

**“Alternatives, Ends and the Devil’s Due!: Why Alternative Fuel Sources Should Trump Carbon Based Fuel Sources (A Relational Ethics Analysis of the Debate)”**

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## ***Introduction***

**The sky is falling.** There are intense emotions, academic research, governmental studies, political banter and casual discussions occurring on a daily basis concerning the current and future state of the Earth's atmosphere and/or climate regarding global warming. The term global warming, actually a misnomer.<sup>1</sup> A basic understanding of global warming is that the Earth's atmosphere is retaining heat and consequently warming as a matter of several gases (known as greenhouse gases). Weather patterns, ocean levels, geographic conditions and, perhaps, human existence are undergoing a resulting state of change.<sup>2</sup> The changes as a whole are not beneficial.<sup>3</sup> The major agent inducing change in the Earth's atmosphere is carbon dioxide (CO<sub>2</sub>), which originates from the processing and use of fossil fuels.<sup>4</sup>

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<sup>1</sup> Some commentators reason that the term global warming does not accurately reflect, good, bad or necessarily warm or cold climate changes. The Woods Hole Research Center director, John Holdren proposes "climate disruption." While others suggest "human induced global disruption." See transcript from *The Candidates on Climate* (Living on Earth radio broadcast, week of February 22, 2008), available at <http://www.loe.org/shows/segments.htm?programID=08-P13-00008&segmentID=2>, segment discussing the use of the word "global warming." This article will use a variation of the term and note human induced atmosphere and climate disruption (HIACD).

<sup>2</sup> For various discussions on potential crop, human and planetary changes see, e.g., Nancy Stauffer, *MIT: Human-generated Ozone Will Damage Crops*, 52 MIT TECH TALK 1, 5 (2007), discussing the consequences of human cause carbon dioxide emissions and the damaging results to the ozone layer and subsequent environmental damage; see also Mark Jaccard, *Designing Canada's Low-Carbon Diet: Options for Effective Climate Policy* (Nov. 28, 2007), in C.D. HOWE INST., BENEFACTORS LECTURE, November 2007 at 2-5, discussing catastrophic global conditions regarding carbon dioxide emissions; see Donald A. Brown, *The Importance of Expressly Examining Global Warming Policy Issues Through an Ethical Prism*, 12 PENN. ST. ENVTL. L. REV 147, 148-48 (2004) (same); see Alan Carlin, *Global Climate Change Control: Is there a Better Strategy than Reducing Greenhouse Gas Emissions?*, 155 U. PA. L. REV. 1401, 1419-28 (2007) (same).

<sup>3</sup> See *supra* note 2 and accompanying text.

<sup>4</sup> See Ian W.H. Parry, Margaret Walls, and Winston Harrington, *Automobile Externalities and Policies* (June 2006, revised January 2007) (unpublished discussion paper, on file with Resources for the Future); see also A LOW-CARBON FUEL STANDARD FOR CALIFORNIA: PART 2: POLICY ANALYSIS at 3 and *passim* (California Board of Regents, ed., 2007), discussing fossil fuels and biofuels regarding carbon dioxide emissions.

The good news is that the CO<sub>2</sub> emissions produced by such fossil fuels—process and use wise—are largely controllable by human efforts.<sup>5</sup> The bad news is that such human efforts at various levels involve difficult choices, dynamics and costs.<sup>6</sup> Moreover, most courses of action suggested in reducing and/or eliminating CO<sub>2</sub> emissions, which usually demonstrate significant promise in theory, lack significant practical results in the short term.<sup>7</sup> Some type of remedial action must occur in the short term with a goal of helping the atmosphere in the long term. The efforts must begin sooner versus later, however. Thus, the race is on for hope that a solution concerning atmosphere stabilization will benefit future generations and the planet.

The purpose of this article, then, is to review the human efforts that might alleviate CO<sub>2</sub> emissions involved in greenhouse gas affects and to offer ethical considerations that might lead to solutions and courses of action involving the development and use of alternative fuel sources—namely biofuels. Typically, proposed human efforts to alleviate CO<sub>2</sub> emissions involve background analyses concerning scientific, economic, legal and—specific to this article—ethical and/or moral considerations.<sup>8</sup> Most of the research and debate concerning redressing the global warming situation involve analyzing the abatement of CO<sub>2</sub> emissions through regulations involving cap and trade measures or tax provisions that transfer the costs and affects of such emissions onto corporate and individual consumers.<sup>9</sup> Yet, such research and the resulting solution positions still allow

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<sup>5</sup> For a discussion on various proposed efforts to reduce carbon dioxide emissions relating to greenhouse gas difficulties, see EVALUATING THE ROLE OF PRICES AND R&D IN REDUCING CARBON DIOXIDE EMISSIONS, H.R. PUB. NO. 2731, *passim* (2006); see also POLICY OPTIONS FOR REDUCING CO<sub>2</sub> EMISSIONS, H.R. PUB. NO. 2930, *passim* (2008); see Carlin *supra* note 2 at 1428 and *passim*; see also Jaccard *supra* note 2 at 4-8 and *passim*.

<sup>6</sup> *Supra* notes 2 and 5 and accompanying text.

<sup>7</sup> *Ibid.*

<sup>8</sup> *Id.*

<sup>9</sup> *Id.*

CO<sub>2</sub> emissions. The problem is one of shuffling polluters and not necessarily reducing CO<sub>2</sub> emissions through any viable method.<sup>10</sup> Although, the analyses are rich concerning scientific, economic and legal methodology involving ability, costs and liability issues regarding resolving global warming, most research addressing the problem rarely posits any in-depth ethical considerations of the situation.<sup>11</sup> Should one take the path of solution in light of the affects on the entire environment?

