



TESTIMONY · NM LEGISLATIVE SCIENCE, TECHNOLOGY & TELECOMMUNICATIONS

# Emerging Housing and Building Tech for a Water-Scarce, Fire-Prone New Mexico

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# NEW MEXICO IS FACING A TRIPLE THREAT

*Each stress hits inside the home, where standardized tech can respond.*

## WATER

**18,200  
AF/yr**

cut required from lower-basin  
groundwater under the 2024 Rio  
Grande Compact settlement

*The Rio Grande at Albuquerque dried during  
summers 2025 & 2026.*

## ENERGY

**2,264 MW**

PNM's all-time peak. Aug 3, 2024, +6%  
over 2023

*Data-center interconnection queue hit 4,197 MW  
in Feb 2025.*

## FIRE

**6,200**

NM homeowner insurance non-  
renewals in 2025, 3× 2021

*2022 burned 859,906 acres, more than 3× the 20-  
year average.*



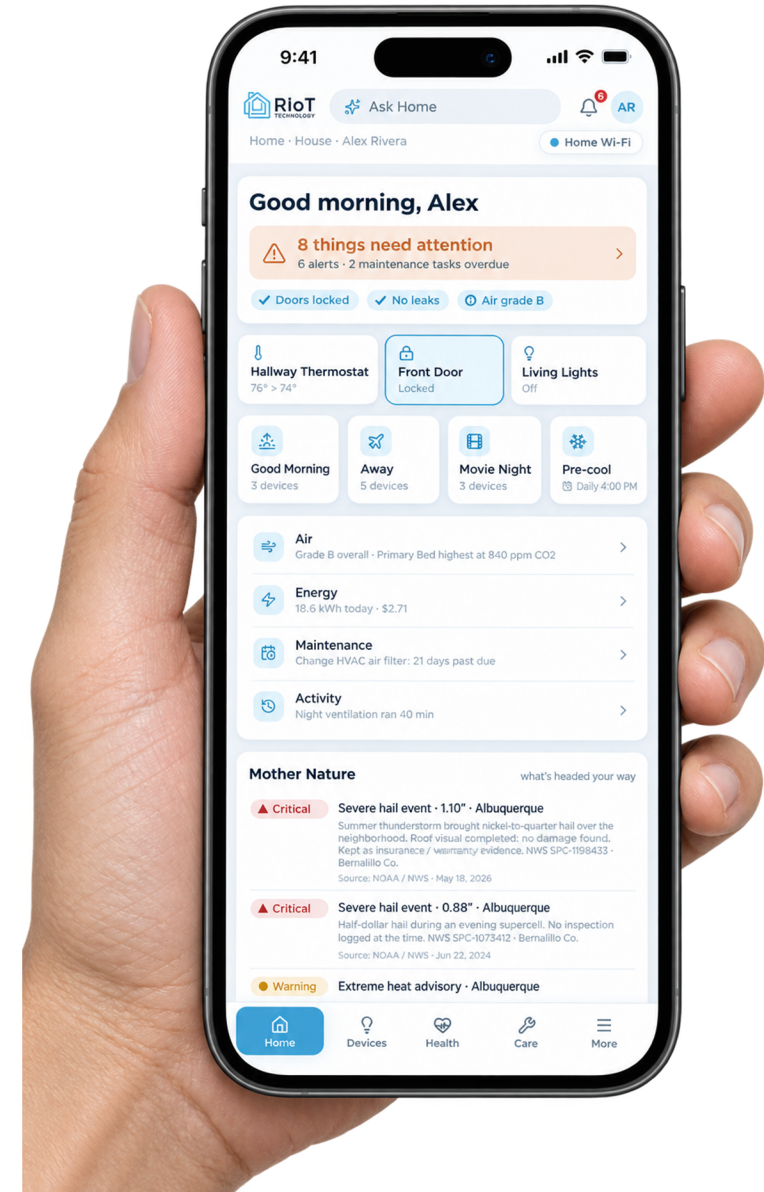
# WHAT IS RIoT TECHNOLOGY

**RIoT = Residential Internet of Things (IoT)**

*A New Mexico-grown smart-home platform, deployed in new construction today.*

## Standardized sensor kit installed at time of build

- Water devices: leak sensors, flow meter, shutoff valve
- Air: indoor air quality sensor (PM2.5, CO2, VOC, humidity, smoke)
- Energy: circuit-level monitoring, HVAC + ERV integration
- Backbone: Property centric gateway, cloud analytics
- Surfaces: builder dashboard, homeowner app w/ alerts
- Home Server: Sovereign IoT hub and control plane monitoring the home



**NM-BUILT · NM-DEPLOYED**

**SISTER COMPANY: ABRAZO HOMES**



# THE DESIGN PRINCIPLE

*Every home is both a sensor and a first responder.*

## THE HOME AS A SENSOR

Continuous water flow, indoor air quality, energy load, and equipment health from every home.

