Testimony of Carmen Balber, Executive Director
Consumer Watchdog
Second Workshop Examining Catastrophe Modeling and Insurance (REG-2023-00010)
September 28, 2023

The Insurance Commissioner's rush to satisfy the demand of the insurance industry for permission to use algorithms and black box models to set home, renter and property insurance rates has, at least so far, neglected his obligation under California law to conduct a serious and objective inquiry.

The Department has collected no data to show that catastrophe models would improve the availability or affordability of insurance in California, and the industry has no obligation to follow through on the promise of expanded coverage the Commissioner announced last week. In fact, as Consumer Watchdog has noted in prior comments, the exact opposite is happening in other states where models may be used. In Florida, for example, rates are 2-3 times higher on average than they are in California, and five times as many homeowners have been forced to resort to Florida's version of the FAIR Plan because no other insurers will sell to them.

The use of models would have profound consequences for Californians, but to date none of the controversial issues surrounding catastrophe modelling have been independently investigated, much less addressed, by the Department.

1. Conflicts of Interest. Financial conflicts of interest at the largest publicly-traded catastrophe modeling companies should bar their use by insurance companies in California. The Department has not acknowledged or investigated these serious financial conflicts.
   Top catastrophe modeler RMS is owned by insurance ratings firm Moody's. The largest shareholder of Moody's RMS is Berkshire Hathaway, through the Warren Buffet-owned insurance companies National Indemnity Co. and GEICO. Wall Street financial services companies The Vanguard Group and BlackRock Inc., which manage hundreds of billions in assets for insurance clients, are the top shareholders in the other modelling industry giant, Verisk Analytics. Vanguard and BlackRock are also the second and third largest shareholders of Moody's. Both RMS and Verisk have lobbied to allow the use of secret catastrophe models to set rates. See further documentation of these financial conflicts at RMS and Verisk, including shareholder disclosures, beginning on pg 6.

2. Accuracy. The insurance industry and its Wall Street vendors insist that models and Artificial Intelligence will better predict the likelihood of catastrophes. But there has

been no data call or other effort by the Department of Insurance to objectively det ermine whether that has been true in other states in the nation where private comput er models are in use. Similarly, there has been no effort to determine the rate impact on consumers within or outside high-risk areas. Consumer Watchdog has presented evidence that the computer models in use today are flawed, inaccurate and unable to predict extreme weather events and the expected losses that will arise. Neither the insurance industry nor the firms that market such models have presented any empirical evidence of their accuracy.

3. Fairness. It is beyond dispute that algorithms have been determined to reflect bias, with potentially discriminatory impact that would violate the Unruh Civil Rights Act and provisions of the Insurance Code. Consumer Watchdog has marshalled some of the voluminous academic commentary to that point. The insurance industry and the modelling firms have presented no independent evidence to the contrary. The Department has made no effort to independently investigate the question.

4. Transparency. Proposition 103 requires full public disclosure in the rate setting process, as we have previously testified and as the Commissioner is well aware. For that reason, Consumer Watchdog and other organizations have proposed the establishment of a *public* model. The Department recently asked Consumer Watchdog and a number of other organizations to answer a series of questions directed exclusively at the Department's legal obligation to provide public disclosure of models. These answers were discussed on a video conference call on September 11, 2023. Our written responses are attached, and the transparency question – including the legal precedents upholding the law's requirements – is extensively addressed in our previous comments, attached here.

These issues must be thoroughly investigated and addressed by the Department during the upcoming public notice and comment process. Public workshops that simply pit industry lobbyists against independent consumer advocates, *while the actual policy decisions are made in secret backroom deals with the Commissioner*, do not satisfy state prerequisites for a valid regulation.

For the last five years, Consumer Watchdog's actuaries, experts and lawyers have worked to address the use of models in the context of the Wildfire Mitigation Regulations, in this proceeding, and in a number of rate proceedings in which insurance companies have sought to use models without adequate disclosure for underwriting purposes to determine what individual homeowners pay. The modeling companies have consistently refused to provide substantive information about how their models operate, let alone the full transparency mandated by Proposition 103. This proceeding is your opportunity to finally get it right and ensure full transparency in the use of models in California so home and condo owners can force insurers to justify why they are being priced out of the insurance market, or being refused coverage at all.

Consumer Watchdog Answers to CDI Questions re wildfire CAT models:

1. If the Insurance Commissioner allows insurers to use probabilistic catastrophe models to predict losses for ratemaking purposes, how does the Commissioner also ensure that consumers are fully represented in that process?

   Response: Proposition 103 requires that the ratemaking process be conducted in public and authorizes consumers to participate without qualification in the ratemaking process. By definition, the use of models impacts the rate setting process. Enforcing that statutory mandate requires that consumers and their representatives be provided full access to the information they require in order to assess the accuracy, fairness and rate impact of models, including model inputs and algorithms, and access to the model itself to test its output. The Commissioner must enforce that voter mandate, in whatever context models are utilized.

2. What safeguards should the Commissioner institute if he allows insurers to use probabilistic catastrophe models for loss prediction?

   Response: The safeguards of public scrutiny, public participation, full disclosure, and the prohibition against rates that are "excessive, inadequate or otherwise in violation of [Proposition 103]" are established by Proposition 103. They are not subject to the Commissioner's discretion. As Consumer Watchdog has pointed out in previous testimony, the insurance companies and the Wall Street modeling firms have stated they will not comply with these transparency requirements. That is why Consumer Watchdog and other organizations have proposed that CDI establish a fully public model. If the insurance companies really need to use models, and are not simply looking for a way to charge excessive rates, they should be willing to accept a public model.

