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# ANATOMY OF A CASE

*Judicial Leaders in Climate Science*  
*May 22, 2024*



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**CALIFORNIA**

# **LINDSTROM V. CALIFORNIA COASTAL COMMISSION (CAL. CT. APP. 2019)**

# **MARTIN V. CALIFORNIA COASTAL COMMISSION (CAL. CT. APP. 2021)**

## **SUMMARY AND PROCEDURAL HISTORY**

- City of Encinitas approved **coastal development permits**
- Appealed to CA Coastal Comm'n which affirmed with conditions that included, *inter alia*, a larger **setback**
- Appealed to trial court which found that the Commission abused its discretion in requiring the larger setback
- Appealed to the CA Ct. of Appeals, Fourth Appellate District

## **CLIMATE SCIENCE TOPIC**

Sea Level Rise

## **JUDGE'S ROLE**

Record Review

# **LINDSTROM V. CALIFORNIA COASTAL COMMISSION**

## **MARTIN V. CALIFORNIA COASTAL COMMISSION**

### **PRESENTATION OF SCIENCE**

- Permitting requirements include a **geotechnical report** prepared by "a certified engineering geologist"
- The Commission considered the reports submitted by the property owners and by the Commission's staff (geologist and engineer) looking at various **erosion rates** which are affected by sea level rise

### **HOLDING**

- **Substantial record evidence** supported the Commission's **setback requirements**
- "Rather, it is for the Commission to weigh the preponderance of the conflicting evidence, as [the court] may reverse its decision only if, based on the evidence before it, a reasonable person could not have reached the conclusion reached by it."

# **LINDSTROM V. CALIFORNIA COASTAL COMMISSION**

## **MARTIN V. CALIFORNIA COASTAL COMMISSION**

### **SCIENCE-RELATED FINDINGS**

- “[T]he Commission’s staff used well-accepted scientific methodology to support its setback recommendation.” *(Martin)*
- “[C]ritically, the Commission staff used more recent sea level rise data and recommendations,” from 2017 and 2018 from California’s Ocean Protection Council Science Advisory Team, and “performed two checks on their conclusions,” one of which was applying “another scientifically accepted methodology,” notably the Coastal Storm Modeling System 3.0 (“a new state-of-the-art tool developed by the United States Geological Survey (USGS) to predict year 2100 cliff positions based on various sea level rise scenarios”). *(Martin)*
- The court was “not persuaded that that the Commission improperly relied on [the Commission’s staff geologist’s] opinion” who “amply supported his opinions, including explaining that his decision to use an annual erosion rate of 0.49-feet was based on a published peer-reviewed study regarding the Encinitas coast.” *(Lindstrom)*



**VERMONT**

# IN RE PETITION OF VERMONT GAS SYSTEMS, INC. (VT. 2024)

## SUMMARY AND PROCEDURAL HISTORY

- VT Gas Systems (VGS) petitioned the VT Public Utility Comm'n to approve a **contract to purchase renewable natural gas (RNG)** from a NY landfill
- A customer intervened, and following a hearing, the **Comm'n adopted the contract with a proposed condition**
- Intervenor sought **review in the VT Supreme Court**, arguing *inter alia* that the contract did not comply with the VT Global Warming Solutions Act (GWSA), a state law requiring GHG emissions reductions

### CLIMATE SCIENCE TOPIC

Greenhouse Gas Emissions

### JUDGE'S ROLE

Record Review

# IN RE PETITION OF VERMONT GAS SYSTEMS, INC.

## PRESENTATION OF SCIENCE AND HOLDING

### PRESENTATION OF SCIENCE

- The hearing officer considered
  - **pre-filed testimony**
  - **exhibits**
  - **public comments**
  - **evidentiary hearing**, with testimony from the Department and Intervenor's expert.
- Intervenor's expert testified that the contract would increase GHG emissions (contra to the GWSA) because although RNG is 26% less carbon intense than geologic gas, gas sales are increasing, and there was no evidence that RNG sales will displace existing geologic gas sales.

### HOLDING

“The **record is replete with evidence** supporting the Commission's conclusion that RNG purchased under the **contract would reduce greenhouse gas emissions** by replacing the geologic gas to be consumed by VGS's customers.”