Homeowners have a 'check engine light' for their home, and receive critical alerts. Data is anonymized, aggregated, benchmarked and reported. Additional potential data uses:

- watershed and utility planning (OSE, PRC)
- air quality and public-health response (NMED, DOH)
- grid feeder sizing and DER dispatch

## THE HOME AS A RESPONDER

The same devices act in real time when it matters:

- water shutoff within seconds of a leak or freeze
- HVAC adapts and filters up during a smoke event
- load shifts to off-peak or islands during grid stress

We also issue alerts to homeowners:

- Air Quality alert / Smoke plume path
- Extreme Weather Alerts (Freeze, Tornado, Flash Flood)
- Drinking Water Alerts (SDWIS)



# WATER: WHERE THE HOME IS THE LEAK

*Municipal loss is real. But RIoT operates on the home side of the meter.*

**200+ gal./day**

Average water waste due to a single faulty toilet flap

*EPA WaterSense*

**25,000 gal**

wasted in six months by one broken sprinkler head

*EPA WaterSense · Sprinkler Spruce-Up*

**1 in 67**

US homes file a water-damage claim each year. Avg = \$15,400

*Triple-I / Insurance Info. Institute, 2019–2023*

## AND THIS IS ALREADY HITTING NM HOMEOWNERS

- **NM premiums rose ~47% May 2021 to May 2023**, then another ~18% in 2025, driven by wildfire but stacking on water/freeze exposure.
- Water damage and freezing = **22.6% of ALL homeowner claims** (2019 to 2023). More losses than fire and theft combined in 2022 (Triple-I).
- Slab-leak repair averages \$2,280 (up to \$6,750). Water-heater failure claim averages \$4,444, 2.5× worse when the home is unoccupied (IBHS).
- Some cities bill wastewater on a Quarter Average. One prolonged toilet leak inflates a household's sewer rate **for the whole next year**.



# WATER: WHAT AN AUTOMATED HOME DOES

*Detect. Alert. Shut off. Every home, every irrigation zone.*



## Point-sensor leak detection

Under wet appliances: sink, dishwasher, water heater, washer. Alarm and shutoff in seconds.



## Automatic Winterization

Exterior irrigation, hose bibs, automatically shut off when temps drop towards 32°



## Whole-house shutoff on freeze + outage

NWS advisory + PowerOutage.us + gateway offline → RIoT closes the plumbing main before pipes burst.



## Belt-and-suspenders with Moen FLO

Moen Flo has local on board logic plus RIoT Cloud-to-Cloud as complement.

INSURANCE-VALIDATED

96%

fewer water claims in homes with an automatic shutoff. 72% lower claim severity when a loss did occur.

*Chubb, Travelers, State Farm, USAA and Nationwide already offer premium discounts (3–10%) for qualifying shutoff devices.*

*LexisNexis + Flo by Moen study, 2020*



# ENERGY: THE NM GRID IS AT AN INFLECTION POINT

*Cheapest residential bill in the US, but demand growth is arriving faster than planning.*

**\$98.50**

Avg NM residential bill / month  
National Avg. \$147.16

*lowest in the US. EIA 2024*

**+11%**

PNM's projected demand by  
2030

**24%**

Of PNM's power is for  
Residential uses

*for NM low-income households in peak  
seasons (LIHEAP FFY27)*

**2,264 MW**

PNM all-time peak, Aug 3, 2024

*+6% over 2023 record*

## NM's TOU landscape: homes can already shift load

PNM Time-of-Day (replaced Sched 1B, Jan 2024): hour-of-day, season, weekday/weekend rate windows

