



NMSR Reports

The Newsletter of the
New Mexicans for Science and Reason

NMSR Reports, David E. Thomas, Editor, 1201 N. Avenida de Chamiso Pl., Socorro, NM 87801 © 2020

SEPTEMBER MEETING:

NEW MEXICANS FOR SCIENCE
AND REASON will hear

**Cynthia Hall on
“The PRC and Climate
Change: What's Taking So
Long?”**

=>September 9th,2020 7:00PM<=

=>Attend online!<=

FUTURE MEETINGS ANNOUNCED!

**September 9th, 2020 NMSR Meeting:
Cynthia Hall on “The PRC and
Climate Change: What's Taking So
Long?”**

Our September 9th, 2020 meeting will feature Cynthia Hall, a member of the Public Regulation Commission. “As the regulator of the retail electricity industry in New Mexico, the Public Regulation Commission influences the industry's contribution to greenhouse gas emissions. I will discuss the PRC's implementation of values embedded in laws to address climate change through recent PRC decisions and challenges to staying the course.”



Cynthia has served as District 1 Commissioner of the New Mexico Public Regulation Commission since January 2017, following her election in November 2016, and as Vice-Chair until January, 2019. She was previously an associate general

counsel to the PRC, assistant staff counsel in the New Mexico Public Service Commission and Energy and Minerals Department, and associate general counsel, hearing officer, and felony insurance fraud prosecutor in the New Mexico Office of Superintendent of Insurance. Cynthia has worked in private practice in corporate, real estate, land-use, medical malpractice and tribal law and as in-house regulatory and corporate attorney at Sandia National Laboratories and the United States Navy. At the outset of her legal career, she was law extern for the Honorable Terry J. Hatter, Judge, U.S. District Court for the Central District of California, and law clerk for the Honorable Oliver Seth, Chief Judge, U.S. Court of Appeals for the Tenth Circuit. Cynthia is a former Bernalillo County Planning Commissioner and former Vice President of the New Mexico Renewable Energy Association. She founded and led two non-profit organizations to protect open space and improve music and art education in elementary schools in Albuquerque, New Mexico. Prior to her law career, Cynthia worked as a research scientist in industry and academia in environmental toxicology and neurochemistry. She holds a J.D. from Southwestern Law School, an M.S. in Physiology from St. Louis University, and a B.A in Biology from Washington University.

Because of the ongoing Corona virus crisis, this meeting will be held online, and members can attend from their homes or offices. It will be hosted on Zoom. A Zoom Link will be sent out to all members and potential attendees before the meeting. To get added to the attendee list, simply email nmsrdave@swcp.com.

Tune in at **7:00 PM September 9th, 2020, On Line!**

Fall 2020 NMSR Meeting: Keith Matzen of Sandia National Laboratories, on "High Energy Density Science with Pulsed Power -- From Fundamental Science to National Security Applications"
Location and Date **TBD.**



New Mexicans for Science & Reason (NMSR)

NMSR is a non-profit group with the goals of promoting science, the scientific method, rational thinking, and critical examination of dubious or extraordinary claims. NMSR meets at 7 PM on the second Wednesday of each month, in Albuquerque, New Mexico, at CNM's Student Resource Center, room 204 (@ Richard Barr Boardroom). NMSR Reports is its official newsletter.

NMSR officers:**Dave Thomas, President**

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Marilyn Savitt-Kring, Science Mom

Membership: **\$25/year** (hardcopy newsletter), or **\$15/year** (downloadable PDF), make your check **payable to NMSR**, send to treasurer (Debbie Thomas).

NMSR Advisors:

- *Mark Boslough*,
Physicist (Impacts, Climate Change,
Global Warming). Sandia National Labs.
- *Kendrick Frazier*
Editor, Skeptical Inquirer
- *John Geissman*
Professor of Paleomagnetism
- *Alan Hale*
Southwest Institute for Space Research
- *Randy Thornhill*
Professor of Biology, UNM

Cyber-Cypher Clue: W = K, Z = G.

Bonus Puzzle Clue: Get out a calendar!

WANTED: READER ARTICLES & COMMENTARY

Got something to share with NMSR members? Send it in! ATTN: Dave Thomas, Editor, NMSR Reports.

REMEMBER, our next NMSR meeting is **ONLINE**, Sep. 9th 7PM!

Zoom Meeting info will be emailed out, ask nmsrdave@swcp.com for a copy.

PUZZLE TIME!

[Please send solutions to Dave Thomas at: nmsrdave@swcp.com, or at 801 Fitch Ave., Socorro NM 87801.]

Cyber-Cypher: SEPTEMBER PUZZLE

(Submitted by Dave Thomas)

The following letters are a simple substitution cypher. If R stands for L, R will stand for L everywhere. Your Cyber-Cypher Clue: Clue? Oh, well - if you must, see p. 2.