One useful ethical analysis, explored *infra*, involves considering several factors: (a) the relationship between humanity, the planet (environment) and other creatures, (b) the relationship between current and future (non-existent) generations and (c) how ethical relational models might address the urgency of using alternative fuel sources versus continuing to emit CO<sub>2</sub> into the atmosphere?

The methodology of this article considers mainly two perspectives in ethics, relational and responsibility ethics models, to guide the examination on the debate regarding the viability of whether to fast track the use and development of alternative fuel sources, such as biofuels, versus limiting the emissions of CO<sub>2</sub> from fossil fuel sources. Generally, the two ethical perspectives involve base positions concerning (1) human responsibility considerations and (2) that of a divine or predetermined responsive ethics consideration.<sup>12</sup> From each of these base perspectives, a third ethical view in

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<sup>10</sup> See *Carbon Trading: A Critical Conversation on Climate Change, Privatisation [sic] and Power*, 48 DEV. DIALOGUE 1, 5-198 (Niclas Hallstrom, Olle Nordberg and Robert Osterbergh, eds., 2006).

<sup>11</sup> But see Lucia A. Silecchia, *Environmental Ethics from the Perspective of NEPA and Catholic Social Teaching: Ecological Guidance for the 21st Century*, 28 WM. & MARY ENVTL. L. & POL'Y REV. 659 (2004), approaching a review of HIACD from an ethical, legal and Catholic based perspective; see also Brown *supra* note 2, *passim*.

<sup>12</sup> For more in-depth discussions on such ethics matters, see, e.g., Wolfgang Huber, *Toward an Ethics of Responsibility*, 73 J. OF RELIGION 573 (1993); see also Robin W. Lovin, *The Limits of Freedom and the Possibilities of Politics: A Christian Realist Account of Political Responsibility*, 73 J. OF RELIGION 559 (1993); Kathryn Tanner, *A Theological Case for Human Responsibility in Moral Choice*, 73 J. OF RELIGION

consequential ethics will also shape this article's examination of the fast track use and development of alternative fuel sources. Using these three ethical considerations, this article will attempt to analyze the scientific, economic and legal positions regarding global warming and offer a proposed relational ethics model that supports the initiation and fast tracking of using and developing alternative fuel sources to help significantly eliminate human generated CO<sub>2</sub> emissions.

The format of this article will begin by providing a base description of the two main ethical philosophies that will serve as a measure for evaluating current research and policy considerations regarding global warming. To this end, section one will discuss relational and responsibility ethics models. Section two will examine the scientific research and opinions on global warming in comparative to the relational ethics model. Section three will offer an in-depth examination of the relational ethics model by way of comparing the scientific research and opinions of section two concerning the issue of global warming, limiting of fossil fuel use and the viability of fast tracking the use and development of alternative fuels.

Section four will examine a consequential ethics model to answer the question of whether alternative fuels work in conjunction with a relational ethics model. Section five examines the economic research and opinions on global warming in comparative to the relational ethics model. Section six offers a short commentary regarding legal liability theory involving issues in consequence concerning global warming and ultimately proposes a mixing of the relational and consequential ethics models prescribed throughout to address the viability of the use and development of alternative fuel sources

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592 (1993); see Kent Greenawalt, *Shortfalls of Realism, Shared Social Values, and Authority: The Problem of Political Coercion*, 73 J. OF RELIGION 537 (1993).

to resolve the issue of global warming. Finally, this article will provide some concluding remarks concerning the author's overall position on the importance of proceeding forth in serious ethical considerations and taking definitive acts to attack the global warming crises.

### **I. Realist (Relational) Ethics and Responsibility (Rational) Ethics**

For the remainder of this article I will use the term human induced atmosphere and climate disruption (HIACD) versus global warming—especially since the origin and release of adverse greenhouse gases are largely a human effort; particularly those that result from carbon based fuels.<sup>13</sup> In addition, because human activity controls the large part of CO<sub>2</sub> emissions, the ethics models chosen in this article involve that of a realist ethics (relational ethics model).<sup>14</sup> Initially, I will contrast that model with a responsibility (rational—solely human concern) ethics model for the sake of background and informational comparisons.<sup>15</sup> One final introductory note on ethics models, most ethics considerations concern not only choices in acts but also results.<sup>16</sup> Consequently, to tie together the ethics analyses in this article, a review from a consequential ethics perspective will follow the relational and rational ethics models critiques of HIACD remedial policies and measures. The following section is an explanation of the models.

#### **A. Relational Ethics Model**

As a matter of complete and cautious consideration, an analysis in ethics concerning the HIACD problem and potential solutions seems a more complete method of compliment versus solely using scientific, economic and/or legal considerations

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<sup>13</sup> See *supra* note 5 and accompanying text.

<sup>14</sup> See *supra* note 12 and accompanying text.

<sup>15</sup> *Id.*

<sup>16</sup> For a discussion regarding choices and outcomes pertaining to ethics, see Robin W. Lovin, CHRISTIAN ETHICS: AN ESSENTIAL GUIDE 9-40 (Abingdon Press, 2000).

concerning the debate of whether to fast track the development and use of alternative fuel sources technology. This is so because the resulting solutions from scientific, economic and legal models provide either (i) emissions reduction of CO<sub>2</sub> through taxes or cap and trade methods, which merely shift the output but not eliminate CO<sub>2</sub> emissions and (ii) consider policies that call for monetary liability, which is not always an effective deterrent concerning CO<sub>2</sub> emissions.<sup>17</sup> A relational ethics model, however, seeks to determine the outcome of ethical choices through relating one's moral judgments in context of other competing human, environmental and creature priorities.<sup>18</sup> That is to say, several interdependent considerations are relevant from a relational ethics model. In addition, the model assumes that there are course of events that are static or fixed by forces beyond the control of human efforts—the element of divine priori.<sup>19</sup> Thus, a consideration in ethics goes beyond monetary and/or self-preserving or status-quo solutions.