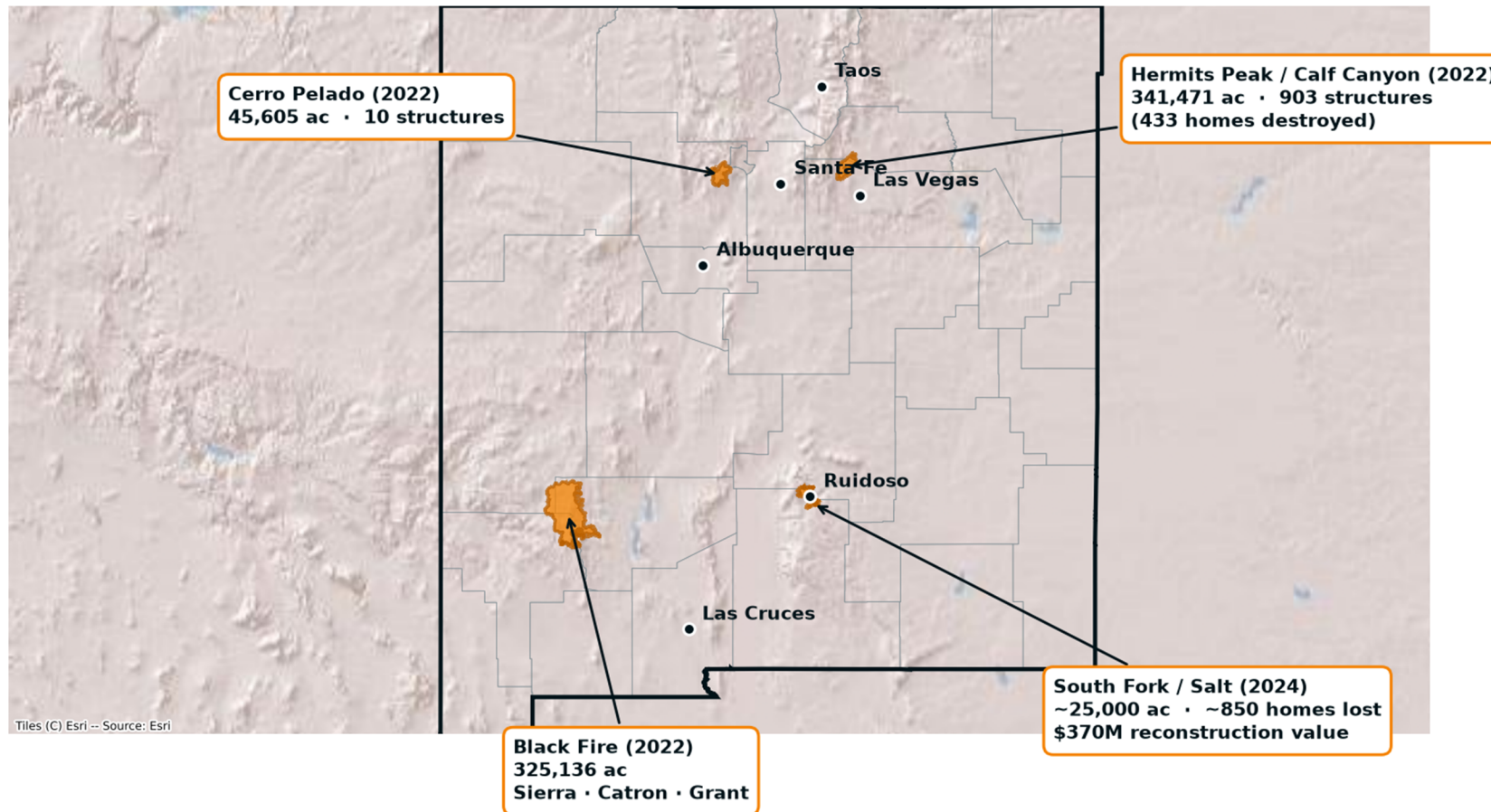
Home Batteries would make TOU cost viable, and provide load balancing for PNM (virtually expanding capacity)

State targets: 100% zero-carbon by 2045 (SB 489, 2019). NM hit 50% renewable in 2024, six years early.



# FIRE: THE SCALE NEW MEXICO HOMES NOW ABSORB

*The last three fire seasons have redrawn the state's insurance and infrastructure math.*