“The record evidence adequately supports the Commission's findings that:

substituting geologic gas with RNG is **one of three strategies** that VGS has to reduce emissions under the GWSA

RNG is **26-43% less carbon-intensive** than geologic gas

the contract has the potential to **reduce VGS's overall greenhouse gas emissions by approximately four percent**,

the contract is **consistent with the Comprehensive Energy Plan and the broader policy objectives of the GWSA**

# ***IN RE PETITION OF VERMONT GAS SYSTEMS, INC.***

## **SCIENCE-RELATED FINDINGS**

### **CARBON INTENSITY**

- “[T]he evidence establishes that **RNG has a carbon intensity of 26 percent to 43 percent less than its geologic gas counterpart**. Thus, for every unit of RNG consumed in place of geologic gas, GHG emissions would be reduced by a percentage within that range.”

### **REALISTIC REDUCTIONS?**

- “Both the Department’s witness and VGS’s witness testified that the contract would allow VGS to purchase an amount of RNG representing **ten percent of VGS’s total demand**.”
- “[I]f VGS managed to satisfy ten percent of its demand with RNG (as opposed to geologic gas), **VGS would reduce its overall GHG emissions by up to four percent**.”

# IN RE PETITION OF VERMONT GAS SYSTEMS, INC.

## SCIENCE-RELATED FINDINGS

### WHAT IS THE SOCIAL COST OF CARBON?

The social cost of carbon is an estimate of the social and economic costs associated with the emissions increases

Here, the hearing officer found that:

- “The **Vermont Climate Council** relied on a definition from the **National Academy of Science** for social cost of carbon...”
- “The Vermont Climate Council, through its work **relying on studies conducted by the New York Department of Environmental Conservation**, has calculated the social cost of carbon at \$128 per short ton of CO2 equivalent levelized over 15 years.”
- “Although the social cost of carbon is potentially subject to modification over time, it is a **practical, easily accessible metric.**”

### SOCIAL COST OF CARBON CONDITION

To be cost-efficient and comply with statutory requirements **RNG purchases should not exceed the social cost of carbon**

**RNG purchases** < **social cost of carbon**



# MASSACHUSETTS

# GREENROOTS, INC. V. ENERGY FACILITY SITING BOARD (MASS. 2022)

## SUMMARY AND PROCEDURAL HISTORY

- Board approved electric company's **siting of a new substation** in East Boston, but required a change petition, which it later approved.
- GreenRoots intervened at the change petition stage and then sought review in the **MA Supreme Court** challenging, *inter alia*, the Board's determination that the Company's plans adequately mitigated risk from **sea level rise**, claiming the Board's decision was not supported by substantial evidence because it should have used a **planning horizon** based on the 60-year average age of the Company's substations rather than the 40-year design life of the substation equipment.

### CLIMATE SCIENCE TOPIC

Sea level rise

### JUDGE'S ROLE

Record review

# **GREENROOTS, INC. V. ENERGY FACILITY SITING BOARD**

## **PRESENTATION OF SCIENCE**

Evidence was all provided to the Board

- The Company provided a **flood elevation study** authored by an engineer
- GreenRoots sought discovery and submitted prefiled testimony from five witnesses and supporting exhibits, including about:
  - the **rates of sea level rise**,
  - the **time frame** that should be used for the evaluation, and
  - whether sea level rise **projections were actually uncertain**
- GreenRoots also argued that “[s]ea-level rise is not the only source of increased flood risk at the site; flooding can also result from extreme rainfall events (sometimes called inland, urban, or pluvial flooding)” and that the Company’s study offered no analysis of that type of flood risk or seek to “assess the synergistic flood risk posed by any combination of sea-level rise, precipitation, storm surge, and high tide.”

# GREENROOTS, INC. V. ENERGY FACILITY SITING BOARD

## HOLDING & FINDINGS

### HOLDING

- The Board’s “adoption of a **forty-year planning horizon based on the design life** of substation equipment is **reasonable**, given the **uncertainties in long-term predictions** of sea level rise and electricity demand.”
- “We will not substitute our judgment for the board's on whether it is more appropriate to use average age of substations or the design life of equipment for long-term planning purposes. This is the type of decision on which the **board is entitled to deference** due to its experience and expertise.”

### SCIENCE-RELATED FINDINGS

- “The board's **forty-year planning horizon** combined with **ongoing reporting requirements** is a **reasonable approach to handling the uncertainty of climate change.**”
- “This is not a case where the time frame selected by the agency fails to reasonably consider the project proposed and reliable projections.”
  - 2016 **Boston-area study** with range of sea level rise heights based on GHG scenarios
- “**Other courts** have approved similar schemes with regard to sea level rise.”