**Prospective care.** A relational ethics model involves a series of substantial criteria for responsible action.<sup>20</sup> Wolfgang Huber list these criteria as (a) “prospective care for a shared natural, social, and cultural space of living together, (b) fairness toward the weaker [concern (*e.g.*, other humans, creatures and/or the environment)] as the test for legitimacy of actions, (c) critical evaluation of the contextual conditions of action, (d) self-limitation with respect to the rights of future generations and the dignity of nature

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<sup>17</sup> *Supra* notes 2 and 5 and accompanying text.

<sup>18</sup> *See* Huber *supra* note 12 at 574-84.

<sup>19</sup> *See supra* note 12 and accompanying text.

<sup>20</sup> The criteria used concerning such responsible action is borrowed from a related ethics model of rational of responsibility ethics as discussed by Huber *supra* note 12, *passim*. I am applying the criteria to a relational ethics model because the criteria offer significant measures to make informed decisions even in a relational context.

and (e) respect for the freedom of conscience for others as for oneself.”<sup>21</sup> In each of these criteria, the essential motivation is that humanity understands its responsiveness in relation to itself and other creation to bring about morally responsible action.<sup>22</sup> That is to say, the act and thought of a relational ethic regarding prospective care involves “[relating one’s] principles [or decisional motivations] in a reflective manner to the principles [or concerns] of others.”<sup>23</sup> Thus, the potential consequences of one’s principles undergo filtering that should lead to more responsible ethical choices because of relationship considerations regarding other’s principles.<sup>24</sup>

Each of the aforementioned criteria are important concerning the discussion of whether to fast track the use and development of alternative fuel sources to substantially address the HIACD crises. The criteria call for not only a thorough examination of human motivations, but also other creatures and nature in parallel.

### **B. Responsibility Ethics Model**

**Rational influence.** The comparison concerning a relational ethics model versus a rational ethics model may seem confusing at first blush by way of the responsibility context of both models.<sup>25</sup> Yet, the common responsibility component of the two models gives way to sole human concerns in the responsibility ethics model. Kathryn Tanner notes that “responsibility for one’s decisions is incompatible with claims [derived from a relation ethics model, which involves considerations regarding] ‘. . . what nature requires’ . . . [where] such claims are merely a way of avoiding the obligation to give one’s own

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<sup>21</sup> See Huber *supra* note 12 at 589.

<sup>22</sup> *Id.* at 587.

<sup>23</sup> *Id.* at 589.

<sup>24</sup> *Id.*

<sup>25</sup> See *supra* note 20 and accompanying text.

reasoned arguments in support of [making a decision].”<sup>26</sup> Where the relational ethics model accounts for divine priori in its determinations or considerations for all of creation, the responsibility ethics model prescribes that single human choices as a collection lead to life developments and moral outcomes as a matter of individual responsible choice.<sup>27</sup> Thus, the model relies heavily on human responsibility from a self-realization/self-act perspective.<sup>28</sup>

**Responsibility with concern.** The main content battle between a relational and rational ethics model involves the issue of responsibility aside from human effort. The case is one of religious motivation regarding ethics versus motivations that recognize human acts as the core cause of improvements and/or change to remedy life’s outcomes or predicaments. A deeper discourse in the religious underpinnings of these ethics models is beyond this article.<sup>29</sup> Yet, I note that such religious understandings are important in how one might develop a course of action toward the HIACD dilemma. From this religious notion comes the problematic apex of the models—namely what happens when human responsibility and choice are subdued through coercion or improper concern for ethical choices? The question is important in the HIACD analyses.

Kent Greenwalt notes that a relational and responsibility ethics, which he discusses as realist and responsibility ethics, are subject to individual choices and morals, but ultimately such decisions are political and/or legal and thus are enforced through a positive coercion (a necessity) or fail based on improper individual concerns absent a

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<sup>26</sup> See Tanner *supra* note 12 at 593.

<sup>27</sup> See Tanner *supra* note 12, *passim*.

<sup>28</sup> *Id.*

<sup>29</sup> Still, the context relates to Christian ethics. See Lovin *supra* note 16, *passim* for a detailed primer regarding Christian ethics.

guiding realism or preceding structure.<sup>30</sup> The problem centers on what is normative in a relational ethics model and what is normative in a rational ethics model? Ideally, Huber's criteria for responsible action should allow one to make an informed decision on a relational ethics basis.

**HIACD and ethics methodology.** As this article progresses, the base structure in ethics decisions offered by the preceding thoughts and inquiry models (using heavily if not exclusively the relation ethics model) will guide our examination of using alternative fuel and/or energy sources to tackle the HIACD problem.

## **II. Science and Ethics Model**

**The Science of science.** Scientific research concerning the affects of the HIACD problem as a reality and regarding potential remedial measures is a back-and-forth endeavor.<sup>31</sup> Depending on the source of information, conclusions, methodology, data and initial questions vary regarding HIACD causes and potential solutions.<sup>32</sup> This section presents an examination of the results of such scientific studies concerning the viability of developing and using alternative fuel sources to reduce CO<sub>2</sub> emissions and to change the current course of action regarding HIACD. To this end, similar to the relational and responsibility ethics models, this section exams an ethics model based purely upon scientific and rational thought concerning whether to use and develop alternative fuel sources.

**What we know about HIACD.** One of the main reasons for advocating a relational ethics model approach toward evaluating the HIACD problem involves the difficulty of

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<sup>30</sup> See Greenwalt *supra* note 12 at 537-41.

<sup>31</sup> Most studies continue to debate the reality of global warming, while others reject the severity of the problem. See Carlin *supra* note 2, *passim* and accompanying text.

<sup>32</sup> *Id.*

undertaking any solution regarding the problem.<sup>33</sup> No matter what evaluation one uses—scientific, economic, legal or ethical—the bleak difficulty to coordinate efforts and short-term results of measures to remedy the HIACD problem will surely offer enormous discouragement.<sup>34</sup> Yet, science offers that a remedy is possible, if not for current generations then for future generations.<sup>35</sup>

HIACD results from greenhouse gases generated by industrial pollution (*e.g.*, automobile operation and deforestation to name a few).<sup>36</sup> Greenhouse gases concentrate in the Earth’s atmosphere without a natural balance concerning absorption and removal.<sup>37</sup> This results in a higher absorption and retention of the Sun’s heat on the Earth.<sup>38</sup> The result is the Earth’s higher absorption and retention of the Sun’s heat causing atmosphere and climate disruptions. Such disruptions result in overall negative impacts on the Earth and humanity as a whole.<sup>39</sup> There are scientific inventions and solutions available that will not only reduce greenhouse gas emissions, but also change technology that causes such emissions, which will combat the absorption of the Sun’s heat.<sup>40</sup>

**Course of action based on science.** Unfortunately, the myriad analyses concerning remedying HIACD and measurement of the effectiveness of scientific creations proposed to reduce or eliminate greenhouse gas emissions mostly center on costs and lifestyle

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<sup>33</sup> *Id.*

<sup>34</sup> See Carlin *supra* note 2 at 1404, thoroughly discussing the difficulty and numerous aspects of remedying “global warming.”

<sup>35</sup> *Supra* notes 2 and 5 and accompanying text.

<sup>36</sup> See Carlin *supra* note 2 at 1419

<sup>37</sup> *Id.*

<sup>38</sup> *Id.*

<sup>39</sup> *Id.* discussing increased temperature, increased fresh water releases into ocean currents, which change ocean eco systems, rise in sea levels, changed weather patterns and deforestation. See Stauffer *supra* note 2 at 5, discussing how HIACD long-term effects potentially could cause crop reduction, animal extinction and human suffering through disease, *etc.*

<sup>40</sup> See Carlin *supra* note 2 at 1458-83, discussing geoengineering potentials (*e.g.*, reflective weather balloons) to combat HIACD.

questions.<sup>41</sup> That is to say, most analyses, although scientifically related, are economic based or driven in nature and attempt to offer market intervention solutions to tackle HIACD in relation to CO<sub>2</sub> emissions.<sup>42</sup> Such analyses produce observations that attempt to prevent the disruption of current human social, market and/or culture systems (*e.g.*, life-style choices such as automobile use).<sup>43</sup> Consequently, there seemingly exists a volitional ignorance and/or neglect concerning most science and measures regarding the use and development of alternative fuel sources and/or energy methods to combat HIACD.<sup>44</sup> Yet, several methods of alternative fuel sources exist and, as a matter of science, offer favorable courses of action to remedy HIACD and CO<sub>2</sub> emissions.<sup>45</sup>

**Biofuel.** As a matter of viability and scientific knowledge, biofuel such as ethanol, which originates from corn crops and other green crops such as sugar cane, is an acceptable and readily achievable fuel alternative that reduces CO<sub>2</sub> emissions caused by fossil fuels.<sup>46</sup> Biofuel also emits CO<sub>2</sub>, but such emissions are not new emissions rather a recycling of CO<sub>2</sub> emissions that already existing in the atmosphere.<sup>47</sup> There are scientific objections concerning the use of biofuel,<sup>48</sup> discussed *infra* at section four, but as a matter

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<sup>41</sup> See *supra* note 5 and accompanying text.

<sup>42</sup> *Id.*

<sup>43</sup> See *supra* note 5 and accompanying text.

<sup>44</sup> See Carlin, *supra* note 2 at 1405, discussing the disfavoring of nuclear energy, as well as geoengineering (“the use of aluminum balloons in the stratosphere to reduce incoming [Sun energy]”). Other alternative fuel and/or energy sources include nuclear energy, solar energy and windmill energy, to name a few. The discussion of this article is more concerned with the use of biofuels, but certainly the aforementioned other alternatives offer reasonable courses of considerations.

<sup>45</sup> *Id.*

<sup>46</sup> See Erich W. Schienke, *The Ethics of Biofuel: An Initial Ethical Evaluation of Alternative Energy Strategies* (2007), at <http://www.global-greenhouse-warming.com/ethics-of-biofuel.html>.

<sup>47</sup> *Id.*

<sup>48</sup> See, *e.g.*, Sharon Astyk, *Ethics of Biofuels*, ENERGY BULLETIN, Dec. 28, 2006, available at <http://www.energybulletin.net/24169.html>, discussing scientific research that notes the processing of biofuel consumes more fuel than it generates, as well as the concern of depleting crop reserves for fuel purposes.

of reducing the damage of HIACD from continuous new CO<sub>2</sub> emissions, the use of biofuel might serve as a significant solution.

**What we might learn.** Science does not consider moral positions for making decisions. Science offers only a rationale basis inquiry designed on success of research that began as a hypothesis. It is not surprising that science offers mixed conclusions regarding the use of biofuel as an alternative to carbon based fuels. Still, even a rational science model regarding whether to fast track the use and development of biofuel should offer little resistance. This is so because the fast tracking of using and developing biofuel does not present any scientifically proven threat or danger, but rather science demonstrates that the use of alternative fuels to alleviate the emission and increase of CO<sub>2</sub> into the Earth's atmosphere is a workable solution.<sup>49</sup> Consequently, a scientific ethic allows the use and rationale of fast tracking biofuel technology.

### **III. Relational Ethics Model**

#### **A. Relational Ethic Model and the Environment**

Although science presents a plausible model for utilizing alternative biofuels versus fossil fuels, there remains a question of moral sentiment—should we use biofuels in consideration of not only human benefit but also in relation to all of creation? The relational ethics model provides a detailed ethical analysis to answer the question.

**Prospective care and Biofuels.** As we recall, a relational ethics model involves a series of substantial criteria to determine or commit to responsible action.<sup>50</sup> Concerning the use of biofuels, we must ask several questions regarding a relational ethics model.

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<sup>49</sup> See *supra* note 46 and accompanying text.

<sup>50</sup> See *supra* note 12 and accompanying text.

First, will fast tracking the development and use of biofuels offer care for a shared natural, social, and cultural space of living together? Research regarding the use of biofuels is still in progress. Science demonstrates that the use of biofuels may well reap a useless and inefficient process, discussed *infra*.<sup>51</sup> Yet, the prospect of continued damage from HIACD through CO<sub>2</sub> emissions does not bear well for a shared natural, social, and cultural space of living together. The Earth and all of nature are at grave risk from HIACD. As a matter of a relational ethics the choice becomes how best do we reach a considerable path toward correcting HIACD? Biofuels offer a beginning toward healing the difficult problem. A second consideration regarding the use of biofuels and a relational ethics model involves an inquiry into fairness toward the “weaker” as a test for legitimacy of action. Certainly, in the face of human intellect, technology and choice other terrestrial creatures are limited—weaker—in voice. In relation to fast tracking biofuels, the consideration is how does the choice affect the existence of weaker creatures? Science demonstrates that alleviating HIACD now, will benefit the Earth and all of its inhabitants at some future point.<sup>52</sup> Consequently, the weaker will also undoubtedly benefit from fast tracking the use and development of biofuels.

Third, concerning the use of biofuels and a relational ethics model, one must make a critical evaluation of the *contextual conditions* of fast tracking the use and development of biofuels. The Earth’s atmosphere is in a serious state of stress. The reality and scientific evidence points toward serious consequences to the planet and its inhabitants if humanity does not address atmosphere and climate disruption activities. Thus, in this context a relational ethics requires action to address the situation. The last two inquiries

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<sup>51</sup> See *supra* note 48 and accompanying text.

<sup>52</sup> See *supra* note 2 and accompanying text.

of a relational ethics model involve not only implications regarding all of creation, but more impressed, considerations regarding humanity-to-humanity concerns.

### **B. Relational Ethic Model and Each Other**

The fourth inquiry into a relational ethics model regarding fast tracking the use and development of biofuels involves a self-limitation inquiry with respect to the rights of future generations and the dignity of nature—do we have the legitimacy and authority to explore biofuels in relation to the preservation and life of future generations and concerns of nature? This question is one that ties into a consequential ethics dynamic, discussed *infra*. The context of the action involves not only the immediacy of the HIACD problem, but also the end-results of using biofuel technology. If biofuels offer a benefit to future generations, which is likely the most that our current generation may hope to accomplish regarding the current state of HIACD activity—then the act of fast tracking the use and development of biofuels is a legitimate and viable action.

**Rational ethics and biofuels.** The course of thought in the responsibility ethics model affords the opportunity for great deference of our sixth and final inquiry regarding a relational ethics model. The responsibility ethics model addresses best the consideration of the respect for the freedom of conscience for others as for oneself. Recall that the responsibility for one's choices and the technology gifted by one's ability is a major point under a rational ethics model. Thus, freedom to take action and responsibility for one's acts is important regarding fast tracking the use and development of biofuel technology. Here the inquiry is not necessarily relational, but more so autonomy of reasoned activism<sup>53</sup> to accomplish a benefit for and responsibility of remedying HIACD problems.

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<sup>53</sup> Concerning “activism” generally regarding important issues of our time, Bruce Gordan notes that accountable activism is either being “engaged or not. Accountable activism will usually guarantee a

The consequences of such choices is the benefit or burden of the individual's responsive act—no matter what the outcome is for other creatures and humanity.

**What we might learn.** A relational ethics model concerning the use of biofuels demonstrates that merely using such technology without considering the consequences and/or rights of all at stake regarding the HIACD dilemma presents a limited evaluation and perhaps rash course of action. Thus, we might gather from using the relational ethics model that biofuels may or may not offer a scientific and/or a rational course of action. Ethically, however, it very likely may meet the needs of other creatures and lesser voices in the biofuel versus fossil fuel debate. In this line of thinking, we noted earlier that the consequences of one's principles or responsible ethical choice(s) in relation to the principles of others shape the relational ethics model. Thus, we reach an important question concerning ethics and fast tracking the use and development of biofuel technology, does fast tracking such alternative fuel sources substantially address the HIACD crisis or merely add to or cause additional crises? If the answer to the later is affirmative, then a consequential ethics model would eliminate biofuels as a viable alternative regarding a solution to HIACD. We now address how a consequential ethics model checks relational and rational ethics models inquiries.

#### **IV. Consequential Ethics Model**

##### **A. Do Alternative Fuel Sources Work?**

Consequential ethics, also known as teleology, considers an ends/means analysis regarding an ethical inquiry.<sup>54</sup> Such analysis may be individually based—from one pole of solely considering what the results are in terms of benefiting the individual—or to the

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successful path.” See Sarah Foote, *Sloan Alum Bruce Gordan Speaks of Accountability, Activism*, 52 MIT TECH TALK 1 (2007).

<sup>54</sup> See Scott B. Rae, *MORAL CHOICES: AN INTRODUCTION TO ETHICS* 84-66 (2d Ed. Zondervan, 2000)

other pole of not only benefiting the individual but others too. In addition, the ends/means analysis may be utilitarian in result. That is analyzing the best outcome for all at interest.<sup>55</sup> In this light, relational and responsibility ethics models undergo scrutiny by the ultimate concern of whether the action works despite it being scientifically or ethically viable? What is the result? Thus, when making an analysis from a consequential ethics perspective to determine whether to fast track the use and development of alternative fuel sources, the requirement is a step beyond the hope that such developments and use of biofuels technology remedies HIACD. The determination exams whether such energy sources work based on the scientific findings and ethic systems evaluations.

**Starving for the sake of technology.** By far the greatest knock on the use of biofuels is that the technology has the potential to deplete crop reserves, as well as decimate agricultural lands based on the forecasted use of soil and crops to produce biofuels. This concern produces an end that does not favorably meet the criteria checks of our relational ethics model; at least from a utilitarian ethics point of view. Use and development of biofuel technology must be more beneficial than burdensome in eliminating increased and additional CO<sub>2</sub> emissions. Yet, the science is still developing regarding the technology. From this perspective, the result is indeterminate, but the motivation is to remedy HIACD. Consequently, the end motivation seems likely to occur as a benefit for all involved, aside from the potentiality of overusing food sources regarding current and future generations. Still, a matter of costs also covers the consequential ethics examination regarding biofuel development and use.

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<sup>55</sup> *Id.*

## **B. What are the Costs of Alternative Fuel Sources?**

Earlier our ethics analysis noted several criteria apply regarding a relational ethics model, notably, *inter alia*, that of prospective care for a shared natural, social, and cultural space of living together and self-limitation with respect to the rights of future generations and the dignity of nature. There are costs associated with utilizing alternative fuel sources such as biofuels. Consequently, an important question regarding fast tracking the use and development of biofuels is whether such use conflicts with the above two relational ethical obligations (*e.g.*, such as the consequence of diminishing world crop supplies resulting from the use of crops as a fuel source versus their use as a food source)? If a relational ethics model considers the prospective care for a shared natural, social, and cultural space of living together and self-limitation with respect to the rights of future generations and the dignity of nature, then are the costs of using alternative fuel sources prohibitive given the possibility of conflicting ethical obligations?

**Prospective care and starvation.** Aside from some scientific evidence, which demonstrates that the cost of processing and producing biofuel is prohibitive, the major factor of pause regarding biofuels use and development is the potential for diminishing world food supplies and abuse of land.<sup>56</sup> It makes sense then that if the use of ethanol source crops such as corn occurs on a mass level, a problem of limited resources will plague the equation of reducing CO<sub>2</sub> to prevent HIACD. The crucial factor there becomes will the world have enough food supply to meet its luxury of transportation and/or other non-essential functions that operate from combustible energy? In this light, a prospective care analysis in relational ethics reveals that any such disruption to humanity's and other creation's shared living space is a prohibitive course of action. On the one hand, the

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<sup>56</sup> See Jaccard *supra* note 2 at 7-8; see also Astyk *supra* note 48, *passim*.

attempt to eliminate HIACD problems is a must. Yet, on the other hand if the solution to the problem creates other human induced problems (such as crop shortages), then the fast tracking of developing and using alternative fuel sources is not viable. Yet, there still exists other ethical considerations for checking the solution of biofuels.

**Self-limitation, future generations and the dignity of nature.** There is nothing preventing the limit of how much or little humanity initiates the use and development of biofuels; at least scientifically speaking. The key is limiting or not allowing such use and development to negatively affect and/or increase cost to future generations and the dignity of nature. Here, the considerations become questions of whether biofuels: (a) effectively reduce the amount of CO<sub>2</sub> emissions and (b) create any appreciable strains or disruptions to the rights and dignity of future generations and the planet? Ultimate answers in certainty are impossible. Projections are always dicey. Yet the immediate relational ethics question is whether biofuels in short term use offer long-term benefits that are not a puric victory in nature? If the answer is an affirmative, then fast tracking the use and development of biofuels should occur while implementing measurable limitations to afford the greatest benefit of the technology while avoiding violating the rights of future generations and the planet. Still, what are the alternatives if any?

## **V. Examinations of “Other” Alternatives**

The goal concerning the use and development of biofuels is to fix the HIACD problem. Yet, as a matter of a relational ethics model, an obligation to explore other methods for alleviating the HIACD problem exists. Are there methods, processes and/or other remedies that will stabilize the atmosphere and climate conditions—now and in the future?

## A. CO<sub>2</sub> Reduction Processes

I mentioned earlier in the discussion that most of the research dealing with “global warming” solutions involve costs based analyses. Consequently, economic thought and methods play the largest role in addressing the HIACD problem. There are two economic paths or suggested solutions to address the HIACD problem. The first involves placing a universal tax on activities that generate greenhouse gases and more pointedly CO<sub>2</sub> emissions.<sup>57</sup> The second involves placing industrial limits on CO<sub>2</sub> emissions and allowing companies to purchase and/or trade CO<sub>2</sub> emissions rights.<sup>58</sup> Both methods work to reduce CO<sub>2</sub> emissions, but do not eradicate such emissions in any substantial measure.<sup>59</sup> An examination follows of the two methods through a relational ethics model analysis.