3. What kinds of benefits and expertise would consumer representatives bring to the process of reviewing cat models?

   Response: The same benefits and expertise that they bring to any other proceeding before the agency concerning Proposition 103: an independent and objective evaluation of whether the model is biased, inaccurate, or subject to the influence of the insurance company that is paying for it or the owners of the modeling company, and would therefore lead to "excessive, inadequate or unfairly discriminatory" rates.

4. What difficulties might consumer groups experience in participating in model review?

   Response: The same difficulties the CDI would have: the need for additional resources, which Proposition 103 ensures the Commissioner can obtain (Section 12979) and which consumer representatives are entitled to obtain through the public participation process (1861.10(b)).

5. How would consumer groups compensate for any lack of in-house expertise that they might suffer from?

   Response: Like CDI - by recruiting the expertise and hiring outside experts when necessary.

6. Third-party modelers have expressed concern that the inner workings of their models must be kept confidential and subject to trade secret protection. How would consumer groups balance

these third-party modelers' concerns, with Prop 103's mandate that information and materials provided to the Commissioner as part of ratemaking must be made publicly available?

Response: Nothing in the law permits the Commissioner to "balance" the concerns of the insurance industry or its vendors with the unequivocal transparency requirements of Proposition 103, as the California Supreme Court has made clear, that all information submitted to the commissioner must be publicly available (1861.05, 1861.07).

7. Historically, intervenors have been willing to enter into stipulated protective orders for discovery purposes in Prop 103 rate hearings, and defer confidentiality and sealing issues for only those materials and information that are submitted into evidence as part of the public record.

   Response: Information that is submitted to the Commissioner pursuant to Prop 103 must be made public and there are no confidentiality or sealing issues to decide. Deferring confidentially issues to the end of the process deprives the public of their statutory right to review the information *before* a decision is made.

8. Would consumer groups be willing to engage in a similar process for purposes of expert review of models, e.g., participate confidentially in an exploratory process to review a model with a subsequent determination of what, if anything, about that model should be made public, if the model is used for rating purposes?

   Response: Information about how a model impacts consumers' insurance rates cannot be limited to members of the public who participate in expert review. That process deprives the public, including journalists, the opportunity to contemporaneously examine and comment upon a model. The Commissioner must obey the transparency requirements of California law, not devise procedures to evade it.

9. What kinds of information and data should the Commissioner require third-party modelers to produce in a confidential discovery process, for all parties to thoroughly review the model?

   Response: Proposition 103 does not permit a "confidential" process.

10. What kind of information and data regarding the model should the Commissioner require third-party modelers to make public as part of a rate application, in order for the Commissioner to determine that a model is appropriate to be used to predict losses for ratemaking purposes? What is the distinction between these two types of data?

    Response: Absent full disclosure of a model's inputs, algorithm, and output, neither the Department nor the public will be able to verify the accuracy, fairness and impact on premiums.

11. Insurance companies have stated that allowing them to use probabilistic cat models to predict loss for rating purposes would encourage them to increase the availability of coverage for high-risk properties in the WUI. What other avenues are available to the Insurance Commissioner to encourage or require insurance companies to increase coverage availability in high-risk areas?

    Response: Unverified promises by insurance companies cannot support a regulatory change. The Commissioner should not trust the insurance companies' statements that they will increase

the availability of coverage in high-risk areas if the Commissioner accedes to their demands, whether the demand is models, the pass-thru of reinsurance expenses, or any other insurance demand. Placating insurance companies should not be the goal of Insurance Commissioner Lara in this proceeding, nor should cat modelling be authorized in order to accomplish the entirely different goal of requiring insurance companies to end the shortages they have created. Companies are currently allowed to use cat models in earthquake ratemaking, but that has not led to more insurers offering earthquake coverage. Companies in other states are allowed to use cat models, yet that has not stemmed the availability crisis facing places like Florida. Before subjecting Californians to the problematic use of algorithms, the Commissioner should independently investigate the use of models in other states: require all insurance companies to publicly disclose the wildfire cat models they have deployed in other states for the preceding five years in order to determine whether (1) the models accurately predicted risk and (2) whether there remains an availability crisis in those states. Many states where models are in use, such as Florida, are currently experiencing availability and affordability crises in the home and property insurance markets.

A critical way to ensure all Californians have access to coverage is reducing the risk that Californians' homes burn. The Department has passed regulations requiring discounts for homeowners who meet home hardening and brush clearance standards, or live in protected FireWise communities, yet six months after insurers began submitting filings with their discount proposals just one has been approved. The Department should focus on implementing meaningful mitigation discounts for homeowners.

Financial conflicts of interest at the largest publicly-traded catastrophe modeling companies should bar their use by insurance companies in California.

Ownership of the publicly-traded black-box catastrophe modelling companies – by Wall Street, financial rating, and insurance companies - raises multiple financial conflicts.

Catastrophe Model Top Investors

Catastrophe Modeling Co.	Owner	Stockholders > 5%	Percentage of Shares
RMS	Moody's	Berkshire Hathaway (Warren Buffett, National Indemnity and GEICO)	13.47%
		The Vanguard Group	7.53%
		BlackRock Inc.	7.07%
		TCI Fund Management	5.03%
Verisk Analytics (formerly AIR Worldwide)		The Vanguard Group	11.10%
		BlackRock Inc.	8.10%

- Wall Street financial firms The Vanguard Group and BlackRock Inc. are the largest investors in Verisk Analytics and the second and third-largest investors in RMS. Vanguard and BlackRock make their money by managing clients' investments and handle billions in insurance industry assets. BlackRock reports managing $403 billion in general account assets on behalf of insurance companies and "has a dedicated team of insurance portfolio managers, relationships managers, actuaries, and strategies to deliver the breadth of BlackRock's global resources." Vanguard's asset management for insurance accounts site touts its "deep industry knowledge and 19 NAIC-rated fixed income ETFs" … "We're well suited to help insurers, whether your needs are short or long term." The companies' management fees will increase if insurers' investable revenue increases because the RMS and Verisk models recommend excessive premium increases.

- Insurers also have reason to back private models to stay in the good graces of Vanguard and BlackRock, which manage extensive investment portfolios from pensions and other industries that can be directed towards, or away from, the insurance industry.

- Berkshire Hathaway insurance companies, 13.47% shareholder in Moody's which owns RMS, can increase their revenues by imposing higher insurance rates if the RMS model is manipulated to over-predict climate risk.

- The companies' ownership also creates traditional pressures on insurance companies to buy and use private models, as opposed to supporting a public model. For example, Moody's ownership of RMS creates pressure on insurance companies to purchase the RMS model because they are dependent on Moody's for good credit ratings. Moody's has the power to downgrade the financial rating of a company that does not use its catastrophe model, or any private model.

Name	Shares Beneficially Owned (1)		Number of Shares Subject to Options Which Are or Become Exercisable Within 60 Days of December 31 (2)	Number of RSUs That Vest Within 60 Days of December 31 Stock Units and Dividend Equivalents (3)	Total Beneficial Ownership	Stock Units (4)	Percentage of Shares Outstanding (5)
Jorge A. Bermudez	19,956		0	598			*
Thérèse Esperdy	2,396		0	604			*
Robert Fauber	50,237		78,257	3,561			*
Vincent A. Forlenza	5,059		0	604		478	*
John J. Goggins	12,892		22,604	970			*
Kathryn M. Hill	17,367		0	604			*
Lloyd W. Howell, Jr.	620		0	604			*
Mark Kaye	885		10,969	1,674			*
Raymond W. McDaniel, Jr.	206,238	(6)	276,748	821			*
Jose M. Minaya	0		0	732		102	*
Leslie F. Seidman	9,247		0	598			*
Zig Serafin	480		0	598			*
Stephen Tulenko	3,335		6,391	1,067			*
Bruce Van Saun	6,906		0	604			*
Michael West	5,821		8,944	979			*
All current directors and executive officers as a group (16 people)	342,215		405,296	14,958		580	*
Berkshire Hathaway, Inc. Warren E. Buffett, National Indemnity Company, GEICO Corporation, Government Employees Insurance Company, 3555 Farnam Street, Omaha, Nebraska 68131	24,669,778	(7)(8)					13.47%
The Vanguard Group 100 Vanguard Blvd., Malvern, Pennsylvania 19355	13,793,180	(9)					7.53%
BlackRock Inc. 55 East 52nd Street, New York, New York 10055	12,949,795	(10)					7.07%
TCI Fund Management Limited Christopher Hohn, 7 Clifford Street, London, W1S 2FT, United Kingdom	9,212,287	(11)					5.03%

* Represents less than 1% of the outstanding Common Stock.

Principal Shareholders

The following table contains information regarding each person we know of that beneficially owns more than 5% of our Common Stock. The information set forth in the table below and in the related footnotes was furnished by the identified persons to the SEC.

Name and address	Shares of Common Stock Beneficially Owned	
	Number of Shares	Percentage of Class
The Vanguard Group 100 Vanguard Blvd. Malvern, PA 19355	17,321,853(1)	11.1%
BlackRock, Inc. 55 East 52nd Street New York, NY 10055	12,707,776(2)	8.1%

(1) As of December 31, 2022, based on a Schedule 13G/A Information Statement filed with the SEC on February 9, 2023 by The Vanguard Group ("Vanguard"). The Schedule 13G/A reported that Vanguard has sole voting power as to 0 shares of our Common Stock and sole dispositive power as to 16,667,102 shares of our Common Stock.

(2) As of December 31, 2022, based on a Schedule 13G/A Information Statement filed with the SEC on February 3, 2023 by BlackRock, Inc. ("BlackRock"). The Schedule 13G/A reported that BlackRock has sole voting power as to 11,576,440 shares of our Common Stock and sole dispositive power as to 12,707,776 shares of our Common Stock.

SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT

The following table sets forth information regarding the ownership of CoreLogic Common Stock as of March 29, 2021 by the persons or groups of stockholders who are known to us to be the beneficial owners of more than 5% of our shares of CoreLogic Common Stock as of March 29, 2021 (using the number of shares outstanding on this date for calculating the percentage). The information regarding beneficial owners of more than 5% of CoreLogic Common Stock is based solely on public filings made by such owners with the SEC.

Name of Beneficial Owner	Amount and Nature of Beneficial Ownership	Percent of Class
The Vanguard Group(1)	6,816,293	9.2%
BlackRock, Inc.(2)	6,435,505	8.7%
Pentwater Capital Management LP(3)	3,850,000	5.2%

(1) Share count is based on a Form 13F-HR filed February 12, 2021, reporting beneficial ownership as of December 31, 2020. According to a Schedule 13G/A filed February 10, 2021, as of December 31, 2020, these securities are owned by The Vanguard Group, a registered investment adviser with shared voting power with respect to 52,684 shares, sole dispositive power with respect to 6,698,562 shares and shared dispositive power with respect to 117,731 shares. The address of the principal business office of the reporting entity is 100 Vanguard Boulevard, Malvern, Pennsylvania 19355.

(2) Share count is based on a Form 13F-HR filed February 5, 2021, reporting beneficial ownership as of December 31, 2020. According to a Schedule 13G/A filed January 29, 2021, as of December 31, 2020, BlackRock, Inc. is a parent holding company with sole voting power with respect to 6,176,633 shares and sole dispositive power with respect to 6,435,505 shares, reporting on behalf of certain related subsidiaries. The address of the principal business office of the reporting entity is 55 East 52nd Street, New York, New York 10055.

(3) Share count is based on a Schedule 13D filed February 18, 2021, reporting beneficial ownership as of February 16, 2021. According to such Schedule 13D, Pentwater Capital Management LP is a registered investment adviser with sole dispositive power with respect to 3,850,000 shares. The address of the principal business office of the reporting entity is 1001 10th Avenue South, Suite 216, Naples, Florida 34102.

July 12, 2023

The Honorable Ricardo Lara
Insurance Commissioner
State of California
300 Capital Mall, Suite 1700
Sacramento, CA 95814

Re: Workshop Examining Catastrophe Modeling and Insurance (REG-2023-00010)

Dear Commissioner Lara:

Polls show a growing concern among Americans about the corporate use of black box models[i] – secret algorithms and Artificial Intelligence – to determine whether people will have access to products and services they require, and at what price. Insurance companies are looking to these same complex and opaque technologies to evade regulations that have kept insurance rates and premiums transparent and justified in California for decades.

Protecting California homeowners, motorists, and small businesses against the reckless use of unjustified secret models is insurance reform Proposition 103, passed by voters 35 years ago after an insurance access crisis nearly identical to the one the industry has created in California over the last five months. Proposition 103 mandates that "no [insurance] rate may be excessive, inadequate or unfairly discriminatory." Its robust, nationally-recognized framework of consumer protections requires transparency, justification, and approval before an insurance company can increase insurance rates. The subject of this workshop is one of the law's principal safeguards against unjustified rates and discriminatory practices: Ins. Code Sec. 1861.07.

Your question today is whether the use of catastrophe models to predict climate risk can comport with California's consumer protection laws mandating that insurance rates be justified through a process of transparent public review and participation. The answer is Yes, and the method is straightforward: Create a public model.

The insurance industry's pursuit of profit has already shifted all of the costs of climate change onto homeowners, by non-renewing policies, increasing premiums, delaying and denying smoke and fire claims, and threatening a wholesale pullout from the state if they do not get their way. Insurers simultaneously refuse to acknowledge or address their own significant contributions to climate change by insuring and investing in fossil fuels. They are now seeking to use private climate models to unjustifiably manipulate rates even higher. This is why

Proposition 103's requirement of public scrutiny and accountability is more necessary than ever.

For insurance companies, climate change is a convenient stalking horse for their real agenda: deregulation of oversight and accountability in California. Private, for-profit catastrophe models serve as a backdoor route to deregulation, because their black box nature makes it impossible for regulators or the public to understand what prices are based on or if they're getting it right.

Yet nothing about a catastrophe model *needs* to be proprietary or secret. A public model that is open to the scrutiny of the public, press and policymakers will keep insurance companies honest by forcing them to adjust their rates based on an impartial and objective analysis of wildfire risk and the impact of loss prevention practices on that risk.

Catastrophe models are not a panacea. A model developed and implemented in a fully transparent way can, however, enable California to better plan for a changing climate. A public model is necessary because the insurance industry's fixation on short term profits is incompatible with the interests of the people who live here.

Ultimately, our focus must be on stability in insurance access and affordability for homeowners by *reducing* the risks posed by climate change. The state's long climate leadership and deep bench of top academics, engineers, scientists and technologists uniquely situate our state to build a public model to serve all Californians.

This testimony discusses:

1) The purpose and legal requirements of Proposition 103 that require transparency, particularly Ins. Code Sec. 1861.07 and the court cases that have upheld that requirement.

2) The opacity of black-box private models.

3) How private catastrophe models' secrecy would derail the ability of regulators and the public to review rates and confirm they are justified.

4) Examples of private models' inconsistency and bias across financial industries.

Secrecy Enabled and Exacerbated the Insurance Crisis in the Mid-1980s That Led to the Passage of Proposition 103

In the mid-1980s, California was struck by a massive insurance crisis, which destabilized the Golden State's economy, punishing consumers and businesses alike with skyrocketing premiums and refusals to sell – just as the industry is doing today. Contemporary independent studies[ii] concluded that the threshold problem was that neither the public nor policymakers

had the ability to assess the validity of the insurance companies' rates and underwriting practices. Specifically, the Insurance Commissioner had no authority to collect adequate information regarding insurance rates and practices, no authority to limit industry profiteering and market destabilizations, and there was no opportunity for members of the public to participate in any regulatory process.

Prop 103 Requires Public Disclosure of Models

Prop 103 declared that: "Enormous increases in the cost of insurance made it both unaffordable and unavailable to millions of Californians" and that the "existing laws inadequately protect consumers and allow insurance companies to charge excessive, unjustified and arbitrary rates."

Insurance Code section 1861.07 requires that "All information provided to the commissioner pursuant to this article [Proposition 103] shall be available for public inspection, and the provisions of Section 6254(d) of the Government Code and Section 1857.9 of the Insurance Code [statutes barring disclosure of industry information] shall not apply thereto."

Section 1861.07 therefore requires public disclosure of any information provided to the Commissioner in connection with review of an insurer's rate application, which must include as required by section 1861.05(b): "all data referred to in Sections 1857.7, 1857.9, 1857.15, and 1864 and such other information as the commissioner may require."

The use of models in insurance matters is subject to 1861.07. The Commissioner's recent wildfire risk mitigation regulations specifically acknowledge that models used to determine a homeowner's risk for purposes of classifying individual structures or estimating losses corresponding to such classifications (Wildfire Risk Scores) must be filed with the Commissioner and made available for public inspection pursuant to 1861.05(b) and 1861.07. (10 CCR §2644.9(f).)

The California Supreme Court Has Confirmed that there are No Exceptions to the Disclosure Requirement.

State Farm has twice challenged the application of 1861.07's disclosure requirement in court. In each case, State Farm claimed that its data are "proprietary in nature" and constitute "trade secret material" that were privileged and exempt from the disclosure mandate of 1861.07.

In a 2004 ruling rejecting State Farm's argument, the California Supreme Court concluded that section 1861.07 set forth a "broad disclosure mandate," finding that it "broadly requires public disclosure of '*[a]ll* information provided to the commissioner pursuant to' article 10." (*State Farm Mut. Automobile Ins. Co. v. Garamendi* (2004) 32 Cal.4th 1029, 1043-1044 (original italics).) It found that "the drafters [of Proposition 103] established a public hearing process for

reviewing insurance rate changes" in order to "enable consumers to permanently unite to fight against insurance abuse." (*Id*. at p. 1045 (quotations and citations omitted).) The Supreme Court rejected State Farm's attempt to withhold "trade secret data." "State Farm may not invoke the trade secret privilege to prevent disclosure of its … data under Insurance Code section 1861.07." (*Id* at pp. 1046-1047.)[iii]

Notwithstanding the California Supreme Court's definitive decision, State Farm once again sued to conceal its financial data in a 2015 hearing on its application for an increase in its homeowners insurance rates, which Consumer Watchdog challenged. Insurance Commissioner Dave Jones rejected State Farm's arguments. State Farm then sued to overturn the Commissioner's decision, but its claims were rejected by the San Diego Superior Court.

<u>The Insurance Commissioner Has Historically Enforced 103's Disclosure Requirement</u>

Since the passage of Proposition 103, California Insurance Commissioners have long defended section 1861.07's absolute disclosure requirement. Commissioners Harry Low and John Garamendi urged the California Supreme Court to reject State Farm's first challenge.

As Commissioner Jones explained in a 2018 brief opposing State Farm's second lawsuit, "the unambiguous language of section 1861.07 requires that all documents and testimony provided to the Commissioner as part of a rate proceeding be open to public inspection."

And, as noted above, Section 2644.9(f) of Insurance Commissioner Lara's recent wildfire risk mitigation regulations requires full disclosure of wildfire risk models:

> Any rating plan, or Wildfire Risk Model submitted to the Commissioner in connection with a complete rate application pursuant to subdivision(c) of this section, or any additional documentation relating to such rating plan or model as may be requested by the Commissioner during the review of any such application, including any records, data, algorithms, computer programs, or any other information used in connection with the rating plan or Wildfire Risk Model used by the insurer which is provided to the Commissioner, shall be available for public inspection pursuant to Insurance Code sections 1861.05, subdivision(b), and 1861.07, regardless of the source of such information, or whether the insurer or the developer of the rating plan or Wildfire Risk Model claims the rating plan or Wildfire Risk Model is confidential, proprietary, or trade secret. Pursuant to Insurance Code section 1855.5, subdivision(a), a Wildfire Risk Model as defined in subdivision(b)(6) of this section that is made available by an advisory organization to its members for use in California shall be filed with the Commissioner and made available for public inspection.

Private Models are in Conflict with Proposition 103's Transparency Requirements

Private modeling firms (and insurers that develop aspects of models in-house) consistently assert intellectual property and trade secret protections that are incompatible with 1861.07's transparency requirements.

The American Academy of Actuaries emphasizes this point: "While the technical documentation of the models is available to users for their general knowledge, some core assumptions are considered proprietary and are not readily accessible to users. A catastrophe model is developed by a group of scientists (meteorologist, seismologist, hydrologist, statisticians, engineers, actuaries, computer scientist, etc.) with specialized knowledge in different fields. It is not an easy task for model users to develop even a basic understanding of the model, as required by U.S. actuaries' standards of practice."[iv]

Descriptive disclosures of the science and engineering that goes into a model and test cases of a model's outputs are too generalized to allow regulators or the public to adequately verify a model's inputs and assumptions or confirm whether its impact on rates is justified.[v]

Insurance Companies Resist Disclosure of Models in their Current Narrow Use in California – for Earthquake Loss Projection

The only case in which insurance companies are allowed to use private catastrophe models to make loss projections for determining overall rates in California is for earthquake (and fire following earthquake) insurance rates. (10 CCR § 2644.4(e).) In 2004 and 2007, Consumer Watchdog challenged the use of the RMS Risk Link 4.3 EQ model used to support earthquake insurance rate increases proposed by two insurers. Over the course of public hearings in those challenges the modeler withheld from the public and regulators – over Consumer Watchdog's objections – critical information needed to review and verify the validity of the model's impact on proposed rates.

Safeco sought a 29.8% rate increase; an Administrative Law Judge (ALJ) and the Insurance Commissioner ultimately approved a 13.2% rate increase after a public hearing. Among many issues raised, Consumer Watchdog's scientific expert found the RMS model over-predicted the frequency of earthquakes in comparison to other models that more closely met the actual historical earthquake experience, including the USGS and California Geological Survey, and the ALJ and the Commissioner agreed.[vi]

The expert testified that the company also failed to disclose a key component of the model that is used to describe the strength of a quake based on soil conditions and distance from the quake's source. It is impossible for an independent scientist to weigh the validity of a model's rate output without full access to such information. The Department of Insurance also did not obtain or review this information.

In a second case challenging GeoVera's proposed 6.8% rate increase, ultimately the parties stipulated to a 0% overall increase approved by an ALJ and the Commissioner. During the proceeding, Consumer Watchdog's actuary sought to verify an area of potential manipulation or inaccuracy that is also a factor in wildfire models: How the model amplified losses post-event. These are the assumptions a model makes about how much a large catastrophic event is likely to increase rebuilding costs beyond current market values - including how it treats inflation, replacement cost and demand surge projections. In the case in question, he estimated the RMS model overstated projected losses by about 30% or more, however the exact amount was unknown due to the company's refusal to disclose its proprietary method of calculating replacement cost values.[vii]

It is easy to see how over-projecting replacement costs leads to excessive or unjustified rates. If such financial assumptions are built into a model, the public and regulators must have full access to evaluate the methodology behind such assumptions and determine if the model's outputs are reasonable and fair.

How Do We Ensure Models Treat Consumers Fairly?

Below we pose just a few of the questions that regulators and the public must be able to ask – the answers to which proprietary catastrophe models hide – to determine whether a model is producing rates that are excessive, inadequate, or unfairly discriminatory:

- A key question about a model's impact on rates concerns the relative weight for each input variable (risk factor) in the model. These weights result from analyses performed within the model based on a dataset used to calibrate the model's initial parameters ("training data"). Depending on a model's construction, small changes to the weights can become highly leveraged, resulting in substantial variability in the model's output. Consumers and their advocates have a legal right to know which risk factors are being used to calculate insurance premiums. They also need to be able to understand the sensitivity of a model's results to changes in risk factor values and their relative weights. Yet details about how a model weights different factors is exactly the kind of information companies protecting a proprietary model will be unwilling to disclose.
- What are the input variables (risk factors) used in the model?
    - Typically, the risk factors selected for use in the final model have a demonstrable causal relationship with the peril being modeled, e.g. vegetation density or proximity to outbuildings for wildfire risk. However, it is entirely possible for risk factors with no obvious causal connection to the peril being modeled to demonstrate a high level of predictive significance. In such cases, the modelers must ascertain whether the seemingly unrelated variable is acting as a proxy for another, more sensible risk factor, or perhaps for a different risk factor that is disallowed due to inherent bias. Regulators and consumer representatives must have the ability to ask the same questions.

- How are elements that tend to fluctuate in value and have a significant impact on model output, such as inflation, demand surge, construction and labor costs, etc., treated in the model?
- What are all data types used in the initial development of the model; what is included in the training data?
    - According to the insurance analytics firm GuideWire,[viii] historically there have been two primary sources of modeling data for wildfires: US Census block groups and US Forest Service vegetation imagery data. GuideWire boasts it has improved on this by using, "30-meter vegetation resolution with cutting-edge geospatial tools to deliver highly accurate assessments of wildfire risk". Generalized selling points such as this are not robust enough to support a model's efficacy in improving the accuracy of the ratemaking process. What data do these "cutting-edge" tools collect and how do they impact the model's assessment of risk?
- How is risk scoring determined for quantitative variables that have multiple components (e.g. Fire station proximity: Physical distance, staffing, average drive duration, complications in an active wildfire scenario, etc.)
- Are broad public policy changes that address climate change and the risk of wildfire -- such as California's plan to achieve Net Zero carbon emissions by 2045,[ix] or the legislatively-mandated multi-billion dollar investments by California utilities in wildfire mitigation[x] -- taken into consideration?
- What about developments that impact insurers' projected financial losses? California law holds utility companies responsible for damage caused by any fire ignited by their equipment, <u>whether found negligent or not</u>. Does the model account for the fact that the insurance industry will not ultimately be responsible for all losses from the fires it predicts? PG&E and Edison made $12.1 billion in insurance subrogation payments for damage from fires the utilities caused in 2017-18, including the massive Camp Fire.[xi] The California Wildfire Fund[xii] was then established by the legislature in 2019 for the purpose of providing a source of money to pay or reimburse participating utility companies (San Diego Gas & Electric, Southern California Edison, and Pacific Gas & Electric) for eligible claims – including those paid as subrogation to insurance companies – that result from a wildfire. The Fund is capitalized by utility companies and ratepayers.
- How does the model control for overfitting? (model output regurgitates historic data vs using historic data to generate unique hypothetical scenarios)
- How much uncertainty is attached to model outputs because of errors in the model inputs and simplifying assumptions?
- How current is the data for elements such as population density, building codes, zoning changes, forest management, etc.?
- Is the model developed on a single company or insurer group's data, or on a broader data set such as industry-wide?

- Can the model be tested against past wildfire events to find out how accurately it predicts them?

Catastrophe Models Produce Inconsistent Results

In materials submitted to regulators documenting its U.S. Wildfire Model, the private modeling firm CoreLogic highlights the imprecision of catastrophe models:

"Modeling insured losses resulting from wildfires is an inherently subjective and imprecise process involving an assessment of information that comes from a number of sources and that may not be complete or accurate. Moreover, total insured loss for certain natural catastrophes may continue to evolve over a period of time. No model is, or could be, an exact representation of reality."[xiii]

In a frank Q&A about the insurance industry's push for catastrophe modeling published by industry consulting firm Milliman, Dag Lohmann, former vice president at modeling giant RMS, now-CEO of KatRisk, LLC, puts it more bluntly:

"Multiple modelers could develop a wildfire model from all the components in current literature, tune the models to reasonably validate with historical data, and ultimately have average annual losses ***2 or 3 times different than each other*** when projecting future losses."

Milliman goes on to argue: "These candid descriptions of variability in catastrophe modeling evoke the thinking of statistician George Box, who quipped that: 'All models are wrong, some are useful.' In other words, a good model can provide users with significant value in spite of outstanding uncertainties as to model precision. ***Model validation, as well as rigorous review of model operations and assumptions, are critical steps in assessing whether this value can be extracted from a cat model, given its intended use.***" [xiv] *[emphasis added]*

The industry itself acknowledges models' accuracy and value must be subject to "rigorous review." The modeler and the insurance industry cannot be the only players with the ability to conduct such reviews. Models protected as trade secrets will prevent verification of their science and their math, and regulators and consumer representatives would be left with inconsistent outputs and uncertainties that can't be explained. Models' mechanisms must be accessible to regulators and the public.

At the Virtual Meeting Regarding Home Hardening and Wildfire Catastrophe Modeling held by the California Department of Insurance on December 10, 2020, Allan Schwartz, Fellow of the Casualty Actuarial Society and a Member of the American Academy of Actuaries, presented testimony that illustrates how this variability manifests in the private earthquake models already in use in California:

"On multiple occasions over the last several years, the models consulted by insurance companies had dramatic differences in the results:

- In a Pacific Specialty Insurance Company rate filing, the leading RMS Model projected Fire Following Earthquake (FFEQ) loss was 263% of the projected FFEQ loss from RMS's leading competitor AIR.[xv]
- In a State Farm filing, the projected loss for Owner, Condo and Tenant coverage from the highest model projections were as much as 368% of the projected FFEQ loss from the lowest model projection.[xvi]
- And in a CSAA rate filing, one model's projection was 237% of another's.[xvii]

Mr. Schwartz questions the reliability of assumptions based on widely different outputs:

"Modelers often state that different models can be expected to give varying results because each modeler can use different assumptions, formula, parameters, and other inputs. While models cannot be expected be give the exact same results, it is reasonable to expect that the results from different models should be within an acceptable range. Results that vary from more than 100% to more than 250% could easily be considered to be outside an appropriate range."

With proprietary models, the CDI and the public are prohibited from looking inside the black box to determine the reason for such discrepancies and the best result.

These model inconsistencies are highlighted throughout financial and environmental regulation.

As stated by the Court of Appeals for the D.C. Circuit in Sierra Club v. Costle, 657 F.2d 298, 332 (D.C. Cir. 1981) (Robb, J.), which was reviewing an econometric model used by the Environmental Protection Agency:

> . . . models, despite their complex design and aura of scientific validity, are at best imperfect and subject to manipulation . . . .The results ultimately are shaped by the assumptions adopted at the outset, and can change drastically for a given set of input data if key assumptions are adjusted even slightly. The accuracy of the model's predictions also hinges on whether the underlying assumptions reflect reality, which is no small feat in this volatile world. (Citations omitted.)

For this reason, courts and regulatory agencies that have accepted computer models as evidence have also demanded that the underlying source data, assumptions, and methodologies be disclosed.[xviii]

Black-Box Models Harm Consumers

Across the economy, automated decisions made by undisclosed proprietary algorithms have become the unseen hand of discrimination, preventing the most vulnerable members of society from achieving important life goals. Credit scores alone have infected every aspect of Americans' personal lives, reflecting and exacerbating systemic racial and financial inequities. Discrimination occurs when people seek a mortgage, apply for a job, credit, school, apartment, or government benefits. Lower income individuals, people of color, women, and other disadvantaged communities are hardest hit by decisions made as a result of black box algorithms.[xix]

ProPublica launched an analysis of algorithmic bias in risk assessment software used to make criminal sentencing, bail and rehabilitation decisions in Broward County, Florida. The software, based on a for-profit company's algorithm, predicted violent crime correctly just 20% of the time, wrongly labeled Black defendants as future criminals twice as often as white defendants, and conversely mislabeled white defendants as low-risk more often than Black defendants.[xx]

University of California Berkeley researchers found that the mortgage lenders charge higher interest rates to Black and Latino borrowers than white borrowers. "The mode of lending discrimination has shifted from human bias to algorithmic bias," said study co-author Adair Morse, a finance professor at the Haas School of Business which published the study. "Even if the people writing the algorithms intend to create a fair system, their programming is having a disparate impact on minority borrowers — in other words, discriminating under the law." The discrimination cost those homebuyers up to half a billion dollars more in interest every year than white borrowers with comparable credit scores.[xxi]

Uber and Lyft pricing algorithms charge a higher price-per-mile for rides that originate in more diverse neighborhoods than they do in more white neighborhoods, according to a study analyzing Chicago transport and census data conducted by George Washington University researchers.[xxii]

The potential bias in opaque catastrophe models is no less damaging to consumers' financial health. A public model will allow for the most rigorous testing to root out bias.

Consumer advocates and progressive lawmakers are battling in state and federal legislative bodies, regulatory agencies and the courts against secret algorithmic manipulation that creates disadvantage across our financial lives. In the insurance space California is ahead of the game because Proposition 103 mandates transparency. Allowing insurance companies to price home insurance behind closed doors would take California backwards.

Financial Industry Climate Prediction Software in Particular Faces Academic Scrutiny for Reliability and Bias

Despite years of warnings that climate change threatens the insurance industry, and despite significant regulatory developments abroad, U.S. and California climate-related supervision and regulation of insurers remains limited. The California Department of Insurance recently required insurers to report their fossil fuel investments, yet insurers' deep exposure to climate risk from fossil fuel underwriting has yet to be acknowledged.[xxiii]

Banking and securities financial regulators have gone farther in incorporating the risks of climate change into oversight. Yet the for-profit models financial companies in particular rely on to make those predictions are full of loopholes, flawed financial incentives, bias and uncertainty that threaten to leave us worse off, rather than better, in imagining the financial impacts of a changing climate.

A forthcoming law review article by Boston School of Law Professor Madison Condon brings together the public interest critique of private models for financial regulation.[xxiv] She writes:

"[A]ctionable and transparent information about our climate-changed future is a public good that the private sector cannot be depended upon to provide equitably or reliably. Further, all private climate services rely on upstream climate data and models that were collected and produced by an enormous network of public institutions. … This Article urges state and federal governments to invest in their own climate services capacity at a scale not currently contemplated. Risk assessments lacking a scientific basis can lead to maladaptation across the economy."

The article is a must-read as California considers how to best respond to a changing climate while protecting insurance consumers. Among its points:

- The secrecy of private models hides uncertainty and error and prevents evaluation by the user and the regulator.
    - An example is the arena of ESG governance, where physical risk scores produced by leading firms have been found to have little correlation with one another.
- Private modeling firms have financial conflicts of interest, with many owned by the very rating agencies whose products rely on their outputs. For example, RMS one of the largest modeling firms is owned by Moodys.
    - Financial conflicts at the ratings agencies was a major topic of scrutiny after the 2008 financial crisis when it became clear they had mispresented the risks of mortgage-backed securities.
- Extreme weather events have disproportionately impacted Black and brown communities. Data bias will mean those communities are also most likely to be affected by models that consider them riskiest, and therefore least profitable to insure.

- Private models are designed to maximize short term profits, given the 1-year term of a standard insurance policy, while a public interest frame for the use of climate models should be mitigating risk, not short-term rate-setting.
- Models privatize the public data they are built on.

A Public Catastrophe Model Would Comply with 1861.07 and Best Protect Californians

A public interest framework for the use of catastrophe models in insurance rating in California would insure the most people at the lowest price while incentivizing homeowners to reduce climate risk. The insurance industry has long pursued the opposite strategy, seeking to weed out homeowners who are more likely to make claims, and the secrecy of the private modeling industry serves as a tool to that end. California has the opportunity to create a public model that instead serves all Californians. A public model would prioritize equity, reliability, affordability, transparency, risk reduction, and accountability.

Sincerely,

Carmen Balber
Executive Director

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[i] Atske, Sara. "Public Attitudes Toward Computer Algorithms | Pew Research Center." *Pew Research Center: Internet, Science & Tech*, 7 July 2020, www.pewresearch.org/internet/2018/11/16/public-attitudes-toward-computer-algorithms.

[ii] In a study commissioned by the California State Assembly, "Insurance in California: A 1986 Status Report for the Assembly (October 1986)," Robert Hunter of the National Insurance Consumer Organization noted the refusal of the insurance industry to disclose data regarding losses and its finances. The "Little Hoover Commission" (The Commission on California State Government Organization and Economy) issued *A Report on the Liability Insurance Crisis in the State of California* in July 1986 noting that, "the Commissioner does not collect, nor have the authority to collect, adequate information regarding insurance rates"; "without good information, sound decision-making is difficult.... Without adequate information, the role of the Insurance Commissioner can only be reactive."

[iii] *State Farm v. Garamendi* also rejected State Farm's argument that the second clause of section 1861.07, which states that two specific statutory exemptions from disclosure do not apply, left intact other exemptions from disclosure under the Public Record Act, such as Government Code section 6254(k), which exempts trade secret information. The court held that, given the inclusive language used in the first clause, those two exemptions "are meant to be examples rather than an exhaustive listing of all those statutory exemptions that are inapplicable." "[T]he language of Insurance Code section 1861.07, when viewed in context, is not ambiguous and, by its terms, requires public disclosure of [State Farm's purported trade secret information]."
https://scocal.stanford.edu/opinion/state-farm-v-garamendi-33393

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https://www.actuary.org/sites/default/files/files/publications/Catastrophe_Modeling_Monograph_07.25.2018.pdf

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[vi] "In the matter of the Rate Application of: First National Insurance Company of America, SAFECO Insurance Company of America, and SAFECO Insurance Company of Illinois. Direct Written testimony of Dr. David Jackson" *Consumer Watchdog*, Dec. 2022, https://consumerwatchdog.org/wp-content/uploads/2023/07/Safeco-EQ-Redacted-Jackson-DWT1_Redacted-copy.pdf

[vii] "In the Matter of the Rate Application of, Geovera Insurance Company. Direct testimony of Allan I. Schwarts" *Consumer Watchdog*, https://consumerwatchdog.org/wp-content/uploads/2023/07/91_-Redacted-Pre-Filed-Direct-Testimony-of-Allan-I-Schwartz-GeoVera.pdf

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[x] *Wildfire Mitigation Plan*. https://www.pge.com/en_US/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan.page

[xi] Press Release, *PG&E Executes Definitive Agreement Resolving Insurance Subrogation Claims Relating to 2017 and 2018 Wildfires*, 23 Sep., 2019, https://investor.pgecorp.com/news-events/press-releases/press-release-details/2019/PGE-Executes-Definitive-Agreement-Resolving-Insurance-Subrogation-Claims-Relating-to-2017-and-2018-Wildfires/default.aspx; Press Release, *SCE Resolves All Insurance Subrogation Claims For The Thomas, Koenigstein Fires And Montecito Mudslides*, 23 Sep., 2020, https://newsroom.edison.com/releases/sce-resolves-all-insurance-subrogation-claims-for-the-thomas-koenigstein-fires-and-montecito-mudslides.

[xii] "California Wildfire Fund." https://www.cawildfirefund.com/

[xiii] Actuarial Standard Of Practice "No. 38 – U.S. Wildfire Model." *Corelogic,* Aug. 2018, https://consumerwatchdog.org/wp-content/uploads/2023/07/ASOP-38-Corelogic-CA-Wildfire-Model-State-Farm.pdf

[xiv] "Wildfire Catastrophe Models Could Spark the Changes California Needs." *Milliman*, Oct. 2019, https://www.milliman.com/en/insight/wildfire-catastrophe-models-could-spark-the-changes-california-needs

[xv] SERFF Tracking #: PERR-132375306, State Tracking #: 20-1565, Company Tracking #: PSIC-HO3-CA-2001, Exhibit 9-1

[xvi] SERFF Tracking #: SFMA-131345773, Company Tracking # 18-1196: HO-40602, Exhibit 9, Page 6

[xvii] SERFF Tracking #: WSUN-132609750 State Tracking #: 20-4189 Company Tracking #: CA HO 2021, Exhibit 9

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