**NEW MEXICO**

# **AQUIFER SCIENCE, LLC V. VERHINES** **(N.M. DIST. CT. 2019) (N.M. CT. APP. 2022)**

## **SUMMARY AND PROCEDURAL HISTORY**

- Aquifer Science files **application with Office of State Engineer (OSE) to appropriate water** for residential, commercial, resort, golf course, and open space uses
- OSE **hearing examiner denies** application on grounds no unappropriated groundwater, other permits in area denied
- Aquifer appealed and the **trial court reviewed the application de novo**, holding a trial, and similarly **denying** the application
- Aquifer appealed again, arguing impairment to existing rights analysis was not supported by substantial evidence, the trial court applied an unduly strict interpretation of “conservation of water,” and the trial court improperly required Aquifer to obtain land-use authorization as a condition for approval.

### **CLIMATE SCIENCE TOPIC**

Water appropriation

### **JUDGE’S ROLE**

Finder of Fact (bench trial)

# **AQUIFER SCIENCE, LLC V. VERHINES**

## **PRESENTATION OF SCIENCE AND HOLDING**

### **PRESENTATION OF SCIENCE**

- Trial court heard testimony and reviewed exhibits from **engineers, geologists, geophysicist, hydrologist, and a climate scientist.**
- Topics included water demand, groundwater models and monitoring, geology, hydrology, and **climate change.**
- David Gutzler, PhD (Prof. Emeritus, University of New Mexico), an expert in climate science and modeling with a regional focus on climate impacts

### **HOLDING AT THE TRIAL COURT**

Water is available in the Basin

Granting application would impair water rights, impairment is not de minimis and offsetting the impairment is not feasible

**Applicant failed to meet burden showing application would not impair water conservation**

# **AQUIFER SCIENCE, LLC V. VERHINES**

## **SCIENCE-RELATED FINDINGS**

- “The **impact of climate change was not considered by Applicant** in its Water Demand or Hydrologic Analysis.”
- “data surrounding **climate change indicates that the availability of surface water will decline** during the life of this proposed development.”
- “**Large scale climate change associated with increasing greenhouse gases increases temperature**, which increases evaporation rates, and to a lesser extent, pushes precipitation northward, **resulting in a state of less precipitation...**”
- “The **temperature trends**, both modeled and in the data, are **steady and rising**...Because of warmer temperatures, the current drought is expected to be followed by a **drought in the next 50 years that is likely to be more severe** with drier surface than seen in the past.”

“Applicant’s failure to include this in its analysis, suggests a lack of long-term planning regarding conservation.”

# **AQUIFER SCIENCE, LLC V. VERHINES**

## **HOLDING - APPELLATE COURT**

- **Trial court did not abuse their discretion** in denying the permit but “as a matter of judicial caution, we **opt not to rely on the finding regarding climate change** as a basis for affirming the district court’s decision regarding conservation. Our **decision provides the State Engineer and the Legislature the opportunity to provide guidance regarding climate change and conservation** before it is judicially imposed.”
- Instead, the **appellate court upheld the conservation finding** on the enforcement grounds, that there was no way to enforce water use limits or compliance with the Plan.



**MONTANA**

# HELD V. MONTANA (MT DIST. CT. 2023) (ON APPEAL)

## THE CLAIMS

- Youth plaintiffs seek **declaratory and injunctive relief** against the State, the Governor and state agencies
- Challenge the State Energy Policy Act; a provision of the MT Environmental Policy Act which prohibited consideration of GHG emissions or climate change in environmental reviews (**MEPA Limitation**); and defendants' actions taken pursuant to these laws
- **Claim violations of the MT Constitution** (right to a “clean and healthful environment”; right to seek safety, health, and happiness; and right to individual dignity and equal protection) and the **Public Trust Doctrine**.

## CLIMATE SCIENCE TOPIC

Climate Impacts  
GHG Emissions

## JUDGE'S ROLE

Finder of Fact (bench trial)

# HELD V. MONTANA PROCEDURAL HISTORY

Aug. 2021 - Court rules on MTD, allowing case to proceed, but **disallowing most injunctive relief**

May 2023 - Court rules on defendants' motion for SJ and partial dismissal based on legislative changes. Dismisses claims re: State Energy Policy Act, but **allows MEPA claims to proceed**

Aug. 14 - Court rules in favor of the plaintiffs

Mar. 2020 - **complaint** filed

Jan. 2023 - Discovery closes after 22 expert reports, 36 depositions, more than 50,000 pages of documents, and dozens of interrogatories

June 12-20, 2023 - **Trial** held with 24 witnesses (only 3 by defendants; one expert)

## The latest...

Defendants **appeal**. Oral argument at the **MT Supreme Court July 10**.