### *i. tax and limit methods*

**Money to burn.** From an economic perspective, the best manner to address HIACD is to tax the CO<sub>2</sub> aspect of the problem.<sup>60</sup> CO<sub>2</sub> emissions related to HIACD is an externality—a cost that drives up the cost of conducting business or engaging in certain activities.<sup>61</sup> The problem with HIACD is that CO<sub>2</sub> emissions have not readily been subject to reflect the costs associated with their releases into the atmosphere. By far, such emissions represent a nuisance that was unchecked and has now brought the planet into the current HIACD conditions. As a matter of efficiency the ability to make everyone share the costs for CO<sub>2</sub> emissions will likely promote aggressive ingenuity and an inventive spirit that will force measures to reduce, if not eradicate, CO<sub>2</sub> emissions

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<sup>57</sup> See *supra* note 5 and accompanying text; but see *Carbon Trading, supra* note 10.

<sup>58</sup> *Ibid.*

<sup>59</sup> See *Carbon Trading, supra* note 10.

<sup>60</sup> See *supra* note 5 and accompanying text.

<sup>61</sup> See *supra* note 4 and accompanying text.

resulting from HIACD activities.<sup>62</sup> Yet, regardless of the tax, CO<sub>2</sub> emissions in harmful forms will still likely occur. Moreover, some businesses that deal in fossil fuels are willing to pay exuberant amounts to pollute because any tax amount will probably rate miniscule in comparison to the massive profits of such businesses. Here, capitalism fails and economic theory is wanting because money is not a useful deterrence regarding CO<sub>2</sub> emissions.

**The pollution club.** The same pessimistic view applies toward a cap and trade (limit) method for reducing CO<sub>2</sub> emissions. In the limit method of CO<sub>2</sub> emissions, the plan is to set upper limits on the amount of CO<sub>2</sub> a company may emit into the atmosphere and allow companies to trade or sell their CO<sub>2</sub> emission permits.<sup>63</sup> Assuming companies submit to the limits in the face of fines and/or bans on business—the harm remains concerning CO<sub>2</sub> emissions. Nothing really changes. Moreover, some commentators note that the Kyoto protocol or the European CO<sub>2</sub> emissions limit plan that followed such a course of action is not fairing well due to inadequate permits or ill-planned cap limits that necessitated perpetual increases in emission limits until the initial goal became unattainable.<sup>64</sup> Thus, an appeal to the heart and ethics becomes necessary.

**Critical evaluation of the contextual conditions of action.** Returning to the relational ethics model to evaluate economic theory and thought regarding HIACD and CO<sub>2</sub> emissions, the most germane factor to focus on is a critical evaluation of the situation regarding economic solutions to alleviate the HIACD problem. Here, remaining status quo as to human activity but trying to modify the damage through taxing CO<sub>2</sub> emissions or reallocating emission rights presents an ethically questionable action in light

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<sup>62</sup> See *supra* note 5 and accompanying text.

<sup>63</sup> See *Carbon Trading, supra* note 10.

<sup>64</sup> See Carlin *supra* note 2 at 1428-38.

of the dire need to resolve the HIACD dilemma to the benefit of future generations and other creatures who are the weaker and do not have a voice. In context of the grave peril that future generations potentially face from HIACD outcomes, as well as the peril that we currently face—moderating CO<sub>2</sub> emissions is not a significant solution, but rather seemingly a callous resistance toward self-limitation with respect to the rights of future generations and the dignity of nature. That is to say, if current occupants of the earth cannot sacrifice non-essential conveniences such as activities driven by fossil fuel processes and technology (*e.g.*, automobile use), then there is little hope for benefiting future generations and the planet in terms of (i) ensuring an inheritance of a safe environment and/or (ii) that of an exemplary perspective concerning relational living.

*ii. recycle and conservation methods*

Other technology exists that is akin to biofuel alternatives. Recent inventions offer the ability to actually extract and separate CO<sub>2</sub> from the atmosphere and recycle it into fuel.<sup>65</sup> This is similar to biofuel technology in that such extracted and recycled CO<sub>2</sub> burns as a non-harmful gas released into the atmosphere.<sup>66</sup> For sure, if the goal is to eliminate HIACD activity then CO<sub>2</sub> extraction and recycling offers a viable scientific alternative. There are two additional methods of eliminating CO<sub>2</sub> emissions from the atmosphere. One involves sequestration. The second involves injecting carbon into the Earth's inner soil the by way of the sea floor. Sequestration is the process of planting trees and using

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<sup>65</sup> See transcript from *The Candidates on Climate* (Living on Earth radio broadcast, week of February 22, 2008), available at <http://www.loe.org/shows/segments.htm?programID=08-P13-00008&segmentID=2>, segment discussing the use of chemical solutions by Los Alamos National Laboratory scientist to trap greenhouse gasses and recycle them into gasoline.

<sup>66</sup> See Carlin *supra* note 2 at 1410, 1446-1451.

natural methods to reduce CO<sub>2</sub> emissions, while “trapping” involves extracting CO<sub>2</sub> from the atmosphere and depositing it into the Earth.<sup>67</sup>

**Prospective care.** A relational ethics model seems satisfied regarding sequestration and trapping actions. Since prospective care for a shared natural, social, and cultural space of living together seems to benefit from such activities because the processes address the HIACD problem, real solutions to eliminate CO<sub>2</sub> emissions, it seems at first glance that such technology allows an ethically acceptable approach to the HIACD problem. Still, more research is required to determine any adverse affects and/or shortcomings that these methods may present toward humans and the environment.

