eroding as outsiders capture large shares of the market. It gave up imposing quotas on individual members four years ago after these were consistently ignored.

That has led to an overhang in recent months of more than 1 million barrels a day of OPEC production beyond the target. But the likelihood of continued overproduction persists.

OPEC powerhouse Saudi Arabia is fighting to keep market share against U.S. shale oil. Iran plans to increase production in anticipation of an end to sanctions that have crimped its

crude exports and other countries are trying to compensate for low prices by selling more.

"OPEC realizes ... that it is now in a highly competitive market, in which its own members will compete against each other and collectively against non-OPEC producers, and in particular shale producers," said John Hall of Alpha Energy in London.

Announcing the decision to keep the present target, an OPEC statement urged members "to adhere to it." But al-Badri, the secretary general, acknowledged that, as in the past, countries had only been assigned "indicators" — not quotas — in attempts to heve to the target.

In contrast, Saudi and Iranian comments Friday reflected the countries' determination to produce what they decide.

"Production policy is a sovereign right," Naimi told reporters.



Lea County oilfield workers are shown on a work site. OPEC members Friday predicted prices would remain low for the foreseeable future.



Robert Hayes

Science Issues

Nuclear criticality: Sustaining a nuclear chain reaction

There are very few isotopes in nature which have the ability to sustain a nuclear chain reaction. The most abundant one here on earth is U235 which is found in trace quantities of natural uranium. Natural uranium is almost entirely composed of U238. The number used in the isotope symbol here is the total number of both neutrons and protons in the nucleus of the atom with the letter U representing uranium. Both U235 and U238 have the same number

of protons because they are the same element but having different numbers of neutrons makes them different isotopes. Both isotopes have 92 protons but U235 has 143 neutrons in its nucleus and U238 has 146. The isotope U238 is not able to sustain a nuclear chain reaction on its own due to the fact that when it absorbs a neutron in a nuclear reactor, it does not split but simply becomes a different radioactive isotope U239. This U239 will eventually decay into an isotope of the element neptunium

which then decays into plutonium (Pu). When it does become Pu, it starts out as the isotope Pu239. The isotope Pu239 is also able to sustain a chain reaction like U235 if it is sufficiently pure although getting pure Pu239 is a very difficult task for many reasons.

A fissile isotope such as U235 or Pu239 is able to split its nucleus in two when it absorbs a low energy neutron. Not only that but it is also able to spit out some additional free neutrons when this happens.

These additional free neutrons are emitted into the rest of the material surrounding the reaction. If there is sufficient material surrounding the reaction containing more fissile isotopes such as U235, then this process can continue so long as there remains adequate unused fissile isotopes to enable this process to go on.

This may sound simple but there are a number of factors which can easily stop

SEE HAYES, Page 20

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Noon

from PAGE 19

almost everyone agreed on.

In April, a hearing examiner advised the PRC to reject the plan unless changes were made. Some of his concerns, according to the Associated Press report, were in part because Public Utility Company of New Mexico (PNM) didn't have a "contract to provide coal for the plant beyond 2017." The coal mine adjacent to SJGS is the subject of negotiations between current owner BHP Billiton and several proposed new owners.

On May 5, a deal was struck. Westmoreland Coal Company would purchase the mine and take over operations, resulting in a \$300 million savings over the next six years for PNM and its customers. However, the PRC must approve this deal before the sale goes through. On May 27, to give PNM more time to finalize an ownership restructuring agreement, the deadline was extended to July 1.

This New Mexico story is about just one power plant in one state, trying to meet just one EPA regulation dealing with regional visibility even though improvements will not be detectable to the human eye. The American Lung Association's 2015 State of the Air report just ranked

Farmington number 1 for cleanest metropolitan areas in the country for 24-hour particle pollution and number 2 for cleanest metropolitan areas in the country for annual particle pollution.

Under the CPP, expect similar scenarios in every state, over every coal-fueled power plant — not with just one regulation, but with a massive plan designed to transform the entire energy sector.

The CPP, which is not yet final, is supposed to be implemented in less than five years.

This story is a taste of what is to come: years of legal wrangling, cost increases for consumers, loss of good paying jobs — for reductions in CO2 emissions that will make virtually no temperature difference on a global scale.

The author of Energy Freedom, Marita Noon, serves as the executive director for Energy Matters America, Great Inc. and the companion educational organization, the Citizens' Alliance for Responsible Energy (CARE). She hosts a weekly radio program: America's Voice for Energy, which expands on the content of her weekly column.

CDL

from PAGE 19

ideal candidate for the one-week training.

"Cody was the perfect candidate for the program," said NMJC Training and Outreach Director John Ojeda. "He had the necessary experience to qualify for the program and was very determined to make the most of this opportunity. This program, along with our WIA partnership, is allowing us to help individuals to change their circumstances and in turn change their lives."

Within a few weeks, Chandler was registered for the training and journeyed from Elida, N.M., staying for one week in a NMJC dorm during the training.

"Chandler's positive attitude and ability to make friends quickly are great personal qualities," said NMJC Transportation Director Luisa Rialta. "He would encourage and cheer for the success of his classmates and was very much a team player. These are all qualities that employers are searching for in their employees that will increase the likelihood of Cody's success."

Chandler's CDL instructor, Alejandro Ojeda, had similar things to say about Chandler.

"Cody arrived each morning with the desire to make the most of the training each day to ensure that he could better provide for his family," said Ojeda.

Chandler completed the Monday-Friday training and completed the state CDL exam that weekend. He passed the CDL exam and two short weeks later, he received a job offer with Bar Over Hat, a water hauling business in Moriarty, N.M. Cody went from being down and out broke to making in excess of \$120,000 a year.

"Honestly, I never felt better in my life," Chandler said. "I'm getting paid great money.

It's amazing and it's all thanks to the staff at NMJC's Training and Outreach and the New Mexico Workforce Connection."

Chandler also convinced his father to apply for a position with him and they are now working for the same company.

"It was too good of an offer for a 20-year veteran truck driver to pass up," said Chandler. "And I got this job fresh out of the NMJC CDL program."

Chandler is grateful that he can now support his family. He hopes to work several years in his current job to save up money to invest and eventually come back to the area to work.

The Eastern Area Workforce Development Board (EAWDB) and its service provider, Director John Hemphill, oversee the New Mexico Workforce Connection offices.

"We are ecstatic that Cody has done so well," said Hemphill. "When you have a story like this it reminds us all why we are in the role we are in which is to improve the skills of the workforce, assist individuals with improving their employability and helping people get back to work."

NMJC's Vice President for Training and Outreach Robert Rhodes said the one-week CDL program was designed to meet industry needs and the needs of people like Chandler.

"Our goal is to provide training programs that provide qualified industry professionals and to ensure our students are getting the best positions possible post training," said Rhodes.

For more information about NMJC's one-week CDL training, please contact 575-492-4716 or email rgallagher@nmjc.edu.

Hayes

from PAGE 19

the reaction altogether. These include, nuclear poisons, hydrogenated material, fuel content, bad geometry, poor reflection and other less important factors such as temperature and fuel type. Each and every one of these has to be just right for a sustained nuclear chain reaction to occur and continue.

Poisons in a nuclear reactor can be added intentionally, these are materials that absorb a neutron and do nothing else. Poisons also grow into the fuel from the fission products left over from previous fission reactions. When a fission reaction occurs, this results in at least two new but smaller isotopes (which are typically both radioactive and absorbers of neutrons).

Slowing neutrons down is an important characteristic of a system for it to become critical with low U235 content. The probability of U235 or Pu239 to absorb a neutron and fission is fairly small if the neutron is moving very fast. When neutrons are created by fissioning of U235 or Pu239, they are spit out incredibly fast and so not highly likely to be absorbed by another fissile atom unless they are slowed down.

One way of slowing them down effectively is by knocking them into lots of hydrogen atoms. The nucleus of the hydrogen atom is a proton which has almost the exact same mass as a neutron and so bouncing them together is like the cue ball on a pool table bouncing off another ball causing the cue ball to move slower.

With one bounce, the incoming cue ball can easily lose half its energy. By placing a lot of well chosen material such as water (H2O) near your nuclear fuel, you place a lot of hydrogen there to slow down the neutrons so they can later be absorbed by another fissile

atom and continue the chain reaction.

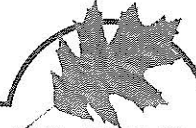
By placing additional water (or non poison material) outside and surrounding the nuclear fuel, you can reflect many of the neutrons back into the system. These neutrons which either were created traveling towards the outside of the critical region of the fuel or bounced around inside of it until they by chance would exit, can then be partially reflected back into the system if appropriate material were placed outside as a reflector in this sense.

Finally, geometry is very important to attain a chain reaction without having an enormous amount of nuclear fuel present such as U235 and Pu239. If the fuel were in the shape of a long thin straight line, this would make it very difficult to attain criticality.

If an atom of U235 were to fission in this thin line, it would be extremely unlikely for the neutrons created to be shot out along that same line because they come out randomly in any direction. The preferred shape for nuclear criticality is a sphere because neutrons created near the center have to be spit out in the direction of more fuel because they are surrounded by it.

Those created near the edge of the sphere have an almost 50% chance of being created traveling in the direction of more fuel (toward the center) with the rest directed outside the sphere. Simply put, the neutrons have to find another fissile atom to continue the chain reaction.

Robert Hayes of Hobbs is a licensed professional engineer in nuclear engineering in New Mexico, a certified health physicist by the American Board of Health Physics and has a Ph.D. in nuclear engineering and a masters degree in physics.



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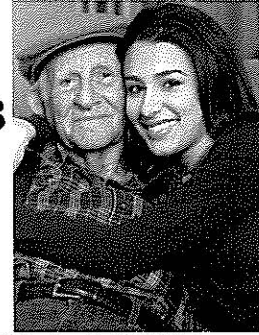
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