# HELD V. MONTANA

## PRESENTATION OF SCIENCE

### PLAINTIFFS' EXPERTS

- Earth's **climate system** and the **physics** of GHG emissions
- “[H]ow human-caused fossil fuel development ...[is] **harming** MT’s ecosystems, water supplies, communities and Plaintiffs’ themselves”
- **Greenhouse gas accounting** of “Montana’s fuel consumption, extraction, and infrastructure” and “the feasibility of transitioning Montana swiftly from fossil fuels to clean and renewable energy”
- Experts included scientists, pediatrician, psychiatrist, tribal expert

### DEFENDANTS' EXPERTS

- Economist “provided **extremely limited testimony**” about the global emissions and MT’s 2020 and 2022 contributions
- Scientist filed an expert **report** which opined that the **plaintiffs’ concerns about climate change** “are well within the range of historical natural weather and climate variability, ... greatly exaggerated, and not consistent with the most recent assessment reports and research publications,” and that “[e]missions from fossil fuels generated in MT provide a miniscule contribution to global GHG and do not influence directly Montana’s weather and climate,” but she was **not called to testify** at trial.

# HELD V. MONTANA HOLDING

- "All persons are born free and have certain inalienable rights" that include "the **right to a clean and healthful environment**...The state and each person shall maintain and improve a clean and healthful environment in Montana for present and future generations." Mont. Const. Art. II, Sec. 3.; Mont. Const. Art. IX, Sec. 1(1).
- "Based on the plain language of the implicated constitutional provisions, the intent of the Framers, and Montana Supreme Court precedent, **climate is included** in the 'clean and healthful environment' and 'environmental life support system.'"
- "By prohibiting consideration of climate change, GHG emissions, and how additional GHG emissions will contribute to climate change or be consistent with the Montana Constitution, the **MEPA Limitation violates Plaintiffs' right to a clean and healthful environment** and is facially unconstitutional."
- The plaintiffs proved injury, causation, and redressability.

# HELD V. MONTANA

## SCIENCE-RELATED FINDINGS

### SCIENCE OF CLIMATE CHANGE

- “There is **overwhelming scientific consensus** that Earth is warming as a direct result of human GHG emissions, primarily from the burning of fossil fuels....**Science is unequivocal that dangerous impacts to the climate are occurring due to human activities**, primarily from the extraction and burning fossil fuels.”

### IMPACT ON CHILDREN/PLAINTIFFS

- “**Children are uniquely vulnerable** to the consequences of climate change, which harms their physical and psychological health and safety, interferes with family and cultural foundations and integrity, and causes economic deprivations.”
- Wildfires and **asthma and allergy** impacts; **hunting and fishing** access; reduced **earnings**

### IMPACT IN MONTANA

- “Anthropogenic climate change is **impacting, degrading, and depleting Montana's environment and natural resources**, including through increasing temperatures, changing precipitation patterns, increasing droughts and aridification, increasing extreme weather events, increasing severity and intensity of wildfires, and increasing glacial melt and loss. Climate change impacts result in **hardship to every sector** of Montana's economy, including recreation, agriculture, and tourism.”

# **HELD V. MONTANA**

## **SCIENCE-RELATED FINDINGS**

### **MONTANA'S CONTRIBUTION TO CLIMATE CHANGE**

- “Montana is a major emitter of GHG emissions in the world in absolute terms, in per person terms, and historically. . . **What happens in Montana has a real impact** on fossil fuel energy systems, CO2 emissions, and global warming.”
- “The 166 million tons of CO2 due to Montana's (pop. 1.1 million) fossil fuel-based economy is equivalent to the emissions from Argentina (with 47 million residents), the Netherlands (18 million), or Pakistan (248 million). Per capita, **Montana's consumption of fossil fuels is disproportionately large** and only five states have greater per capita emissions.”
- “**Montana's annual, historical, and cumulative GHG emissions are increased by Defendants' actions** to permit and approve fossil fuel activities with no environmental review of their impact on GHG levels in the atmosphere and climate change.”

### **CLEAN ENERGY TRANSITION**

- “Non-fossil fuel-based energy systems across all sectors, including electricity, transportation, heating/cooling, and industry, are **currently economically feasible and technologically available** to employ in Montana.”