## THE PRICE ON THE HOME

# \$5.45B

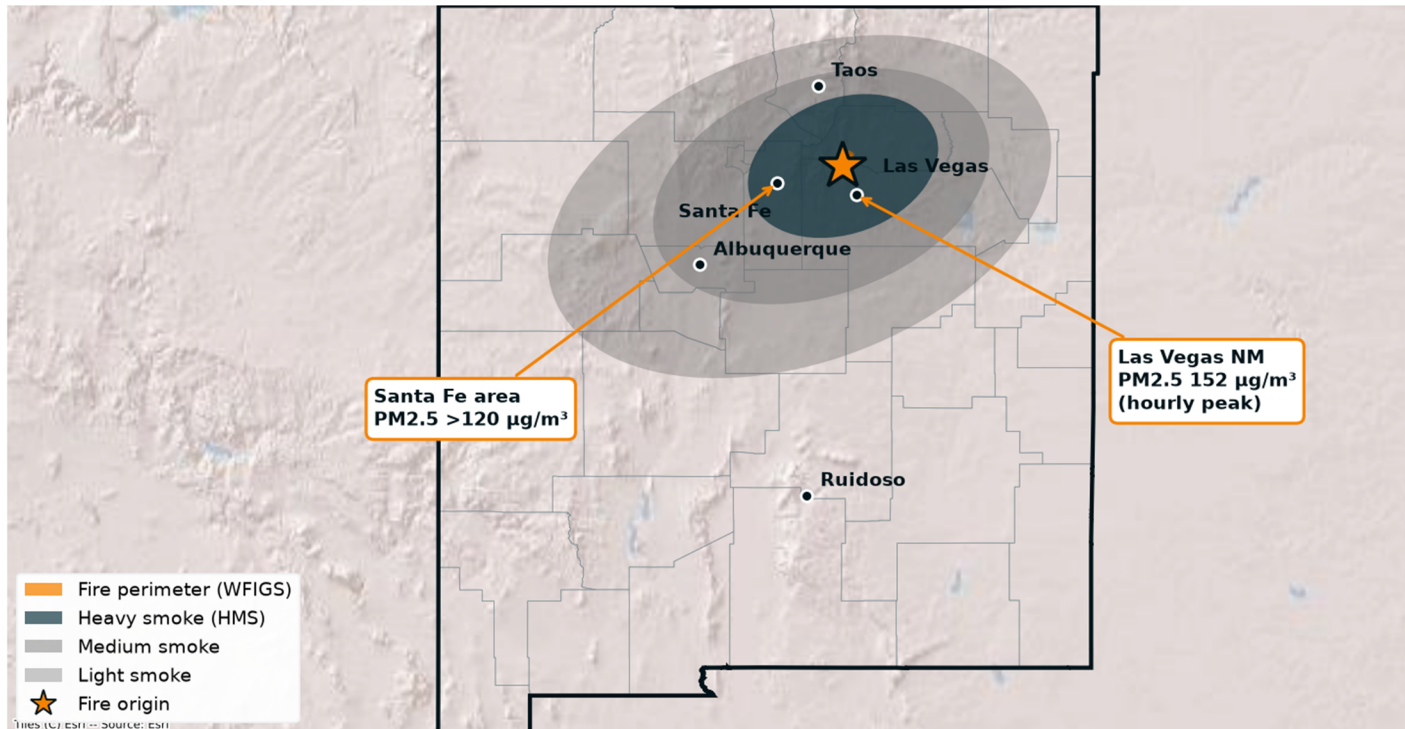
FEMA appropriation for Hermits Peak / Calf Canyon victims

- 6,200 NM homeowner insurance non-renewals in 2025, 3× the 2021 rate
- Top-risk counties: Taos, Rio Arriba, Sandoval, Santa Fe, Lincoln
- ALA ranks Albuquerque-Santa Fe among most polluted for PM2.5



# FIRE: SMOKE RESPONSE INSIDE THE HOME

*AirNow and NOAA HMS signals trigger HVAC to seal, recirculate, and filter, automatically.*



## INSIDE A RIoT HOME DURING SMOKE

1. EPA AirNow Data Feed (API) reports outdoor PM2.5 rising, Air Quality diminishing
2. Energy Recovery Vent (ERV) / fresh-air intake seals; HVAC switches to recirculation.
3. MERV-13+ filtration engages; homeowner receives an in-app notice of change.
4. Post-event Protection Report: 'outdoor 185 µg/m³, inside 12 µg/m³.'

*MERV-13 recirculation cuts indoor/outdoor PM2.5 to ~0.48.  
Xiang et al. 2024*



# This aligns with New Mexico’s vision

*Aligning with four statutes and one court order.*

| SB 489 (2019)                                                                                             | SB 33 (2025)                                                                                                       | HB 93 (2025)                                                                                          | SCOTUS 2024                                                                                                                   |
|-----------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|
| <b>Energy Transition Act</b><br><br>100% zero-carbon by 2045. Needs demand response / flexibility to hit. | <b>Wildfire Prepared Act</b><br><br>\$10M Wildfire Prepared Fund. Hardening credits, no active-smoke response yet. | <b>Qualified Microgrids</b><br><br>Authorizes self-source microgrids. Needs home-level dispatch data. | <b>Rio Grande Compact settlement</b><br><br>18,200 AF/yr groundwater cut over 10 years. Every gallon inside the meter counts. |

## CONCLUSIONS

- **Smart homes reduce freshwater consumption**
- **Sensors + Energy efficiency can expand capacity**
- **Connected devices reduce risk and insurance costs**
- **Smoke plumes can be detected, and adaptive systems can minimize health effects**

## Q&A: