SUPERIOR COURT OF THE DISTRICT OF COLUMBIA
CIVIL DIVISION
Civil Actions Branch
500 Indiana Avenue, N.W., Suite 5000, Washington, D.C. 20001
Telephone: (202) 879-1133 • Website: www.dccourts.gov

MARK Z. JACOBSON PhD
Vs.
NATIONAL ACADEMY OF SCIENCES et al

C.A. No. 2017 CA 006685 B

INITIAL ORDER AND ADDENDUM

10/26/17

Pursuant to D.C. Code § 11-906 and District of Columbia Superior Court Rule of Civil Procedure ("Super. Ct. Civ. R.") 40-I, it is hereby **ORDERED** as follows:

(1) Effective this date, this case has assigned to the individual calendar designated below. All future filings in this case shall bear the calendar number and the judge's name beneath the case number in the caption. On filing any motion or paper related thereto, one copy (for the judge) must be delivered to the Clerk along with the original.

(2) Within 60 days of the filing of the complaint, plaintiff must file proof of serving on each defendant: copies of the summons, the complaint, and this Initial Order and Addendum. As to any defendant for whom such proof of service has not been filed, the Complaint will be dismissed without prejudice for want of prosecution unless the time for serving the defendant has been extended as provided in Super. Ct. Civ. R. 4(m).

(3) Within 21 days of service as described above, except as otherwise noted in Super. Ct. Civ. R. 12, each defendant must respond to the complaint by filing an answer or other responsive pleading. As to the defendant who has failed to respond, a default and judgment will be entered unless the time to respond has been extended as provided in Super. Ct. Civ. R. 55(a).

(4) At the time and place noted below, all counsel and unrepresented parties shall appear before the assigned judge at an initial scheduling and settlement conference to discuss the possibilities of settlement and to establish a schedule for the completion of all proceedings, including, normally, either mediation, case evaluation, or arbitration. Counsel shall discuss with their clients **prior** to the conference whether the clients are agreeable to binding or non-binding arbitration. **This order is the only notice that parties and counsel will receive concerning this Conference.**

(5) Upon advice that the date noted below is inconvenient for any party or counsel, the Quality Review Branch (202) 879-1750 may continue the Conference **once**, with the consent of all parties, to either of the two succeeding Fridays. Request must be made not less than seven business days before the scheduling conference date.
No other continuance of the conference will be granted except upon motion for good cause shown.

(6) Parties are responsible for obtaining and complying with all requirements of the General Order for Civil cases, each judge's Supplement to the General Order and the General Mediation Order. Copies of these orders are available in the Courtroom and on the Court's website http://www.dccourts.gov/.

Chief Judge Robert E. Morin

Case Assigned to: Judge ELIZABETH WINGO
Date: October 4, 2017
Initial Conference: 9:30 am, Friday, December 29, 2017
Location: Courtroom A-47
515 5th Street NW
WASHINGTON, DC 20001

ADDENDUM TO INITIAL ORDER AFFECTING ALL MEDICAL MALPRACTICE CASES

In accordance with the Medical Malpractice Proceedings Act of 2006, D.C. Code § 16-2801, et seq. (2007 Winter Supp.), "[a]fter an action is filed in the court against a healthcare provider alleging medical malpractice, the court shall require the parties to enter into mediation, without discovery or, if all parties agree[,] with only limited discovery that will not interfere with the completion of mediation within 30 days of the Initial Scheduling and Settlement Conference ("ISSC"), prior to any further litigation in an effort to reach a settlement agreement. The early mediation schedule shall be included in the Scheduling Order following the ISSC. Unless all parties agree, the stay of discovery shall not be more than 30 days after the ISSC." D.C. Code § 16-2821.

To ensure compliance with this legislation, on or before the date of the ISSC, the Court will notify all attorneys and *pro se* parties of the date and time of the early mediation session and the name of the assigned mediator. Information about the early mediation date also is available over the internet at https://www.dccourts.gov/pa/. To facilitate this process, all counsel and *pro se* parties in every medical malpractice case are required to confer, jointly complete and sign an EARLY MEDIATION FORM, which must be filed no later than ten (10) calendar days prior to the ISSC. D.C. Code § 16-2825 Two separate Early Mediation Forms are available. Both forms may be obtained at www.dccourts.gov/medmalmediation. One form is to be used for early mediation with a mediator from the multi-door medical malpractice mediator roster; the second form is to be used for early mediation with a private mediator. Both forms also are available in the Multi-Door Dispute Resolution Office, Suite 2900, 410 E Street, N.W. Plaintiff's counsel is responsible for eFiling the form and is required to e-mail a courtesy copy to earlymedmal@dcsc.gov. *Pro se* Plaintiffs who elect not to eFile may file by hand in the Multi-Door Dispute Resolution Office.

A roster of medical malpractice mediators available through the Court's Multi-Door Dispute Resolution Division, with biographical information about each mediator, can be found at www.dccourts.gov/medmalmediation/mediatorprofiles. All individuals on the roster are judges or lawyers with at least 10 years of significant experience in medical malpractice litigation. D.C. Code § 16-2823(a). If the parties cannot agree on a mediator, the Court will appoint one. D.C. Code § 16-2823(b).

The following persons are required by statute to attend personally the Early Mediation Conference: (1) all parties; (2) for parties that are not individuals, a representative with settlement authority; (3) in cases involving an insurance company, a representative of the company with settlement authority; and (4) attorneys representing each party with primary responsibility for the case. D.C. Code § 16-2824.

No later than ten (10) days after the early mediation session has terminated, Plaintiff must eFile with the Court a report prepared by the mediator, including a private mediator, regarding: (1) attendance; (2) whether a settlement was reached; or, (3) if a settlement was not reached, any agreements to narrow the scope of the dispute, limit discovery, facilitate future settlement, hold another mediation session, or otherwise reduce the cost and time of trial preparation. D.C. Code§ 16-2826. Any Plaintiff who is *pro se* may elect to file the report by hand with the Civil Actions Branch. The forms to be used for early mediation reports are available at www.dccourts.gov/medmalmediation.

Chief Judge Robert E. Morin

Superior Court of the District of Columbia
CIVIL DIVISION
500 Indiana Avenue, N.W., Suite 5000
Washington, D.C. 20001 Telephone: (202) 879-1133

MARK Z. JACOBSON, PhD.

Plaintiff

vs.

Case Number 17-0006685

CHRISTOPHER T.M. CLACK, PhD.

Defendant

SUMMONS

To the above named Defendant:

You are hereby summoned and required to serve an Answer to the attached Complaint, either personally or through an attorney, within twenty (20) days after service of this summons upon you, exclusive of the day of service. If you are being sued as an officer or agency of the United States Government or the District of Columbia Government, you have sixty (60) days after service of this summons to serve your Answer. A copy of the Answer must be mailed to the attorney for the party plaintiff who is suing you. The attorney's name and address appear below. If plaintiff has no attorney, a copy of the Answer must be mailed to the plaintiff at the address stated on this Summons.

You are also required to file the original Answer with the Court in Suite 5000 at 500 Indiana Avenue, N.W., between 8:30 a.m. and 5:00 p.m., Mondays through Fridays or between 9:00 a.m. and 12:00 noon on Saturdays. You may file the original Answer with the Court either before you serve a copy of the Answer on the plaintiff or within five (5) days after you have served the plaintiff. If you fail to file an Answer, judgment by default may be entered against you for the relief demanded in the complaint.

PAUL S. THALER, ID #416614
Name of Plaintiff's Attorney

COHEN SEGLIAS PALLAS GREENHALL & FURMAN
Address
1828 L St NW, Suite 705; Washington, DC 20036

202-466-4110
Telephone

Clerk of the Court

By _____

Date 10/30/2017

如需翻译,请打电话 (202) 879-4828 Veuillez appeler au (202) 879-4828 pour une traduction Để có một bản dịch, hãy gọi (202) 879-4828
번역을 원하시면, (202) 879-4828 로 전화주십시오 የትርጉም ትርጉም ለማግኘት (202) 879-4828 ይደውሉ

IMPORTANT: IF YOU FAIL TO FILE AN ANSWER WITHIN THE TIME STATED ABOVE, OR IF, AFTER YOU ANSWER, YOU FAIL TO APPEAR AT ANY TIME THE COURT NOTIFIES YOU TO DO SO, A JUDGMENT BY DEFAULT MAY BE ENTERED AGAINST YOU FOR THE MONEY DAMAGES OR OTHER RELIEF DEMANDED IN THE COMPLAINT. IF THIS OCCURS, YOUR WAGES MAY BE ATTACHED OR WITHHELD OR PERSONAL PROPERTY OR REAL ESTATE YOU OWN MAY BE TAKEN AND SOLD TO PAY THE JUDGMENT. IF YOU INTEND TO OPPOSE THIS ACTION, *DO NOT FAIL TO ANSWER WITHIN THE REQUIRED TIME.*

If you wish to talk to a lawyer and feel that you cannot afford to pay a fee to a lawyer, promptly contact one of the offices of the Legal Aid Society (202-628-1161) or the Neighborhood Legal Services (202-279-5100) for help or come to Suite 5000 at 500 Indiana Avenue, N.W., for more information concerning places where you may ask for such help.

See reverse side for Spanish translation
Vea al dorso la traducción al español

Superior Court of the District of Columbia

CIVIL DIVISION- CIVIL ACTIONS BRANCH

INFORMATION SHEET

MARK Z. JACOBSON, PhD. Case Number: _____

vs Date: September 29, 2017

CHRISTOPHER T.M. CLACK, PhD., et al., ☐ One of the defendants is being sued in their official capacity.

Name: *(Please Print)* PAUL S. THALER	Relationship to Lawsuit
Firm Name: Cohen Seglias Pallas Greenhall & Furman, P.C.	☒ Attorney for Plaintiff
Telephone No.: 202-466-4110 Six digit Unified Bar No.: 416614	☐ Self (Pro Se)
	☐ Other: _____

TYPE OF CASE: ☐ Non-Jury ☒ 6 Person Jury ☐ 12 Person Jury

Demand: $ 10,000,000.00 Other: _____

PENDING CASE(S) RELATED TO THE ACTION BEING FILED

Case No.: _____ Judge: _____ Calendar #: _____

Case No.: _____ Judge: _____ Calendar#: _____

NATURE OF SUIT: *(Check One Box Only)*

A. CONTRACTS **COLLECTION CASES**

☐ 01 Breach of Contract
☐ 02 Breach of Warranty
☐ 06 Negotiable Instrument
☐ 07 Personal Property
☐ 13 Employment Discrimination
☐ 15 Special Education Fees
☐ 14 Under $25,000 Pltf. Grants Consent
☐ 17 OVER $25,000 Pltf. Grants Consent
☐ 27 Insurance/Subrogation Over $25,000 Pltf. Grants Consent
☐ 07 Insurance/Subrogation Under $25,000 Pltf. Grants Consent
☐ 28 Motion to Confirm Arbitration Award (Collection Cases Only)
☐ 16 Under $25,000 Consent Denied
☐ 18 OVER $25,000 Consent Denied
☐ 26 Insurance/Subrogation Over $25,000 Consent Denied
☐ 34 Insurance/Subrogation Under $25,000 Consent Denied

B. PROPERTY TORTS

☐ 01 Automobile
☐ 02 Conversion
☐ 07 Shoplifting, D.C. Code § 27-102 (a)
☐ 03 Destruction of Private Property
☐ 04 Property Damage
☐ 05 Trespass

C. PERSONAL TORTS

☐ 01 Abuse of Process
☐ 02 Alienation of Affection
☐ 03 Assault and Battery
☐ 04 Automobile- Personal Injury
☐ 05 Deceit (Misrepresentation)
☐ 06 False Accusation
☐ 07 False Arrest
☐ 08 Fraud
☐ 10 Invasion of Privacy
☒ 11 Libel and Slander
☐ 12 Malicious Interference
☐ 13 Malicious Prosecution
☐ 14 Malpractice Legal
☐ 15 Malpractice Medical (Including Wrongful Death)
☐ 16 Negligence- (Not Automobile, Not Malpractice)
☐ 17 Personal Injury- (Not Automobile, Not Malpractice)
☐ 18 Wrongful Death (Not Malpractice)
☐ 19 Wrongful Eviction
☐ 20 Friendly Suit
☐ 21 Asbestos
☐ 22 Toxic/Mass Torts
☐ 23 Tobacco
☐ 24 Lead Paint

SEE REVERSE SIDE AND CHECK HERE IF USED

Information Sheet, Continued

C. OTHERS

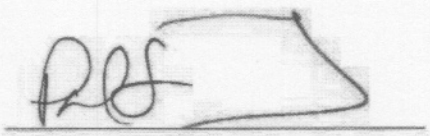
- ☐ 01 Accounting
- ☐ 02 Att. Before Judgment
- ☐ 05 Ejectment
- ☐ 09 Special Writ/Warrants (DC Code § 11-941)
- ☐ 10 Traffic Adjudication
- ☐ 11 Writ of Replevin
- ☐ 12 Enforce Mechanics Lien
- ☐ 16 Declaratory Judgment
- ☐ 17 Merit Personnel Act (OEA) (D.C. Code Title 1, Chapter 6)
- ☐ 18 Product Liability
- ☐ 24 Application to Confirm, Modify, Vacate Arbitration Award (DC Code § 16-4401)
- ☐ 29 Merit Personnel Act (OHR)
- ☐ 31 Housing Code Regulations
- ☐ 32 Qui Tam
- ☐ 33 Whistleblower

II.

- ☐ 03 Change of Name
- ☐ 06 Foreign Judgment/Domestic
- ☐ 08 Foreign Judgment/International
- ☐ 13 Correction of Birth Certificate
- ☐ 14 Correction of Marriage Certificate
- ☐ 15 Libel of Information
- ☐ 19 Enter Administrative Order as Judgment [D.C. Code § 2-1802.03 (h) or 32-151 9 (a)]
- ☐ 20 Master Meter (D.C. Code § 42-3301, et seq.)
- ☐ 21 Petition for Subpoena [Rule 28-I (b)]
- ☐ 22 Release Mechanics Lien
- ☐ 23 Rule 27(a)(1) (Perpetuate Testimony)
- ☐ 24 Petition for Structured Settlement
- ☐ 25 Petition for Liquidation
- ☐ 26 Petition for Civil Asset Forfeiture (Vehicle)
- ☐ 27 Petition for Civil Asset Forfeiture (Currency)
- ☐ 28 Petition for Civil Asset Forfeiture (Other)

D. REAL PROPERTY

- ☐ 09 Real Property-Real Estate
- ☐ 12 Specific Performance
- ☐ 04 Condemnation (Eminent Domain)
- ☐ 10 Mortgage Foreclosure/Judicial Sale
- ☐ 11 Petition for Civil Asset Forfeiture (RP)
- ☐ 08 Quiet Title
- ☐ 25 Liens: Tax / Water Consent Granted
- ☐ 30 Liens: Tax / Water Consent Denied
- ☐ 31 Tax Lien Bid Off Certificate Consent Granted



Attorney's Signature

September 29, 2017

Date

IN THE SUPERIOR COURT
FOR THE DISTRICT OF COLUMBIA

MARK Z. JACOBSON, Ph.D.,
946 Valdez Place
Stanford, CA 94305,

Plaintiff,

v.

CHRISTOPHER T. M. CLACK, Ph.D.,
690 Fossil Bed Circle
Erie, CO 80516,

and

NATIONAL ACADEMY OF SCIENCES
2101 Constitution Avenue, NW
Washington, DC 20418,

Please Serve:
Audrey Byrd Mosley
2101 Constitution Avenue, NW
NAS210
Washington, DC 20418

Defendants.

C. A. No. 17-0006685

COMPLAINT AND JURY DEMAND

COMES NOW Dr. Mark Z. Jacobson, Ph.D. ("Dr. Jacobson" or "Plaintiff"), and states his Complaint against Christopher T. M. Clack, Ph.D. ("Dr. Clack") and the National Academy of Sciences ("NAS") (sometimes referred to together as "Defendants") as follows:

THE PARTIES

1. Dr. Jacobson is an individual residing in the state of California. Dr. Jacobson is a Professor of Civil and Environmental Engineering at Stanford, the Director of the Atmosphere/Energy Program, and a Senior Fellow at the Woods Institute for the Environment and the Precourt Institute for Energy. He is a renowned scientist on global warming and air pollution and the development of large-scale clean, renewable energy solutions for those problems. From 1991 through August 27, 2017, he has published 152 peer-reviewed scientific articles, including more than 63 as first author. Dr. Jacobson has also written two textbooks, with two editions of each. His journal papers have been cited more than 11,000 times in the peer-reviewed literature.

2. Dr. Clack is an individual who, on information and belief, resides in the state of Colorado. Dr. Clack is the founder and Chief Executive Officer of Vibrant Clean Energy, LLC ("VCE"). According to VCE's website, VCE's purpose is to "pursu[e] intelligent transformation of the electric and energy system to meet the needs of the 21st century, while still providing power forecasts for wind and solar across north America." Formerly, Dr. Clack was a mathematician with the Cooperative Institute for Research in Environmental Sciences, a partnership between the National Oceanic and Atmospheric Administration and the Colorado University, Boulder.

3. NAS is a corporation organized in 1863 pursuant to an Act of Congress. It is authorized to conduct business and is conducting business in the District of Columbia with its principal place of business located at 2101 Constitution Avenue, NW, Washington, DC 20418. NAS publishes the scientific journal "Proceedings of the National Academy of Sciences" ("PNAS"). The NAS website describes PNAS as "one of the world's most-cited and

comprehensive multidisciplinary scientific journals, publishing more than 3,800 research papers annually. The journal's content spans the biological, physical, and social sciences and is global in scope." PNAS is published on the Internet.

JURISDICTION

4. Jurisdiction is proper in this court pursuant to D.C. Code Section 11-921(a)(6).

5. The Court may exercise personal jurisdiction over Defendant NAS pursuant D.C. Code Section 13-422 in that NAS maintains its principal place of business in the District of Columbia.

6. The Court may exercise personal jurisdiction over Defendant Dr. Clack pursuant to D.C. Code Section 13-423(a)(1) in that Dr. Jacobson's claim for relief arises from Dr. Clack's transacting business in the District of Columbia by submitting a paper to D.C.-headquartered NAS for publication in its journal PNAS which would be read by, among others, individuals residing and/or working in the District of Columbia.

FACTS

NAS Publication Policies & The Two Articles

7. NAS's publication policy (Exhibit 1) for PNAS distinguishes among five different types of publications: Research Reports, Letters, Front Matter, Commentaries, Perspectives, and Colloquium Papers. Each of those five publications has its own particular criteria. The two types of publications pertinent here are Research Reports and Letters.

8. Research Reports "describe the results of original research of exceptional importance." Exhibit 1 at p. 1. Regular Research Reports are limited to 6 journal pages (49,000 characters). Exhibit 2 at p. 1 (excerpt from http://www.pnas.org/site/authors/procedures.

xhtml). By contrast, Letters "are brief online comments that allow readers to constructively address a difference of opinion with authors of a recent PNAS article." Exhibit 1 at pp.1-2. Letters have a more limited scope and must: (1) be submitted for review within six months of the published Research Report on which they comment; (2) not be longer than 500 words; and (3) cite no more than 10 references. Exhibit 1 at p.2.

9. On December 8, 2015, NAS published in PNAS an article authored by Dr. Jacobson (along with 3 co-authors) entitled *Low-cost solution to the grid reliability problem with 100% penetration of intermittent wind, water, and solar for all purposes* (hereinafter, the "Jacobson Article") (Exhibit 3). Dr. Jacobson and his co-authors are sometimes referred to herein as the "Jacobson Authors." The Jacobson Article posits that a large-scale U.S. transition to wind, water and solar power among all energy sectors could, by 2050, eliminate the need for other energy sources, particularly coal, oil, and natural gas, without the need for nuclear power, fossil fuels with carbon capture, or biofuels, while enabling supply to match demand on the grid. The Jacobson Article described "results of original research of exceptional importance," and therefore constituted a "Research Report" under the NAS guidelines for publications in PNAS. In fact, in 2016, PNAS awarded the Jacobson Article a Cozzarelli Prize, given to only 6 out of about 16,000 papers submitted to the journal each year, for "outstanding scientific excellence and originality."

10. On February 29, 2016, Dr. Clack telephoned Dr. Jacobson to discuss some aspects of the Jacobson Article about which Dr. Clack had questions. That same day, Dr. Jacobson followed up their telephone conversation with an email (Exhibit 4) in which Dr. Jacobson explained to Dr. Clack that the Jacobson Article had made the following assumption concerning increasing the hydropower maximum discharge rate while keeping the annual

hydropower energy output constant: "The result is based on the assumption that we would increase the discharge rate conventional hydro while holding the 2050 annual energy output constant (as stated in Footnote 4 of Table S.2 of the paper). . . .For the study, we assumed that the discharge rate of hydro would be increased as needed by adding turbines + generators + transformers in the hydro stations thereby increasing the discharge rate [the "Assumption"]) . Exhibit 4. Over the next couple of days, Dr. Clack and Dr. Jacobson continued to discuss the Assumption. In one particular response to Dr. Jacobson on March 2, 2016, Dr. Clack stated, "I am not disagreeing with the possibility that it can be done with CSP and hydro, etc., I just think the costs are skewed quite badly by getting all this free dispatchable power." Exhibit 5 at p. 2. In his email on February 29, Dr. Jacobson provided a calculation for his estimate of the cost due to the hydropower turbines, and concluded it was "relatively minor." Exhibit 4 at p.1.

11. On or about June 26, 2016, unbeknownst at the time to Dr. Jacobson, Dr. Clack, without having requested model output data from the Jacobson Article to study whether problems existed with the output, submitted an article to NAS for publication in PNAS. This article, *Evaluation of a proposal for reliable low-cost grid power with 100% wind, water, and solar*, PNAS, doi:1073/pnas.1610381114, 2017 ("Clack Article") was authored by Dr. Clack and twenty alleged co-authors as a rebuttal to the Jacobson Article. Dr. Clack and the co-authors are sometimes referred to herein as the "Clack Authors." At no time prior to the submission or publication of the Clack Article did any of the Clack Authors request a time series of model output from the Jacobson Article or request further information beyond the emails from February 29 to March 2, 2016.

12. On February 27, 2017, eight months after the Clack Article was initially submitted to PNAS for publication, Etta Kavanaugh ("Ms. Kavanaugh"), an editorial manager

of PNAS, notified Dr. Jacobson by email about Dr. Clack's submission, which Ms. Kavanaugh described to Dr. Jacobson as a paper "which challenges the conclusion of the [Jacobson Article]." Exhibit 6. In her email, Ms. Kavanaugh advised Dr. Jacobson that the Clack Article had been accepted for publication and inquired whether Dr. Jacobson would like to "submit a [L]etter to the editor commenting on the [Clack Article]." Exhibit 6. Ms. Kavanaugh attached the unedited February 20, 2017 version of the Clack Article to her email to Dr. Jacobson. Exhibit 7.

Dr. Jacobson's Warnings to NAS Not
To Publish The Clack Article

13. After Dr. Jacobson and his co-authors received Ms. Kavanaugh's February 27, 2017 email inviting them to write a Letter in response to the accepted Clack Article, they responded by emails on February 27 and 28, 2017. In an attachment to a February 28, 2017 email (the transmittal email is attached as Exhibit 16), Dr. Jacobson listed ***thirty*** false statements and ***five*** materially misleading statements in the Clack Article and requested NAS to both withdraw the Clack Article and, at the very least, to eliminate or correct the false and misleading statements.

14. On March 2, 2017, Daniel Salsbury, the deputy executive editor of PNAS's editorial policy department responded to Dr. Jacobson and informed him that to properly address his concerns, PNAS would contact the Clack Authors and provide them with Dr. Jacobson's list. Exhibit 8. Mr. Salsbury specifically sought permission from Dr. Jacobson to share Dr. Jacobson's February 28, 2017 email attachment with the Clack Authors.

15. On March 2, 2017, Dr. Jacobson responded to Mr. Salsbury by providing him with a slightly updated attachment (dated February 28, 2017) setting out the thirty false statements and five misleading statements. Exhibit 8. Dr. Jacobson did more than give Mr.

Salsbury his permission to share the attachment with Dr. Clack and his co-authors – Dr. Jacobson ***requested*** that Mr. Salsbury do so. Exhibit 8. In that same email, Dr. Jacobson reiterated his request that every single one of the false and misleading statements be corrected. Despite Mr. Salsbury's March 2, 2017 email stating that NAS would forward Dr. Jacobson's request for correction to all Clack Authors, NAS failed to do so, and NAS subsequently admitted that its failure to do so was an intentional decision by the PNAS Board member overseeing the Clack Article.

16. On May 4, 2017, two months after the email exchange described in the foregoing paragraphs, Dr. Jacobson received an email from Mr. Salsbury transmitting a slightly revised "accepted version of the article from Clack et al." Exhibit 17 (transmittal email). This slightly modified version was different from the February 20, 2017 version only in that it contained some minor editorial corrections and text changes and a conflict of interest disclosure (albeit one that was incomplete, as discussed below), but it contained ***no*** changes based on the thirty-five corrections requested by Dr. Jacobson.

17. On May 5, 2017, in the face of NAS's decision to publish the uncorrected version of the Clack Article in PNAS, Dr. Jacobson again contacted Mr. Salsbury and sent yet another document regarding the requested corrections, this time pointing out the errors line-by-line. Exhibit 9. Mr. Salsbury replied to Dr. Jacobson later that same day, stating, "We discussed your recent emails with the Editor-in-Chief ***and have sent your critique received today to the authors this morning.*** We provided your previous response to a Board member who took it into consideration during the two rounds of revisions since you last saw the manuscript. ***The Board member did not to (sic) send your response directly to the authors at that time.***" *See* 5/5/17 Salsbury email to Jacobson (attached hereto as Exhibit 10) (emphasis

added). Thus, ***for two months*** NAS led Dr. Jacobson to believe that NAS had forwarded his list of requested corrections of false and misleading statements to the authors of the Clack Article when in fact it had not. On information and belief, based on the statement in the published Clack Article that it was "Edited by B.L. Turner," Dr. Turner was the Board Member who did not supply the Clack Authors with the correction request.

18. On May 9, 2017, PNAS forwarded to Dr. Jacobson a slightly revised version of the Clack Article after the authors had read Dr. Jacobson's line-by-line comments (which as Mr. Salsbury noted in his May 5, 2017 email were not provided to the Clack Article authors until May 5, 2017). On June 19, 2017, NAS published (in the on-line edition of PNAS) the version of the Clack Article emailed to Dr. Jacobson on May 9, 2017. Exhibit 11. The published version of the Clack Article contained almost all of the falsehoods and misrepresentations that NAS had been alerted to by Dr. Jacobson. It reflected only some changes based on a small number of Dr. Jacobson's thirty-five comments, leaving most of the false and misleading statements, including the three most egregious ones (discussed *infra* at ¶¶40-64) unchanged. A list of the falsehoods and representations remaining in the published version is attached hereto as Exhibit 12.

19. Based on content and timing, the Clack Article did not adhere to the publication criteria for either a Research Report or Letter and should not have been published. This was not a mere technical non-compliance. The decision by NAS to publish the Clack Paper in PNAS has had grave ramifications for Dr. Jacobson.

Violations of NAS Publication Policies

20. As noted above, NAS has established publication policies that govern the submission, review and acceptance of papers for publication in PNAS as well as resolution of

assertions of falsification and fabrication prior to and after publication of a paper. Several of these policies were not followed in the handling of the Clack Article, resulting in significant undue damage to Dr. Jacobson and coauthors.

21. The Jacobson Article was submitted and accepted for publication in PNAS as a "Research Report" because it described the results of original research of exceptional importance. Exhibit 1 at p.1.

22. The Clack Article does not contain "results of original research of exceptional importance," and, therefore, is not a "Research Report." Not only did none of the Clack Authors request output data from the Jacobson Article, the most fundamental first step in performing research on another scientific study, until three weeks after publication of the Clack Article, and not only did the Clack Article contain numerous false facts that the authors and NAS were aware of and never corrected, but the Clack Article is also in the nature of "comments that allow readers . . . to address a difference of opinion with authors of a recent PNAS article." Exhibit 1 at p. 1 (describing a "Letter"). In fact, Professor Robert Howarth of Cornell University, an expert on energy and the environment and Editor-in-Chief of the journal, Limnology and Oceanography, commented publicly on Twitter about this fact on June 21, 2017 (Exhibit 13):

> "This really was a comment on work by @mzjacobson and others. If published at all, should have been as comment with opportunity to reply."
>
> "Based on what I have seen, PNAS handled this very poorly. Paper never should have been published, was not a research paper at all"

23. The Clack Article comments, however, went well beyond stating mere differences of scientific opinion by asserting materially false facts. Based on its clear policy, NAS should have required Dr. Clack and his co-authors to make their submission as a Letter,

and should have insisted that the submission comply with the criteria of a Letter as set forth by NAS, which include a shorter length, without false information, and a timely submission.

24. As noted *supra*, "Letters" are limited to 500 words and 10 citations, and they must be submitted within six months of publication of the article to which they respond. Exhibit 1 at p. 2. The Clack Article failed to meet these criteria. It is significantly more than 500 words in length. The article itself is six pages long, single-spaced and includes a 13-page, single-spaced Supporting Information, which is not allowed with a Letter. With 27 citations in the main text alone, the Clack Article far exceeds the 10-citation limit for a Letter. Finally, the Clack Article was not submitted for review until June 26, 2016, missing the six-month deadline for letter submissions by almost three weeks. *Even if* NAS had overlooked the lateness of the Clack submission, it should not have ignored the remaining criteria for Letter submissions.

25. NAS, in accepting the Clark Article for publication in PNAS, also violated its own policy governing authorship: "Authorship must be limited to those who have contributed substantially to the work." Exhibit 14 at p.3.

26. The "Author contributions" section of the published Clack Article admits that only three (Dr. Clack, Dr. Ken Caldiera, and Dr. Staffan A. Qvist) out of twenty-one named authors designed, performed research, or analyzed data. The "Author contributions" section lists the remaining 18 co-authors only under the category, "wrote the paper." On information and belief, the remaining eighteen authors did not "contribute substantially" to the work, but were instead piled on as co-authors of the paper to increase its surface credibility and chances for publication, and to maximize its impact in the press. Indeed, a June 20, 2017 *New York Times* article notes that while Dr. Jacobson published his article with "three co-authors," the Clack Article was by a "group of 21 prominent scholars, including physicists and engineers,

climate scientists and sociologists[.]" Similarly, a June 23, 2017 *Scientific American* article is entitled, "Landmark 100 Percent Renewable Energy Study Flawed, Say 21 Leading Experts." A June 19, 2017 article in *GreenTech Media* refers to a "battalion of fellow energy researchers" and states, "The sheer number of co-authors suggests this is not a battle of egos."

27. The fact that NAS permitted the Clack Article to list all twenty-one co-authors, eighteen of whom admit not to having performed research, instead of only the three who "contributed substantially" to the work is another violation by NAS of its own policy for PNAS publications. The policy violation resulted in the artificial inflation of the credibility of the Clack Article's attack on Dr. Jacobson, his co-authors, and the Jacobson Article, and drastically increased the damage caused to Dr. Jacobson by the resulting increase in public readership of false information about the Jacobson Article.

28. The inclusion of twenty-one coauthors on the initial submission to NAS also artificially inflated the credibility of the paper in the eyes of the two referees who reviewed the paper, particularly as the accepted version of the Clack Article first sent to Dr. Jacobson contained no "Author Contribution" section, indicating that the referees were not even informed that only three authors, not twenty-one, performed research for the paper.

29. NAS, in accepting the Clack Article for publication in PNAS, also violated its own policy governing conflict of interest disclosures. NAS considered the Clack Article for publication, and allowed it to undergo the peer review process without first obtaining a disclosure of conflict of interest. As noted above, on February 27, 2107, NAS emailed Dr. Jacobson a copy of the version of the Clack Article that had been accepted for publication. That version of the Clack Article (Exhibit No. 7) did not contain any conflict of interest statement nor an "Author contribution" statement. The lack of any conflict of interest statement was one

of Dr. Jacobson's several objections to NAS's decision to accept the article for publication in PNAS. It was only at that point, in the face of Dr. Jacobson's objection, that NAS requested the Clack Authors to provide a conflict of interest statement.

30. The conflict of interest statement that Dr. Clack and his co-authors provided was insufficient because some authors did not disclose or fully disclose "any association that poses or could be perceived as a conflict of interest in connection with the manuscript . . ." as required. For example, Jane S. Long did not disclose that she is has been a Senior Fellow of the Breakthrough Institute, a nuclear advocacy group, since 2012. This is relevant because the Clack Article advocates for a broad range of energy options, specifically including nuclear power, and claims it is one technology that should have been included in the Jacobson Article that was intentionally not.

31. Similarly, although Dr. James Sweeney (listed as a co-author of the Clack Article) admitted receiving funding from Exxon and other fossil fuel interests, the conflict of interest statement fails to disclose that Dr. Sweeney has been an Institutional Advisory Board Member of The Communications Institute, a front group of Exxon Mobil and that, according to his biographical sketch on Stanford's website, he has "served as an expert witness in energy litigations in natural gas, oil, and energy industries . . .." The conflict of interest statement also fails to disclose that Dr. Sweeney has a strong conflict of interest because of his staunch advocacy for fossil fuels which is evidenced, for example, in a video posted on YouTube on November 2, 2016, in which Dr. Sweeney states: "If we were to give up on the fossil fuels, we give up on both the economy and security very quickly."

32. Most important, of the three out of 21 authors who admit to performing research for the article, one, Dr. Ken Caldeira, not only admits, "I am not an energy expert" (15 minutes

and 32 seconds into the February 23, 2016 video at https://www.ioes.ucla.edu/event/powering-earth-2016/), but also demonstrates in both that video and in a December 7, 2015 article, http://www.independent.co.uk/news/world/europe/dec/07/nuclear-energy-presented-press-paris/, where he "presented the best articulated support for nuclear energy" that, like Jane Long and other Clack Authors, he is an ardent advocate for nuclear power, which the Jacobson Article specifically does not include as a future option. The Clack Article does not mention this relevant conflict of interest that clearly shows bias, speaks to the motivation of some of the Clack Authors, and was not disclosed to the referees or readers of the Clack Article. As a result, many news organizations wrote stories leading readers to believe that the Clack Article was written solely by unbiased scholars.

33. Thus, NAS allowed the Clack Article to be published in PNAS even though the article's conflict of interest statement was woefully insufficient. In addition, the conflict of interest statement was provided too late – only after peer review. Had the referees of the Clack Article known the full extent of conflicts of interest of many Clack Authors, as admitted in the conflict of interest statement provided after peer-review and indicated by additional conflicts provided here but not disclosed, they could easily have rejected the paper as a Research Report due to bias. Dr. Jacobson alerted Etta Kavanagh of NAS by email on February 27, 2017 that Dr. Clack and his co-authors had violated the conflicts of interest policy. Exhibit 15 at p.1.

34. The damage from allowing the Clack Article to be published without full disclosure of the conflicts of interest to the referees during peer review and to the public thereafter continues to accrue.

35. NAS, in accepting the Clark Article for publication in PNAS, also egregiously violated its own policy requiring that all work submitted for publication "be free of fabrication,

falsification, and plagiarism as defined by the US Office of Research Integrity." This policy violation is described below. Moreover, NAS accepted the Clack Article for publication even though, on information and belief, Dr. Clack and his collaborators failed to "have in place an appropriate process for reviewing the accuracy of the reported results" as required by NAS's policy for PNAS publications. For example, it was not until three weeks after publication of their article that the Clack Authors requested output data from the Jacobson Article to check whether their claims about modeling errors were correct, and the model output indicates clearly their claims were not correct.

36. In addition to promulgating its own publication standards and policies for PNAS, NAS is a member of the Committee on Publication Ethics ("COPE"). Through NAS's membership, COPE policies also govern PNAS, which states on its own website (http://www.pnas.org/site/authors/index.xhtml), "PNAS is a member of the Committee on Publication Ethics (COPE) and subscribes to its principles." COPE standards set forth guidelines for its members, including the *duty* to investigate allegations of fabrication. Despite a requirement to investigate every single claim of fabrication both before publication (https://pu□□cationethics.org/□□es/□a□ricated□ □□data□ □□□.pd□) and after publication (https://pu□□cationethics.org/□□es/□a□ricated□ □□data□ □□□.pd□) of an article, there is no indication that NAS made *any* effort to investigate a single one of Dr. Jacobson's assertions of fabrication in the Clack Article either before or after publication. To the contrary, (1) a PNAS Board Member refused even to investigate, correct, or forward to the Clack Authors for correction 35 false or highly misleading statements sent to PNAS on February 28, 2017 and March 2, 2017 (Exhibit 8), and (2) the editorial board refused to investigate these same claims, submitted again on May 5, 2017 (Exhibit 9), instead merely sending them to the Clack Authors to consider.

Thus, to Dr. Jacobson's knowledge, there was no effort by any editor of PNAS to investigate the assertions of fabrication and falsification either before or after publication of the Clack Article, as required under COPE.

The Clack Article Contained False and Misleading Information

37. As noted *supra*, the Clack Article contained false and misleading information. On February 28 and March 2, 2017, Dr. Jacobson provided the PNAS editorial board with specific comments setting forth in detail thirty false and five misleading statements in the Clack Article. Exhibits 8, 16.

38. On May 4, 2017, Mr. Salsbury transmitted the accepted version of the Clack Article to Dr. Jacobson. Exhibit 17. Upon reviewing it, Dr. Jacobson found that none of the falsehoods and misleading statements in the Clack Article, which he had pointed out in his February 28 and March 2, 2017 comments, had been addressed. In the face of NAS's apparent decision to allow the Clack Article to be published in PNAS, Dr. Jacobson tried yet again to warn NAS of the falsehoods and misrepresentations the Clack Article contained. On May 5, 2017, Dr. Jacobson emailed to Mr. Salsbury a new document, pointing out the errors in the Clack Article line-by-line. Exhibit 9. The contents of Exhibit 9 are incorporated herein by reference as if fully set forth herein.

39. On May 9, 2017, PNAS forwarded to Dr. Jacobson a slightly revised version of the Clack Article after the authors had read Dr. Jacobson's line-by-line comments. The version of the Clack Article emailed to Dr. Jacobson on May 9, 2017 made only some changes in response to Dr. Jacobson's thirty-five comments, leaving the primary false and misleading statements, particularly false claims of model error, unchanged. NAS published this May 9, 2017 version (Exhibit 11) of the Clack Article in PNAS, a version that contained most of the

major falsehoods and misrepresentations about which NAS and the Clack Article authors had been alerted by Dr. Jacobson. Three falsehoods and misstatements were particularly egregious and these are described in the next section. Dr. Jacobson also continues to object to all of the other remaining falsehoods and misrepresentations.

Major Falsehoods And Misleading Statements In The Clack Article

40. The Clack Article, which NAS agreed to publish in PNAS over Dr. Jacobson's objections, contained numerous factually false and misleading statements. Among the most damaging falsehoods is the Clack Article's claim that the Jacobson Article contains several modeling errors that "invalidate the results in the studies, particularly with respect to the amount of hydropower available . . .." Exhibit 11 at p. 3 (Clack Article at 6724). Baseless allegations of modeling errors can be found throughout the Clack Article. These allegations are relevant and particularly damaging to Dr. Jacobson, whose main research work is on the development and application of numerical computer models.

41. Consistent with the editorial and publication policies established by NAS for PNAS submissions, Dr. Clack and the only two coauthors who admitted to doing work for the Clack Article (other than writing the paper), could have, instead of writing a Research Report, written a Letter for publication in PNAS merely asserting differences in opinion about, for example, whether it was practical or costly to install large numbers of additional hydropower turbines to a dam or whether any particular assumption was reasonable or not. However, rather than submitting a Letter noting differences of opinion with the Jacobson Article, the submission from Dr. Clack and his co-authors is replete with harshly-written false statements of material fact that both NAS and the authors of the Clack Article knew were false based on, in one case, an email chain with Dr. Clack, and in other cases, information in the Jacobson Article itself and

data and information provided by Dr. Jacobson to NAS and the Clack Authors prior to publication. Dr. Clack refused to correct the statements, and NAS, in particular, Editor Dr. B.L. Turner and Editor-in-Chief, Dr. Inder Verma, agreed to publish the Clack Article with evidence that it contained false statements and without following PNAS and COPE policy requiring that allegations of fabrication and falsification be investigated, causing significant damage to the reputations of the Jacobson Authors and, in particular, Dr. Jacobson. There are three particularly egregious false statements.

42. The first materially false statement made by the Clack Authors is that Table 1 of the Jacobson Article contained *maximum* values. In fact, all numbers in Table 1 are *average* values. The Clack Authors use their false characterization to invent non-existent additional problems with the Jacobson Article. NAS was informed three times (February 28, 2017, March 2, 2017, and May 5, 2017) of this mischaracterization and the need for a correction by the Clack Authors. The Clack Authors received one of these correction requests on May 5, 2017, prior to publication. Exhibit 10. NAS, however, did not require the Clack Authors to make this correction, nor did NAS itself investigate the allegation of false information, and the Clack Authors refused to make the correction by ignoring the request. As a result, NAS and Dr. Clack knowingly allowed the false claim to be published. This is a basic error by Dr. Clack and NAS that was easily correctable, yet despite three warnings by Dr. Jacobson before publication and despite Dr. Jacobson's requests for retraction of the Clack Article after publication, NAS, Dr. Turner, and Dr. Verma knowingly and intentionally refused to require correction of this error making Dr. Jacobson appear as if he had made a "modeling error."

43. More specifically, the Clack Article asserts the following alleged modeling error:

> Similarly, as detailed in SI Appendix [to the Clack Article], section S1.2, the total amount of load labeled as flexible in the figures of [the Jacobson Article] is

> much greater than the amount of flexible load represented in their supporting tabular data. In fact, the flexible load used by LOADMATCH is more than double the maximum possible value from table 1 of [the Jacobson Article]. The maximum possible from table 1 of [the Jacobson Article] is given as 1,064.16 GW, whereas figure 3 of [the Jacobson Article] shows that flexible load (in green) used up to 1,944 GW (on day 912.6). Indeed, in all the figures in [the Jacobson Article] that show flexible load, the restrictions enumerated in table 1 of [the Jacobson Article] are not satisfied.

Exhibit 11 (Clack Article at p. 6724). In fact, the 1,064.16 GW from Table 1 of the Jacobson Articles, referred to in the paragraph above, is an *average* load, not a *maximum* load, and nowhere does the Jacobson Article text state that this is a *maximum* load. Dr. Clack and his co-authors fabricated the assertion that it was a maximum load as well as their concomitant conclusion that it was a modeling error. Even after Dr. Clack was notified of its falsehood, he knowingly refused to correct it.

44. Similar false statements were made in the February 2017 draft of the Clack Article. Exhibit 7 (Feb. 2017 draft Clack Article at p.3). Dr. Jacobson's February 28, 2017 reply to PNAS documenting and requesting correction of the thirty errors and five misrepresentations, specifically addressed this modeling error claim under Item No.17:

> False. This statement indicates the failure of a single one of 21 co-authors to read carefully even past the first page of Jacobson et al. (2015b), who they are criticizing. As clearly stated on the second page (15,061) of Jacobson et al. (2015b), Table 1 is an annual-average load, not a maximum load. As also clearly stated on page 15,061, the annual heating and cooling loads are distributed every 30 seconds according to the number of heating and cooling degree days, respectively, each year. Thus, the flexible load at any moment could be higher or lower than the average load in Table 1. Figure 3 is perfectly fine. The LOADMATCH code also contains this information, which the authors of the commentary could easily have requested but failed to do so.

Exhibit 8 at pp. 9-10.

45. Similarly, in his May 5, 2017 request for a retraction, Dr. Jacobson, replying line-by-line to the May 4, 2017 version of the Clack Article, again addressed this false claim, as follows:

> "(25) False. As clearly stated on the second page of [the Jacobson Article], p.15,061) Table 1 is an annual-average load, not a maximum load. As also clearly stated on page 15,061, the annual heating and cooling loads are distributed every 30 seconds according to the number of heating and cooling degree days, respectively, each year. Thus, the flexible load at any moment could be higher or lower than the average load in Table 1.

Exhibit 9 at p.11.

46. The specific language from the Jacobson Article to which Dr. Jacobson was referring reads:

> The 2050 annual cooling and heating loads (Table 1) are distributed in LOADMATCH each 30-s time step each month of 2050-2055 in proportion to the number of cooling- and heating-degree days, respectively, each month averaged over the United States from 1949 to 2011.

Exhibit 3 (Jacobson Article at p. 15061).

47. Thus, the flexible load at any moment may be higher or lower than the average load in Table 1. Figure 3 shows the instantaneous load, and the instantaneous load, averaged over a year, matches the annual average load given in Table 1. Accordingly, the figure in the Jacobson Article is accurate. The LOADMATCH code also contains this information, and Dr. Clack could have requested output from Dr. Jacobson prior to publication, but he did not. Instead, Dr. Clack waited until three weeks after the Clack Article was published before he requested output data from the Jacobson Article model. Moreover, this late request indicates that the Clack Article's authors failed to conduct the due diligence required of professional researchers performing research, particularly when criticizing another study. Notwithstanding the fact that the Jacobson Article itself indicates the values in Table 1 are average values and nowhere states they are maximum values, if the Clack Authors had requested output data ahead of publication as due diligence requires, they could not possibly have made this mistake.

48. Specifically, on July 11, 2017, the day after Dr. Clack requested the Jacobson Article model output (and three weeks after publication of the Clack Article), Dr. Jacobson sent to Dr. Clack (copying Dr. Verma and Mr. Salsbury) the data and the following explanation (Exhibit 18 at pp. 4-5):

> Second, with regard to your claim that the numbers in Table 1 of our paper are maximum numbers, and that as a result our figures show a modeling error, that claim is also unequivocally wrong, as proven here and as also indicated in our 2015 paper itself.
>
> Specifically, the sum, over the 30-second time series for 6 years, of all energy that is flexible or coupled with TES storage is 46449.0718411728 TWh. Dividing by the number of hours of simulation (52547.9874993792 hours) gives the average load that is flexible or coupled with storage as 0.883936265717532 TW (or ~884 GW), which is within roundoff error of the 884.03 GW at the bottom of Column 5 of Table 1 of our 2015 PNAS paper.
>
> As such, the 884.03 GW in Column 5 of Table 1 is an AVERAGE value, not a maximum value. Similarly, the sum, over the 30-second time series for 6 years, of all energy used for H2 production and compression is 9468.62071183395 TWh. Dividing this by the number of hours of simulation gives 0.180189978007165 TW (~180.1899 GW), which is also within roundoff error of the 180.2 GW in the bottom of Column 6 of Table 1), indicating again that the values in Table 1 are average values, not maximum values. In fact, all loads in Table 1 are AVERAGE loads, not maximum loads.
>
> So, to sum clearly, the values in Table 1 are average loads, and there is nothing in the text that hints in any way that these are maximum loads.

49. As explained above, Dr. Clack falsely claimed the Jacobson Article contained a modeling error because Dr. Clack falsely asserted that a number in a table was a maximum value when, in fact, the text clearly indicated that the number was an annual load that varied in time, not a maximum number, and this was confirmed in subsequent letters from Dr. Jacobson to NAS and to Dr. Clack. Nowhere in the text of the Jacobson Article was the word "maximum" used to describe that number. Although Dr. Clack and all coauthors were informed their claim was an error, they refused to correct it. Dr. Verma and Mr. Salsbury were copied on the letter of

July 11, 2017 (Exhibit 18) that contained the complete explanation of the data provided to Dr. Clack with regard to Table 1, yet refused to retract the Clack Article. Instead, NAS not only published the Clack Article in PNAS knowing that this egregious and damaging false claim existed, but has kept the Clack Article available to the public through the on-line version of PNAS knowing that the intentionally false claim exists in the Clack Article. The false claim in the Clack Article that Dr. Jacobson and his co-authors committed a "Modeling Error" is particularly harmful and damaging to Dr. Jacobson's reputation because his primary expertise is computer modeling.

50. The second particularly egregious materially false statement intentionally made by the Clack Article authors is the false claim that they were unaware of the Jacobson Article's hydropower assumption, and their resulting assertion of a "Modeling Error" rather than acknowledging the assumption. Specifically, in the published Clack Article, the Clack Authors assert, "This error is so substantial that we hope there is another explanation for the large amounts of hydropower output depicted in these figures." Exhibit 11 at p. 8 (Supporting Information ("SI")) at §S1.1). Dr. Clack and his co-authors are referring to the fact that several figures in the Jacobson Article show much higher hydropower discharge rates than indicated by the installed capacity of hydropower (which always equals the maximum possible annual-averaged discharge rate) as given in Table S2 of the Jacobson Article.

51. However, Dr. Clack knew there was "another explanation" because ***more than a year*** prior to the publication of the Clack Article, he asked Dr. Jacobson about this assumption and received a written reply on February 29, 2016, *See* Exhibit 4 (2/29/16 Jacobson email to Clack). The February 29, 2016 email was followed up with a long email exchange over several days. Specifically, Dr. Clack was informed as follows by Dr. Jacobson on February 29, 2016:

> I looked into the issue of the high discharge rate of conventional hydro, and it turns out the numbers in the figure are correct as simulated; however, I did neglect to clarify that we increased the number of generators/turbines for each hydro plant (without increasing the dam capacity) and neglected to include the additional cost for turbines/generators; however, the additional costs are relatively minor in comparison with other costs as shown here.

Exhibit 4 at p. 1. Having been informed specifically of the interpretation of the figures and table in question almost 16 months prior to publication, Dr. Clack's statement in the Clack Article that "we hope there is another explanation" is intentionally misleading.

52. To make matters worse, NAS, Dr. Verma, and Dr. Turner knew from Dr. Jacobson's communications with the PNAS editorial board that Dr. Jacobson explained to Dr. Clack in late February 2016, more than a year before the Clack Article was published, that the high discharge rate of hydropower in the figures was not a modeling error at all but an intentional assumption. *See e.g.*, Exhibits 4, 19, 20. There were no mathematical or computational errors in any of the underlying models. Rather, Dr. Jacobson and his co-authors made an intentional modeling assumption of increasing the maximum possible discharge rate of hydropower by adding turbines to existing dams while keeping the annual average hydropower output (thus water flow) constant. The increase in the maximum hydropower discharge rate is seen in Figures 2b, S4b, and S5b of the Jacobson Article. Holding the annual hydro power (thus energy) supply constant is stated explicitly in Footnote 4 of Table S2 of the Jacobson Article, and shown clearly from the 6-year hydropower output in Table 2 (2413 TWh), which corresponds exactly to the 6-year (72-month) summed output shown in Figure 2b of the Jacobson Article. What was not clear in words from the article and from Table S2 of the paper was that the high discharge rates in Figures 2b, S4b, and S5b were due to adding turbines to existing dams. However, this was explained clearly to Dr. Clack on February 29, 2016, upon his

request for clarification, and subsequently to NAS multiple times, prior to and after publication of the Clack Article.

53. When told about the assumption, Dr. Clack stated on March 2, 2016, "I am not disagreeing with the possibility that it can be done with CSP and hydro, etc., I just think the costs are skewed quite badly by getting all this free dispatchable power." Exhibit 5 (3/2/16 Clack email to Jacobson) at p.2. Thus, not only did Dr. Clack know exactly what the assumption was, he agreed that the assumption about increasing the hydropower discharge rate was technically possible; his only disagreement was with cost. As such, instead of Dr. Clack and his co-authors reporting accurately in the Clack Article that they were aware that Dr. Jacobson and his co-authors had made a hydropower assumption that was not clear from the Jacobson Article, and that Dr. Jacobson had acknowledged to Dr. Clack that the Jacobson Article had neglected to include the cost of adding turbines and believed the cost was low relative to the size of the entire proposed energy system, but that the Clack Authors disagreed with the cost, the authors of the Clack Article intentionally made the following material false claim in the Caption to Figure 1 of the Clack Article, "Fig. 1. This figure (figure 4B from [the Jacobson Article]) shows hydropower supply rates peaking at nearly 1,300 GW despite the fact that the proposal calls for less than 150 GW hydropower capacity. This discrepancy indicates a major error in their analysis." Similarly, false claims of model error were made in the Supporting Information and elsewhere in the main text of the Clack Article.

54. Thus, despite knowing that the so-called "discrepancy" was consistent with the assumption made by Dr. Jacobson and his co-authors, and that it was not an error in the analysis or model, Dr. Clack and his co-authors intentionally listed this "discrepancy" under "Modeling Errors" in the main text of the Clack Article, and deceitfully claimed they "hope there is another

explanation" when they knew that there was one. This second claim of "Modeling Error" has damaged Dr. Jacobson's reputation further because his main research work is computer modeling.

55. In documents sent to NAS on February 28, 2017, March 2, 2017, and May 5, 2017, Dr. Jacobson refuted the Clack Authors' false claims of this modeling error and requested NAS to send the explanation and other requests for correction to the Clack Authors. *See* Exhibits 8, 9, 16, As required by COPE, NAS also had a duty to investigate on its own the assertion of fabrication in the Clack Article. Despite Dr. Jacobson's requests, the only document NAS sent to the Clack Authors was Dr. Jacobson's May 5, 2017 document. Exhibit 10. The Clack Authors then failed to make the major corrections requested by Dr. Jacobson. Thus, they intentionally and knowingly claimed the Jacobson Authors committed a "modeling error," even going so far as to pretend they were unaware of Dr. Jacobson's explanation by stating in the Clack Article's Supporting Information: "This error is so substantial that we hope there is another explanation for the large amounts of hydropower output depicted in these figures." Exhibit 11 at p. 8 (SI at §S1.1)

56. Despite Dr. Clack's full knowledge of Dr. Jacobson's assumption from the February 29, 2016 email, and despite the fact that the Jacobson Article expressly states on the first page, "Data available upon request (from M.Z.J)," neither Dr. Clack nor a single one of his twenty co-authors ever asked Dr. Jacobson for either data or clarification (other than Dr. Clack's February 29-March 2, 2016 request for clarification discussed *supra* at ¶10) or a request for model output prior to the publication of the Clack Article. It was not until three weeks after publication of the Clack Article that Dr. Clack requested output data from the Jacobson model. *See supra* ¶¶35, 47, 48. As demonstrated in Paragraph 48 above, those data indicated in

multiple ways that the hydropower output shown in the Figures in the Jacobson Article were exactly consistent with the explanation Dr. Jacobson had provided prior to publication to Dr. Clack and his co- authors about the assumption. Thus, again, notwithstanding the fact that Dr. Clack was personally aware of the Jacobson Article hydropower assumption and that data within the Jacobson Article (Figure 2b and Table 2) indicated no mathematical or computational modeling error based on that assumption, if the Clack Authors had requested output data ahead of publication as due diligence requires, they could not possibly have made the intentionally erroneous claim that this assumption represented a "Modeling Error" in the Jacobson Article.

57. During their February 29, 2016 telephone conversation and follow-up email correspondence, Dr. Clack asked Dr. Jacobson for clarifications about the hydro assumption, including about costs, and Dr. Jacobson gave the clarifications and explanations requested. Dr. Clack not only ignored what Dr. Jacobson told him about the underlying assumptions, the Clack Article fails to acknowledge the assumption and explanations. Further, Dr. Clack affirmatively denied, in a June 20, 2017 Twitter post, that the Jacobson Authors had even made this assumption, instead once again falsely claiming that Dr. Jacobson and his colleagues had made a modeling error. Specifically, Dr. Clack stated in his twitter post, "It is a mistake. If was an assumpt. for review would have been rejected straight away. Also, all the evidence in their paper suggest mistake." Dr. Clack made this false statement before even looking at the hydropower output data, which he subsequently requested by email 21 days later (and 22 days after publication of the Clack Article), on July 10, 2017 (Exhibit 21). Further, he made this false statement with full knowledge that he was informed of the exact assumption by email on February 29, 2016 (Exhibit 4).

58. The fact that there was no modeling error in the calculation of the hydropower time series is supported by Figure 2b and Table 2 of the Jacobson Article, and independently by the spreadsheet at https://web.stanford.edu/group/efmh/jacobson/Articles/CombiningRenew/HydroTimeSeriesPNAS2015.xlsx. The assumption that Dr. Jacobson and his co-authors made was that hydropower annual energy output would stay at its near-current output (thus no increase in the annual average flow rate or hydropower energy output), but that the peak hydropower discharge rate could be increased by adding turbines. This means that during some hours of the year, more hydropower would be used, but to conserve water in the annual average, less must be used during other hours of the year so that the annual average output stayed the same.

59. Figure 2b of the Jacobson Article shows the full six-year hydropower time series. The spreadsheet at the link in the foregoing paragraph shows that the six-year total hydropower output from that Figure is 2413.37 TWh and the annual average is 402.32 TWh/yr. The six-year total is exactly consistent with the 2413 TWh reported in Table 2 of the Jacobson Article, and both numbers are exactly consistent with the 2413.38 TWh over six years and the 402.32 TWh/year reported in the spreadsheet for the same time series, but at 1-hour time resolution. Thus, all three data points show that: (a) the model of the Jacobson Article conserved annually average hydropower energy as stated in the text of the article; (b) energy was reported correctly in Table 2 of the Jacobson Article; (c) the energy times series in the monthly average was reported correctly in Figure 2b of the article; (d) the energy time series at 1-hour resolution was reported correctly in other figures of the article; and (e) the sum of energy from the 1-hour time series for all six years matched that for the monthly time series for all six years.

60. As the foregoing paragraphs explain, there was no mathematical or computational model error despite the Clack Article's false claim to the contrary. Moreover, Dr. Clack had been informed of the correct assumption as early as February 29, 2016. Further, all additional authors of the Clack Article were informed of this through Dr. Jacobson's line-by-line response, which NAS sent to Dr. Clack and his co-authors on May 5, 2017. Exhibit 10. The editorial board of PNAS was informed by email (and attachment) on February 28, 2017 (Exhibit 16) and March 2, 2017 (Exhibit 8) that there was no error with respect to this issue, and again on May 25 (Exhibit 22), June 20 (Exhibit 19) and June 26, 2017 (Exhibit 20). Further, on July 11, 2017, Dr. Verma and Mr. Salsbury were copied on an email to Dr. Clack (Exhibit 18), after Dr. Clack had requested model output from Dr. Jacobson. The letter clearly showed from the data, supplied to Dr. Clack and publicly available at the website listed above in Paragraph 58, that the Jacobson Article results were exactly correct based on the assumptions made.

61. The Clack Authors were informed of the two aforementioned false claims about Jacobson Article modeling errors prior to publication of their article but refused to withdraw their claims. Despite these requests, NAS did not require, and Dr. Clack and his co-authors did not make, any change to the Article to address these two false claims, nor did NAS investigate the claims as required by their commitment to COPE nor withdraw or later retract the Clack Article, letting stand the false claims.

62. The third particularly egregious false claim in the Clack Article was discovered by Dr. Jacobson only after publication of the Clack Article. Upon discovering this additional false claim, Dr. Jacobson informed both NAS and Dr. Clack, yet neither took any corrective action. NAS was informed by letter on August 1, 2017 (Exhibit 23) (8/21/17 letter from counsel

to Dr. Inder Verma, PNAS editor-in-chief, with enclosure). Dr. Clack was informed through social media multiple times but refused to make a change. For example, on June 19, 2017 (the day of the Clack Article publication online), Dr. Clack posted Figure 3 of the Clack Article on Twitter, stating, "Here is the increase in annual hydropower from their study. 43% up on historical." Exhibit 24. Dr. Jacobson replied to Dr. Clack by Twitter the same day, "You compare our annual Canada+US hydro to your US only. Apples v. oranges. Our gen includes Canada hydro P.2102 EES paper 2015." Exhibit 24. Despite his full knowledge of the error in Figure 3 of the Clack Article, Dr. Clack posted on Twitter Figure 3 a second time, after receiving the correction from Dr. Jacobson, on July 26, 2017 stating, "AND…generation from hydroelectricity grows 43.5% compared with annual average over last 15 years." Exhibit 25. Thus, Dr. Clack intentionally posted Figure 3 from the Clack Article a second time knowing that it misled the public by comparing U.S.-only hydropower energy output data with U.S. plus imported Canadian hydropower energy output from the Jacobson Article. This indicates malice toward Dr. Jacobson.

63. Figure 3 of the Clack Article is an entirely erroneous comparison of U.S. hydroelectric power data with data in the Jacobson Article that includes the total of U.S. hydroelectric output plus the hydroelectric output imported from Canada. By failing to subtract off the 45 TWh of Canadian imported hydropower out of 402.2 TWh of total hydropower, the Clack Authors misled readers into thinking the Jacobson Authors assumed an unreasonably high annually-averaged hydropower output.

64. Dr. Clack and his co-authors rely on their incorrect Figure 3 to claim (in Section S2.5 of the Clack Article's Supporting Information) that Dr. Jacobson and his co-authors' WWS system "consumes 43% more annual hydroelectric energy than in recent history" (Exhibit 11 at

p. 13) and (on page 6725 and in the Figure 3 caption of the Clack Article) "13% higher than the 25-year historic maximum." Exhibit 11 at p. 4. The Clack Article then further states in Supporting Information Section S2.5, "Since the authors of [the Jacobson Article] assume an increase of 43% above historical average values (see our Fig. 3) then Hoover Dam must produce 43% more electricity for a total of 6.01 TWh," Exhibit 11 at p. 13. However, of the 402.5 TWh/year hydropower output from the Jacobson Article shown in the Clack Article's Figure 3, 45 TWh/year are Canadian imports. Dr. Clack and his co-authors failed to subtract the 45 TWh/year from 402.2 TWh/year to obtain 357.2 TWh/year annual average U.S. hydropower output from the Jacobson Article. 357.2 TWh/year is only 0.2% different from the historic peak U.S. hydropower annual output of 356.5 TWh as reported in the Clack Article, not 13% higher. If the Clack Authors had investigated the source of the Jacobson Article numbers that the Clack Authors used in Figure 3 of their paper, as due diligence requires, the Clack Authors would not have made this egregious error.

Dr. Jacobson's Demands for Retraction

65. Despite Dr. Jacobson's repeated efforts to request the corrections or stop the publication of the Clack Article because of its numerous false and misleading statements and other violations of PNAS editorial policies, and without investigating a single alleged falsification or fabrication in the Clack Article, as required under its commitment to COPE, NAS published the Clack Article in the on-line edition of PNAS on June 19, 2017.

66. On June 13, 2017, Dr. Jacobson emailed Mr. Salsbury and stated, "For the record, I still consider the Clack et al. article libelous and oppose its publication." Exhibit 26 at p.1. On June 20, 2017, Dr. Jacobson emailed Mr. Salsbury requesting that the Clack Article be retracted based on the intentionally false information it contained. Exhibit 19. On June 21,

2017 (Exhibit 27) and June 26, 2017 (Exhibit 20), Dr. Jacobson again requested NAS to retract the Clack Article from PNAS. On July 7, 2017, Dr. Jacobson's counsel wrote to Dr. Inder Verma, the Editor-in-Chief of PNAS to demand a retraction. On July 11, 2017, Dr. Jacobson wrote to Dr. Clack, copying Dr. Verma, Mr. Salsbury, and the PNAS editorial staff (Exhibit 18), clearly laying out numerically how the two claims of modeling errors in the Clack Article about the Jacobson Article (discussed at length in this Complaint) were false.

67. On August 1, 2017, undersigned counsel for Dr. Jacobson again wrote to Dr. Verma, advising him that Dr. Jacobson had discovered an additional false statement in the Clack Article. *See supra* ¶62; Exhibit 23. The August 1, 2017 letter also notified Dr. Verma that in a July 26, 2017 tweet (Exhibit 25), Dr. Clack had again made a false claim that the Jacobson Article contained modeling errors.

68. To date, NAS has failed and refused to retract the Clack Article or to investigate the claims of falsification and fabrication, as required under COPE. To date, Dr. Clack and his co-authors have failed and refused to voluntarily withdraw the Clack Article.

Damaging Press Coverage of the Clack Article

69. Although NAS published a 1300-word on-line "Letter" from Dr. Jacobson responding to the Clack Article, the Letter could not and did not stop the damage from the publication of the Clack Article nor could it address the then-unknown error in Figure 3 of the Clack Article.

70. The publication of the Clack Article has caused, and is continuing to cause, damage to Dr. Jacobson's reputation. The fact that NAS agreed to publish the Clack Article as a Research Report, rather than as a Letter, has exposed the Clack Article to a much wider audience. Moreover, Dr. David G. Victor and Dr. Ken Caldeira, two of Dr. Clack's co-authors,

requested that the University of California and the Carnegie Institution of Science, respectively, issue press releases about the Clack Article. Those press releases further increased the coverage given to the Clack Article's falsely based criticisms and analysis of the Jacobson Article. A flurry of news articles, all critical of Dr. Jacobson and his co-authors despite the availability of a word-limited published response by Dr. Jacobson, were published on-line, beginning immediately after the Clack Article was published electronically on June 19, 2017. A list of those initial articles is attached as Exhibit 28. Some of the headlines of these articles include:

(a) June 24, 2017, *National Review*, "Appalling Delusion of 100% Renewables, Exposed…The National Academy of Science refutes Mark Jacobson's dream that our economy can run exclusively on 'green' energy."

(b) June 26, 2017, *The Energy Collective*, "The Case for 100% Renewables Rests on a Lie…"

(c) June 22, 2017, *Manhattan Contrarian*, "People are Starting to Catch On To the '100% Renewable Energy' Scam"

(d) June 22, 2017, *Energy In Depth*, "Study Destroys 'Tooth Fairy' Used by Activists to Try to Justify Banning Fracking."

(e) June 19, 2017, *MIT Technology Review*, Scientists Sharply Rebut Influential Renewable-Energy Plan"

(f) June 26, 2017, *Forbes*, "Debunking the Unscientific Fantasy of 100% Renewables"

(g) June 20, 2017, *New York Times*, "Fisticuffs Over the Route to a Clean-Energy Future"

(h) June 23, 2017, *Scientific American*, "Landmark 100 Percent Renewable Energy Study Flawed, Say 21 Leading Experts"

(i) June 19, 2017, *GreenTech Media*, "100% Renewables Plan Has 'Significant Shortcomings,' Say Climate and Energy Experts."

71. Many of these articles, including those by the New York Times, Forbes, Scientific American, The MIT Technology Review, The Energy Collective, Energy In Depth, The Manhattan Contrarian, The National Review, and GreenTech Media among others,

repeated the Clack Article intentionally false written claim (in the Clack Article) that the Jacobson Article contained "modeling errors." In fact, The New York Times even stated:

> The conclusion of the critique is damning: Professor Jacobson …committed 'modeling errors'… Our paper is pretty devastating," said Varun Sivaram from the Council on Foreign Relations, a co-author of the new critique.

72. The resulting headlines and articles in the press made Dr. Jacobson and his co-authors look like poor, sloppy, incompetent, and clueless researchers when, in fact, there were no "Modeling Errors" made in their study. Dr. Jacobson has acknowledged that the Jacobson Article was not clear in the actual text, including Table S2, about the hydropower assumption and that there was an omission of the cost of the additional hydropower turbines that had no impact on the conclusions of the study, but those were not errors in the model or its calculations and in no way affected any graph or energy-related output in the paper, as falsely claimed by the Clack Authors. The omission of additional turbine cost, which was subsequently calculated as ~3% of the overall cost of energy, had no impact on the conclusions of the Jacobson Article study. Further, the Clack Authors had knowledge about the Jacobson Article hydropower assumption while writing their critique, yet intentionally pretended it did not exist, going so far as to intentionally deny their knowledge of its existence in their critique. They manipulated the information to make it look like the Jacobson Authors had made serious errors when they had full knowledge of the truth. In addition to the damages to Dr. Jacobson, the press coverage has caused additional personal embarrassment. For example, his children and father read by chance some of the published accounts in the press. Two of the Ph.D. students who have since graduated but who worked on the Jacobson Article were both distraught.

73. Had NAS enforced its publication guidelines, there would have been no Clack Article or major news coverage, let alone inaccurate news coverage. At the very least, if NAS

had extended the deadline for submitting Letters, it should have required Dr. Clack to adhere to the criteria for submitting a Letter, including accuracy and word limitations. Had there been no article at all, or at the very least an *accurate* Letter much shorter in length than the Clack Article that was published, much of the damage to Dr. Jacobson could have been avoided.

COUNT I
(Defamation – Dr. Clack)

74. Dr. Jacobson repeats and re-alleges the allegations contained in paragraphs 1 through 73 above as if set forth fully herein.

75. As stated above, the Clack Article contained many false statements and misrepresentations of fact. The most egregious of these were (a) the false statements that the values in Table 1 of the Jacobson Article were maximum values when they had full knowledge and evidence that they were average values; (b) that the authors of the Clack Article were unaware of any explanation for the large peak discharge rate of hydropower depicted in three figures in the Jacobson Article when they knew first hand of the assumption underlying the figures and knew there was no "modeling error;" and (c) the false claim in Figure 3 of the Clack Article that Jacobson Article annual hydropower output was higher than historical averages when the figure compares U.S. data with Jacobson Article U.S. plus imported Canadian output. In addition to these most egregious falsehoods and misstatements, the Clack Article was replete with additional numerous falsehoods and misstatements, all included in Exhibit 12. The list of false and misleading statements from the Clack Article identified in Exhibit 12 are incorporated herein by this reference as if fully set forth herein. As explained herein and in the attached Exhibits (especially Exhibits 4, 8, 9, 10, 12, 15, 16, 18, 19, 20, 22, 23, 26, 27) the statements are demonstrably false and/or are meant to imply false assertions of fact.

76. By submitting and agreeing to publish the Clack Article in PNAS, Dr. Clack caused the publication of false statements and misrepresentations of fact to a District of Columbia, national and international scientific community audience that reads articles published in PNAS, and to the much larger additional D.C., national and international press readership.

77. The false and misleading statements in the Clack Article, identified in Exhibit 12, are defamatory towards Dr. Jacobson. As explained by Dr. Jacobson in his correspondence with Dr. Clack, Dr. Verma, Dr. Turner, Ms. Kavanaugh, and Mr. Salsbury, the statements are demonstrably false and/or are meant to imply false assertions of fact.

78. Dr. Clack knew and was informed prior to publication that many of the statements in the Clack Article were false, including two of the three most egregious statements, and after publication, he was informed of the third of the three most egregious statements, but failed and refused to correct any statements prior to publication or after publication, to withdraw the submission of the article, or to withdraw the article after publication. In particular, Dr. Clack was informed, with respect to the second alleged modeling error (discussed above in Paragraphs 50-61), of the correct interpretation of model assumptions on February 29, 2016. Dr. Clack ignored the explanations and clarifications given by Dr. Jacobson and submitted an article intentionally falsely claiming that Dr. Jacobson and his co-authors had made a modeling error rather than acknowledging the Jacobson Article relied on an assumption as Dr. Jacobson had explained to Dr. Clack beginning on February 29, 2106. After the email exchange in late February/early March 2016, neither Dr. Clack nor his coauthors ever asked for clarifications with respect to any issue in the paper and at no time prior to publication of their article did they request data from the code or the code itself to examine the issues they later claimed were model errors, as due diligence requires; Dr. Clack was again informed in May and June 2017 of

the many claims in the Clack Article that were false but Dr. Clack refused to correct these false claims.

79. That Dr. Clack acted intentionally and maliciously is further demonstrated by his actions after publication. For example, he posted a defamatory twitter the day after the Clack Article was published (Exhibit 29) and again just a few weeks after NAS published the Clack Article (Exhibit 25), again falsely asserting that the Jacobson Article contains a modeling error.

80. By way of further example of his malice, on August 24, 2017, Dr. Clack, in an effort to discredit a completely different scientific article by Dr. Jacobson, published on August 23, 2017, tweeted, "Shame the work by similar authors, on grid reliability, was discredited," while linking to the Clack Article. Exhibit 30. On the same day (August 24, 2017), Dr. Caldeira, another Clack Author, did the same thing. He stated on twitter, "Estimated peaking needs in this study rely on MZJ's discredited PNAS paper." *See* pnas.org/content/114/26… @clacky007, where the link is to the Clack Article and the study he is referring to is a newly-published paper by Dr. Jacobson and colleagues. Dr. Clack's use of the published Clack Article to purposely discredit Dr. Jacobson's other paper demonstrates Dr. Clack's malice and ill will toward Dr. Jacobson.

81. Dr. Clack, in publishing the statements in the Article and in his post-publication tweets, and in refusing to retract the Clack Article, has acted with intentional, reckless or callous disregard of Dr. Jacobson and his reputation.

82. Dr. Clack's actions have proximately caused, and continue to proximately cause, damage to Dr. Jacobson. The publication of the Clack Article has exposed Dr. Jacobson to ridicule and has injured him in his reputation.

COUNT II
(Defamation – NAS)

83. Dr. Jacobson repeats and re-alleges the allegations contained in paragraphs 1 through 82 above as if set forth fully herein.

84. As stated above, the Clack Article contained many false statements and misrepresentations of fact. The most egregious of these were (a) the false statements that the values in Table 1 of the Jacobson Article were maximum values when they had full knowledge and evidence they were average values; (b) that the authors of the Clack Article were unaware of any explanation for the large peak discharge rate of hydropower depicted in three figures in the Jacobson Article when they knew first hand of the assumption underlying the figures and knew there was no "modeling error;" and (c) the false claim in Figure 3 of the Clack Article that Jacobson Article annual hydropower output was higher than historical averages when the figure compares U.S. data with Jacobson Article U.S. plus imported Canadian output. In addition to these most egregious falsehoods and misstatements, the Clack Article was replete with additional numerous falsehoods and misstatements. The false and misleading statements in the Clack Article are identified and set forth in Exhibit 12, and are incorporated herein by this reference as if fully set forth herein.

85. By publishing the Clack Article in PNAS, NAS knowingly and intentionally published false statements of fact and misrepresentations of fact to the District of Columbia, national and international scientific community audience that reads articles published in PNAS, and to the additional larger readership of the press coverage negative to Dr. Jacobson and his co-authors following the publication of the Clack Article.

86. Although NAS, through communications received by its agents Mr. Salsbury, Editor Dr. B.L. Turner, and Editor-in-Chief, Dr. Inder Verma, knew these statements are false

and knew the basis for Dr. Jacobson's assertion that they are false, and although NAS has adopted a policy for PNAS requiring that published papers "be free of fabrication, falsification, and plagiarism as defined by the US Office of Research Integrity," and although NAS admits that it is a member of COPE and that PNAS subscribes to its principles, which include investigating allegations of fabrication, the editorial board of PNAS never investigated the allegations brought forth by the Jacobson Authors. Instead, NAS, having been advised three times prior to publication, by way of Dr. Jacobson's written notifications to Mr. Salsbury, Ms. Kavanagh, Dr. Turner and Dr. Verma that the Clack Article contained incorrect statements of material fact, intentional falsification of data, or intentional omissions, and three times after publication by way of two letters and being copied on a third, NAS allowed the Clack Article to be published and has refused to retract it, resulting in significant damage to the reputation of Dr. Jacobson.

87. The false and misleading statements in the Clack Article (Exhibit 12) are defamatory towards Dr. Jacobson. As explained herein and in the attached Exhibits (especially Exhibits 4, 8, 9, 10, 12, 15, 16, 18, 19, 20, 22, 23, 26, 27) the statements are demonstrably false and/or are meant to imply false assertions of fact.

88. NAS, and in particular Mr. Salsbury, Drs. Verma, and Dr. Turner, knew the statements were false and misleading prior to publication, or recklessly disregarded their truth or falsity by failing to investigate their truth or falsity as required by their own policies and by COPE, whose principles NAS ascribes to. Moreover, NAS failed and refused to require Dr. Clack to correct the statements prior to publication. NAS published the Clack Article in PNAS knowing that it contained numerous false and misleading statements, or in reckless disregard of whether the statements were true or false. Prior to publication, NAS was informed three times

and knew the basis for Dr. Jacobson's assertion that they are false, and although NAS has adopted a policy for PNAS requiring that published papers "be free of fabrication, falsification, and plagiarism as defined by the US Office of Research Integrity," and although NAS admits that it is a member of COPE and that PNAS subscribes to its principles, which include investigating allegations of fabrication, the editorial board of PNAS never investigated the allegations brought forth by the Jacobson Authors. Instead, NAS, having been advised three times prior to publication, by way of Dr. Jacobson's written notifications to Mr. Salsbury, Ms. Kavanagh, Dr. Turner and Dr. Verma that the Clack Article contained incorrect statements of material fact, intentional falsification of data, or intentional omissions, and three times after publication by way of two letters and being copied on a third, NAS allowed the Clack Article to be published and has refused to retract it, resulting in significant damage to the reputation of Dr. Jacobson.

87. The false and misleading statements in the Clack Article (Exhibit 12) are defamatory towards Dr. Jacobson. As explained herein and in the attached Exhibits (especially Exhibits 4, 8, 9, 10, 12, 15, 16, 18, 19, 20, 22, 23, 26, 27) the statements are demonstrably false and/or are meant to imply false assertions of fact.

88. NAS, and in particular Mr. Salsbury, Drs. Verma, and Dr. Turner, knew the statements were false and misleading prior to publication, or recklessly disregarded their truth or falsity by failing to investigate their truth or falsity as required by their own policies and by COPE, whose principles NAS ascribes to. Moreover, NAS failed and refused to require Dr. Clack to correct the statements prior to publication. NAS published the Clack Article in PNAS knowing that it contained numerous false and misleading statements, or in reckless disregard of whether the statements were true or false. Prior to publication, NAS was informed three times

that both of Dr. Clack's claims of modeling error were erroneous and that Dr. Jacobson had provided Dr. Clack with correct explanations. However, the editors of PNAS forwarded only one of these documents to Dr. Clack and his colleagues and did not investigate the allegations themselves.

89. NAS exacerbated the situation when it refused Dr. Jacobson's demands that it retract the Clack Article after it was published.

90. By publishing the Clack Article even after being notified numerous times by Dr. Jacobson before publication that it contained materially false statements injurious to Dr. Jacobson's reputation, NAS acted with malice. By refusing to correct the Clack Article before publication or retract it after publication after Dr. Jacobson (directly and through counsel) demanded that it do so, NAS continued to act maliciously toward Dr. Jacobson.

91. NAS, in publishing the statements in the Article and refusing to retract the Clack Article, has acted with intentional, reckless or callous disregard of Dr. Jacobson and his reputation.

92. The actions of NAS have proximately caused, and continue to proximately cause, damage to Dr. Jacobson. The publication of the Clack Article has exposed Dr. Jacobson to ridicule and has injured him in his reputation in both his personal life, work life, and public life.

COUNT III
(Breach of Contract – NAS)

93. Dr. Jacobson repeats and re-alleges the allegations contained in paragraphs 1 through 92 above as if set forth fully herein.

94. As described herein, NAS has specific policies governing its acceptance of written submissions from authors for publication in PNAS. These policies constitute a contract

between NAS and Dr. Jacobson entered into when Dr. Jacobson first submitted the 2015 Jacobson Article.

95. Prior to submitting the Jacobson Article for publication in PNAS, Dr. Jacobson was aware of the publication policies of NAS which governed submissions to PNAS and which would govern not only his submission, but the submissions of any authors responding to the Jacobson Article. Dr. Jacobson's selection of PNAS as the journal for his article, to the exclusion of all other scientific journals, constituted consideration for the implied agreement of NAS that it would adhere to its publication policies for all publications.

96. NAS materially breached its contract with Dr. Jacobson when it agreed to publish the Clack Article in violation of the publishing criteria applicable to publications in PNAS. NAS failed to enforce the requirements for Letters and Research Reports, and further materially breached its contract with Dr. Jacobson by publishing the Clack Article notwithstanding the fact that the article did not include a full and accurate disclosure of conflicts of interest prior to review of the article by anonymous referees; failed to comply with the "authorship" requirements and failed to disclose the authorship list to anonymous referees; failed to comply with the requirement that the Research Report contain "original research of exceptional importance," and failed to comply with the requirement that articles be free of falsification and fabrication.

97. Further, NAS is a member of COPE and states on the PNAS website that PNAS subscribes to its principles." Despite a requirement to investigate every single claim of fabrication both before and after publication of an article (*see* https://publicationethics.org/files/Fabricated%20data%20A.pdf and https://publicationethics.org/files/Fabricated%20data%20B.pdf, respectively), NAS failed to do so.

98. The material breach of NAS of its contract has proximately caused Dr. Jacobson to suffer, and to continue to suffer, damages.

COUNT IV

(Promissory Estoppel – NAS)

99. Dr. Jacobson repeats and re-alleges the allegations contained in paragraphs 1 through 98 above as if set forth fully herein.

100. The publication and editorial policies governing submissions for publication in PNAS constituted a promise by Defendant NAS to authors submitting publications that all authors would be required to adhere to the same policies. NAS should have reasonably expected that Dr. Jacobson would be induced by those promised policies to choose to submit the Jacobson Article to NAS for publication in PNAS, rather than submitting the article to any other competing scientific journal.

101. Dr. Jacobson was in fact induced by the promised publication policies, which he had every reasonable expectation would be enforced against all authors, to submit the Jacobson Article for publication in PNAS rather than any other competing scientific journal. Injustice to Dr. Jacobson can be avoided only by enforcement of NAS's promised publication policies by ordering NAS to retract the Clack Article.

PRAYER FOR RELIEF

WHEREFORE, Plaintiff Dr. Jacobson respectfully requests that this Court:

(a) Enter judgment in his favor;

(b) Order NAS to retract the Clack Article;

(c) Award Dr. Jacobson damages against NAS, to be determined at trial believed to be in excess of Ten Million Dollars ($10,000,000.00);

(d) Award Dr. Jacobson damages against Dr. Clack, to be determined at trial believed to be in excess of Ten Million Dollars ($10,000,000.00);

(e) Award Dr. Jacobson punitive damages against NAS;

(f) Award Dr. Jacobson punitive damages against Dr. Clack;

(g) Award Dr. Jacobson's costs and reasonable attorney's fees; and

(h) Award Dr. Jacobson any and all other relief as this Court deems just and proper.

JURY DEMAND

Plaintiff Dr. Jacobson hereby demands a trial by jury on issues so triable.

Dated: 9/29/17

COHEN SEGLIAS PALLAS GREENHALL & FURMAN, P.C.

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