" V B M K M J K M V A F A J C N V F E M
X F F U M I . F H M L N V F E M U L M Y M
A B J V L N H ' V V K G M ; V B M
F V B M K L N V F K M X G N M V F
E M U L M Y M A B J V L N V K G M . "
- N F K M H W L M K W M Z J J K I

SUPER SECRET WORD!

However you prefer to do the cypher itself (above or below), simply duplicate those actions on the alphabetized row of cypher letters below. You'll build an answer key, and you'll also reveal - the Super Secret Word!

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

AUGUST CYPHER SOLUTION

"BAD TIMES HAVE A SCIENTIFIC VALUE. THESE ARE OCCASIONS A GOOD LEARNER WOULD NOT MISS." - RALPH WALDO EMERSON

Esteemed August Code Crackers: Mike Arms*, Austin Moede*, and Terry Lauritsen*!

*Secret Word: "GO ASK WHINY TRUMP"

SOCORRO STUMPER**Need more Secret Word Cryptograms?**

New puzzles every week at

www.nmsr.org/SocorroStumper.htm



September Bonus: “Weaning Weekly”

Submitted by Dave Thomas

A patient has been instructed to wean themselves off of a daily medication. Here is the schedule the doctor has recommended:

- Week 1 - one pill per day as usual
- Week 2 - one pill every other day
- Week 3 - one pill every 3rd day
- Week 4 - one pill every 4th day
- Week 5 - one pill every 5th day
- Week 6 - one pill every 6th day
- Week 7 - stop pills altogether

The September Bonus: Starting with Sunday, the first day of Week 1, how many pills will the patient need to get to Week 7?

August Bonus: “Bazinga!”

Submitted by Dave Thomas

Solve for ??.

$$1 \boxtimes 3 = 5$$

$$5 \boxtimes 7 = 45$$

$$8 \boxtimes 10 = ??$$

Answer: $1 \times (3+2) = 5$, $5 \times (7+2) = 45$, $8 \times (10+2) = 96$.

Congrats: Paul Braterman (UK), Mike Arms (NM), Rocky S. Stone (NM), Keith Gilbert (NM), Terry Lauritsen (NM), Gene Aronson (NM)

August 12th, 2020 NMSR Meeting: Tom Solomon on “A Sustainable Economy Without Fracking”



Our August 12th, 2020 featured Tom Solomon. Tom is a co-coordinator of 350.org New

Mexico, and is a retired electrical engineer. The video of this talk is on YouTube, here: <https://www.youtube.com/watch?v=2Rh4SLowNWQ>

The chat comments from the meeting are also online, here: <http://www.nmsr.org/solomon-chat.htm>. This page includes links to many online resources.

Tom set out to discuss basics of the climate emergency, the resource curse and how it affects New Mexico, why fracking is unsustainable, how electric vehicles destroy oil demand and pricing, and how NM can have a just transition to a sustainable economy without oil and gas.

Solomon declared “We are in a climate emergency. Science says we have 10 years left to cut global emissions in half by 2030, to avoid potentially catastrophic and permanent climate impacts. Greenhouse Gas (GHG) emissions have grown in NM from the oil and gas sector due to fracking in the Permian. Fracking is unsustainable - because of its GHG emissions, its health damage, and because it’s propped up by bad debts, bankrupting companies as oil prices fall. New Mexico can and must plan for a Just Transition to a sustainable economy not based on fossil fuels. Over 10 years we must wind down the oil and gas industry by half.”

What is the Resource Curse? “The resource curse or ‘paradox of plenty,’ is a long-established notion that countries rich in natural resources, particularly minerals and fuels, perform less well economically than countries with fewer natural resources. Examples: Venezuela, Niger, Iraq, Libya, Angola, Democratic Republic of the Congo.”

In New Mexico, we are on a merry-go-round: Fossil Fuel (OG) industry extracts Oil and Gas; Oil creates \$ wealth for owners + jobs and taxes, and pollutes air, water and land; the OG lobby uses political power to favor the industry with lower taxes and reduced regulation. Today, the State is even more reliant on OG, and under-invests in the rest of the economy (no perceived need!). It becomes even more reliant on OG. Now we over-rely on Oil and Gas. We increased Oil’s political power and cut environmental protections. We underinvested in the rest of our economy, leaving us as the 44th worst diversified state. Cutting taxes did not add jobs.

Why is fracking is unsustainable? Fracking releases toxins that damage your health. It is uneconomical. Fracked wells require constant and costly re-drilling because of their rapid production declines. Fracking lost money even when oil was \$60/barrel. Furthermore, fracking uses 2.6M gal of water per well. Shale oil output drops 70% in just 12 months. 90% of US Shale Oil companies lost money, even at \$60/barrel. Fracking is a money-losing business propped up by revolving bank loans that will never be repaid, and is similar to Ponzi schemes. Fracking can’t compete with Mid-East oil. OPEC has 82% of world oil reserves, and the Middle East alone has 57%. Their breakeven cost is \$9-20/bbl; Saudi and Kuwaiti oil breakeven is \$10/bbl. Fracked oil is

simply too expensive to compete with OPEC. The race is on to sell stranded oil.

How will electric vehicles (EV's) destroy oil demand and pricing? Gasoline car & truck sales peaked in 2017. Sales growth has shifted to EV's, which use no gas. EV growth rates are exponential, not linear. The shift to EV's is irreversible. It will cause a permanent, continuous decline in global oil demand. 63% of crude oil usage is for transportation of all kinds. Road transport is 50%, planes and boats and rail are another 13%. Countries are now banning gas and diesel cars. Global motor vehicle production has already peaked, but global EV sales grew. GM has committed \$20B to EV Future, and battery costs are dropping 20% per year. Batteries are ~ 40% of an EV's cost. The curve predicts \$20k EV's in 2022 (200+ mi range). Meanwhile, NM Oil Rig count is down 52%. New Mexico can't rely on the oil industry any longer.

How NM can have a just transition to a sustainable economy without oil and gas? We need a Sustainable Economy. Our economy is not diversified. The oil and gas sector is unsustainable, and it must wind down. New Mexico has \$25B in permanent funds that can be invested here: Land Grant and Severance Tax funds. And, we have abundant land, world-class renewable energy resources (solar, wind, geothermal), our universities and the labs. We can cover some (40%?) of the lost O&G tax revenue by returning top income tax rates back to 2002 levels. New Mexico ranks 44th in having a diversified economy among the US states. Colorado is #11. We lack manufacturing, trade and professional services. The climate challenge is to replace 50% of oil sector jobs and revenues with sustainable economic growth by 2030. We need a plan and commitment to grow sectors like Solar and Wind manufacturing, installations and exports; Hemp and legalized cannabis (11,000 jobs); Outdoor

recreation and tourism; Sustainable agriculture; Film production, software, Spaceport America, Tech transfers from the Labs, medicine, bioscience, etc. Plus, we must raise the top income tax rate (might cover \$594M), and leverage our \$25B In Permanent Funds.

A lively Q&A followed Tom's talk. Asked if nuclear power would have a role globally and/or locally, Tom responded that many factors argue against nuclear, include hazards of mining, historic effects on indigenous peoples, the huge costs (it's a proven method for utilities to go bankrupt), the rarity of new plants (the last one went online in 2016). Plants are built years late, and billions over budget, and storage of waste is still an unsolved problem. Tom said solar and wind energy are much better alternatives for solving the climate crisis. Gerry Alldredge mentioned nuclear technologies that will not rely on more mining, and utilize used fuel (Integrated Fast Reactors); he also mentioned that depleted uranium can be fed into the fuel cycle and will yield additional output energy. Gerry said GE-Hitachi's PRISM design has been vetted for years, and proliferation is avoided.

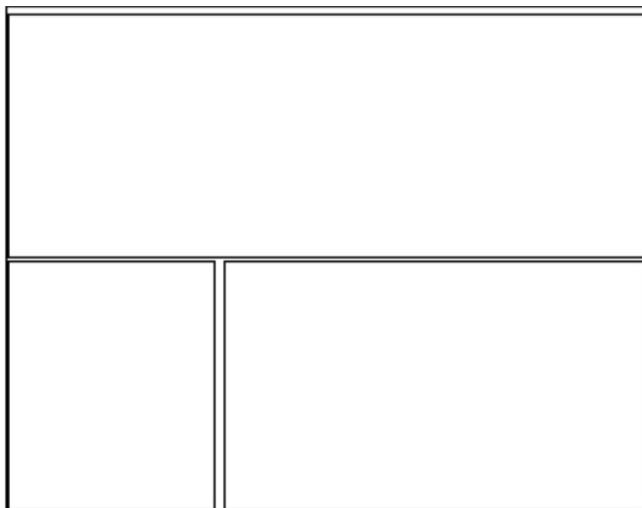
NMSR thanks Tom Solomon for a very informative presentation.

Videos of past meetings are available at <http://www.nmsr.org/meetings.htm>.

DUES check the date on your mailing label. If it's time for you to renew, or to make a contribution, please make your check payable to NMSR, and send it to Debbie Thomas, NMSR Treasurer, 3205 Alcazar NE, Albuquerque., NM 87110
 Name _____
 Address _____
Membership \$25 per annum (hard copy newsletter), or \$15 per annum (online newsletter).

The NMSR e-mail list is fun! It's an e-mail list with news announcements of interest to NMSR members, discussions about news of the times, and more. To join, send a request to nmsrdave@swcp.com.

Thanks to: John Covan, Eddy Jacobs, Debbie Thomas, and all our Puzzlers!



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IN THIS ISSUE:
Future Meetings Announced
New Puzzles!
Fracking and Climate Change by Tom Solomon of 350orgNM

September Meeting
Cynthia Hall on
"The PRC and
Climate Change"
Weds 9th 7PM
Online/Zoom