## **VI. Ethical Ends-Relational Justice Model**

One final consideration is necessary before we attempt a final balance between ethics and the “global warming” question—what, if any, are the legal implications of the HIACD problem? The scholarship of legal theory and the HIACD problem is beginning to produce volumes of speculative material.<sup>68</sup> The range of legal scholarship ranges from examinations of tort liability in product and nuisance claims to Constitutional prosperity considerations.<sup>69</sup> More germane to our ethics evaluation is the tort analysis, which considers first, if there is any type of legal duty concerning personal injury claims

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<sup>67</sup> *Id.*

<sup>68</sup> *See, e.g.,* Matthew D. Adler, *Corrective Justice and Liability for Global Warming*, 155 U. PA. L. REV. 1859 (2007); Todd B. Adams, *Is there a Legal Future for Sustainable Development in Global Warming?: Justice, Economics, and Protecting the Environment*, 16 GEO. INT’L ENVTL. L. REV. 77 (2003); David Hunter and James Salzman, *Negligence in the Air: The Duty of Care in Climate Change Litigation*, 155 U. PA. L. REV. 1741 (2007).

<sup>69</sup> The Constitutional analysis appears to be very tenuous. The analysis involves the right to posterity for future generations. The analysis is one more geared toward fitting the round right to life into a square peg of Constitutional protections. *See* Bruce Ledewitz, *Establishing a Federal Constitutional Right to a Healthy Environment in Us and in Our Posterity*, 68 MISS. L. J. 565 (1998).

regarding HIACD acts, and second, how a measure of damages would calculate assuming there is liability in tort as to any personal injury claim?<sup>70</sup>

The legal scholarship regarding tort liability boils down to examining potential obligations and/or duties to implement the use of alternative fuel sources as viable and available technology versus continuing to create HIACD problems in the face of better and safer methods available to protect the rights of future generations.<sup>71</sup>

**Critical evaluation of the contextual conditions of action.** Similar to economic theory regarding resolving HIACD problems, tort liability theory centers on monetary remedies for HIACD damages. A realistic evaluation must ask the question whether any amount of monetary sanctions will alleviate CO<sub>2</sub> emissions? That is to say, even if an assignment of responsibility and damages for HIACD activity occurs, where does that leave the prospective care for future generations and the planet? Again, we seek an appeal to the heart and ethics to solve the problem.

**A. Quality of Life Ethic Systems Motivations Versus Human Benefit (e.g., Travel Ability) and Corporate Profit Benefits**

Deductive reasoning might offer a final approach toward pushing for a relational ethics consideration and solution regarding the HIACD problem. Based on deductive reasoning, one should start with a conclusion and work backwards. Scientifically, HIACD will result in significant destruction of certain elements of the planet and could pose an extinction factor for humanity and all of creation. The ultimate goal is to eliminate the HIACD crises and CO<sub>2</sub> emissions. Thus, as a consequential ethics concern, the goal is to benefit current and future generations by stabilizing the atmosphere.

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<sup>70</sup> *Supra* note 68 and accompanying text.

<sup>71</sup> *Ibid.*

Therefore, where we have our desired consequence, the goal becomes how to arrive through a relational ethics model.

**The end and the process.** A combination of the relational ethics and the consequential ethics models should answer the problem of viability concerning the use of alternative fuel sources—in particular the development and use of biofuels. Ethically, prospective care and the desired end of considering human and weaker voices in the debate of biofuels versus fossil fuels seem straightforward. The balance between current non-essential activity related to fossil fuel consumption and the security of continued existence of life on the planet should weigh heavily toward a relational ethics solution.

The relational ethics model creates a goal that determines the best consideration regarding acts that carry significant results. In relation to a consequential ethics model, the result should offer the more balanced benefit to future generations. The fast tracking and development of alternative fuel sources presents a viable solution to HIACD problems in that the goal is to eliminate CO<sub>2</sub> emissions without causing additional disruptions regarding the atmosphere and/or other considerations such as crop usage and food supply. A relational ethics model offers a safety check regarding considerations that require self-limitation reflections toward observing the consciousness of future generation's rights and the dignity of nature. Thus, the goal is at least to begin a solution process to remedy HIACD results and to develop such processes for so long as they remain a legitimate course of action in respect of and preservation of the rights of future generations and the dignity of the planet. Alternative fuel sources in the form of biofuels offers one such process that ethically addresses HIACD.

## *Conclusion*

**The sky is the limit.** The significant point regarding fast tracking the use and development of alternative fuel sources is that there must be a beginning toward remedying HIACD. The course of such remedy must consider not only the needs and/or desires of current generations, but also the voices and rights of future generations. Biofuels as a technology offer little danger to future generations in terms of remedying HIACD. For sure, the possibility exists that the technology is overly expensive, ineffective and might result in stresses on the world's food supply. Still, such possibilities are speculative. The goal is to eliminate harmful CO<sub>2</sub> emissions and reverse the effect of HIACD. Discussions regarding economic and legal solutions provide moderation and liability results. Biofuels produce potentially no greater CO<sub>2</sub> emissions. Thus, the relational ethics model combined with a consequential ethics consideration suggests that such a solution is utilitarian in nature and presents the most ethically beneficial course of action for all involved.

It appears that slow and protracted solutions to HIACD will only delay and further prejudice the rights of future generations. It is imperative that the current generation accept responsibility for HIACD and begin to explore reduction and reversing solutions to eliminate CO<sub>2</sub> emissions. Thus, the relational ethics model offers a serious consideration for taking initial steps toward alleviating HIACD, as well as preventing significant missteps along the way that will notthe prejudice the rights of future generations.