**CONCLUSION**

# OBSERVATIONS

## Local Science

- Studies and reports (California, Massachusetts)
- Scientists and testimony (New Mexico, Montana)

## Variability

- Different courts (trial, appellate, last resort)
- Different standards of review
- Amount of science considered varies, even in record review cases

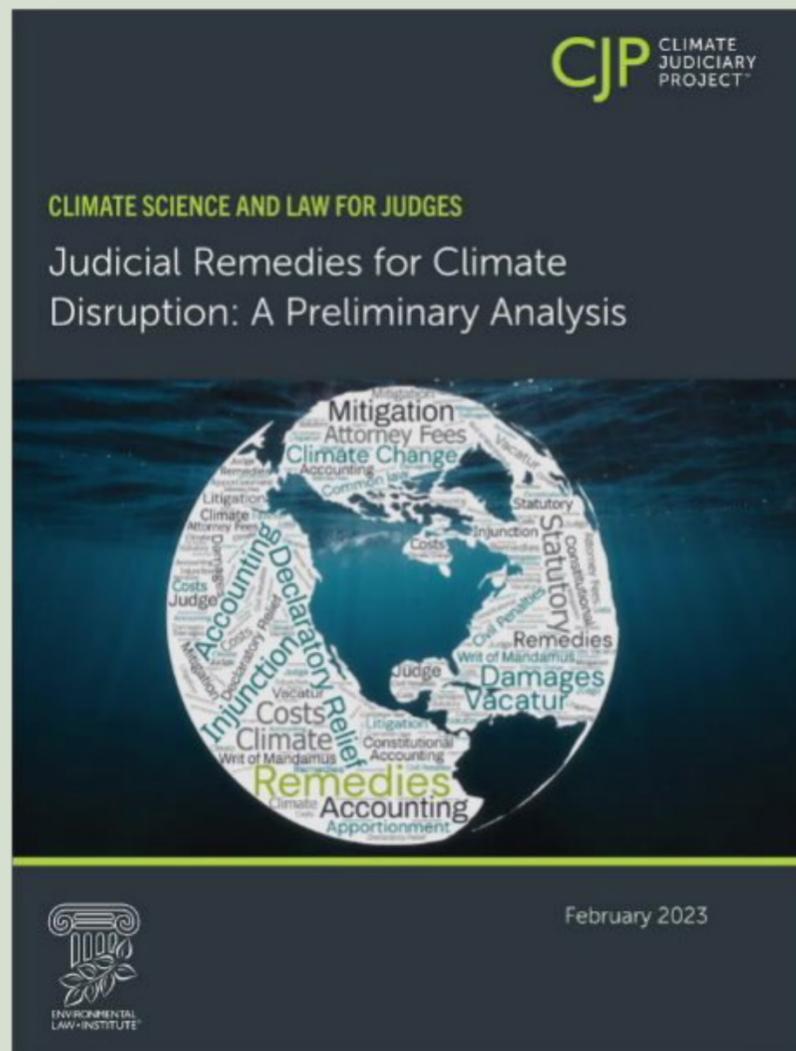
## Just the Beginning

- Many cases with climate science in the record have yet to reach final judgment
- New constitutional provisions, state laws, and regulations
- Siting of new and expansion of existing projects

# DISCUSSION



# CLIMATE JUDICIARY PROJECT RESOURCES



## Climate Science and Law for Judges Curriculum

Providing judges and the judiciary with reliable and up-to-date information about the legal and scientific issues in the climate litigation of today and tomorrow

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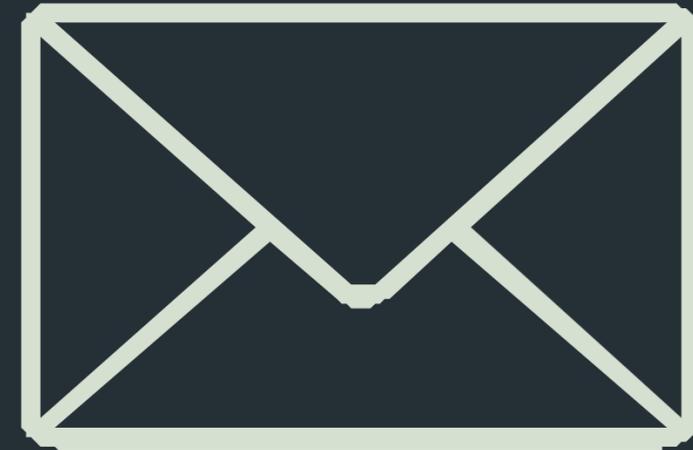
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# CONTACT US

## Climate Judiciary Project



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# RESOURCES (LITIGATION)

- **Sabin Center for Climate Change Law**
  - [US Climate Change Litigation Database](#)
  - [Global Climate Change Litigation Database](#)
- **American Bar Association**
  - [Global Climate Change and U.S. Law, Third Edition](#)
- **The Environmental Forum**
  - [Sandra Nichols and Paul Hanle, \*Judging in a Changed Climate\*](#)
- **Columbia Journal of Environmental Law**
  - [Michael Burger, Radley Horton, and Jessica Wentz, \*The Law and Science of Climate Change Attribution\*](#)