

## GLOBAL WARMING AND ITS IMPACT ON WATER SUPPLY

### THE ENERGY IMPLICATIONS OF CLIMATE CHANGE AND THE EFFECTS OF OUR ENERGY CHOICES

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#### I. INTRODUCTION

Our energy choices have a direct impact on the supply and availability of water. Many forms of energy use large amounts of water, either for energy production or for cooling of energy equipment. Further, electric generation impacts climate change. For example, cooling towers for coal, natural gas and nuclear power plants consume millions of gallons of water each year through evaporation.

In addition, generation plants, which are powered with coal or natural gas, emit millions of pounds of carbon dioxide (CO<sub>2</sub>) each year. Use of oil for vehicles and industry creates even more CO<sub>2</sub>. Failure to reduce the amount of CO<sub>2</sub> released into the atmosphere has raised increasing concern that climate change will occur. Among the adverse impacts of climate change is the likelihood that less water will be available, because of reduced snowpack and other impacts.<sup>1</sup>

Energy is the primary cause of greenhouse gas emissions in the United States and in most other countries. The United States, for many years the most industrialized, energy intensive country in the world, was also the leader in greenhouse emissions. With just

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1. See OREGON STATE UNIVERSITY, SCIENTIFIC CONSENSUS STATEMENT ON THE LIKELY IMPACTS OF CLIMATE CHANGE ON THE PACIFIC NORTHWEST 1-2 (2003), available at <http://oregonstate.edu/inr/osu-2004>.

5% of the world's population, the United States produces nearly 20% of the world's greenhouse gasses.<sup>2</sup> The United States also consumes over 20% of the world's oil, and 20% of the world's natural resources. It is no accident that as China and India have increased the pace of industrializing their economies, their rate of emitting greenhouse gasses has risen as well.

In fact, China recently displaced the United States as the largest total emitter of greenhouse gasses in the world, although the United States still has the dubious distinction of having the world's largest per capita rate of greenhouse gas emissions.<sup>3</sup> China also recently displaced the United States as the world's largest energy consumer.<sup>4</sup> However, China is also increasing the amount of green energy it is producing to meet its growing energy needs. China now spends nearly double what the United States spends and nearly as much as all European countries combined spend on clean energy.<sup>5</sup>

Because most greenhouse gasses are the direct result of energy use, including energy for vehicles, electricity, factories, homes and other uses, our energy c

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citizens, even with a problem

sustainable by increasing their use of recycling and renewable energy resources.

### *B. Oregon Progress Board Benchmark*

Largely as a result of that report, the Oregon Progress Board in 1992 adopted a benchmark to stabilize the State's CO<sub>2</sub> emissions at 1990 levels. The Oregon Progress Board was established to create benchmarks for evaluating and monitoring progress by state agencies in achieving measurable objectives.<sup>8</sup>

Over the next decade, in spite of energy efficiency and renewable energy efforts that made Oregon one of the leading states in the nation for energy efficiency policies,<sup>9</sup> the rate of emissions varied between 116% and 126% of the 1990 levels. Only the years between 2002 and 2004 showed declines, dropping from 125% to 120% of 1990 levels.<sup>10</sup> It was not clear how much of the change was due to the general economic recession at that time or to measures to reduce carbon emissions. Emissions began increasing again in 2004.<sup>11</sup> Because of the difficulty in achieving progress in reducing CO<sub>2</sub> emissions, by 2003, the benchmark was revised to 106% of 1990 levels.<sup>12</sup>

### *C. 1995 Oregon Department of Energy Report*

In 1995 the ODOE issued a detailed 200 page report including a seventy page appendix containing an inventory of Oregon's principle greenhouse gasses: carbon dioxide, methane, nitrous oxide, and perfluorocarbons.<sup>13</sup> The report concluded that Oregon's CO<sub>2</sub> emissions would increase by 32% from 1990 levels by 2015 in spite of the state's programs to conserve and use renewable

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8. Information on the Oregon Progress Board and its benchmarks may be found at OREGON PROGRESS BOARD, <http://www.oregon.gov/DAS/OPB/index.shtml>.

9. *ACEEE 2010 State Energy Efficiency Scorecard*, AMERICAN COUNCIL FOR ENERGY EFFICIENT E

energy.<sup>14</sup> The report also predicted that electric and natural gas utilities, implementing their least-cost plans, would increase their CO<sub>2</sub> emissions by 50%.<sup>15</sup> In addition, transportation emissions would rise by 44% with the measures then in place to save energy and use renewable energy.<sup>16</sup>

Given the challenge to arrest the growth of CO<sub>2</sub>, the report contained both a long-term Climate Change Strategy and a Five Year Action Plan to implement the strategy. The Five Year Action Plan included recommendations for energy efficiency and renewable energy generally, actions in the utility and transportation sectors, offsets, measures for economic development and actions by local governments and federal actions.<sup>17</sup>

#### *D. Carbon Dioxide Emission Siting Standard*

One of the actions taken after this report was issued was the

States.<sup>21</sup> This provides an incentive to use the most efficient technologies available, including waste heat recovery, co-generation and other measures.

Failure to meet the standard requires the applicant to either directly undertake measures that will offset the amount of CO<sub>2</sub> in excess of the standard or to make a payment of \$1.27 per short ton of CO<sub>2</sub> emissions in excess of the standard to the Oregon Climate Trust.<sup>22</sup> Payment to the Climate Trust relieves the applicant of further liability under the statute, even if the offset measures undertaken by the Climate Trust do not offset all the CO<sub>2</sub> emitted in excess of the standard, whereas the owner who undertakes the measures directly must prove that the measures are effective in offsetting the CO<sub>2</sub> emissions in excess of the standard.<sup>23</sup> All of the owners of energy facilities subject to this standard have chosen the “monetary path” rather than undertake offset measures directly.

The Climate Trust is a non-profit organization created by law to spend funding received under this provision to offset CO<sub>2</sub> emissions.<sup>24</sup>

megawatts of energy, most of which were approved after the CO2 standard took effect.<sup>28</sup>

*E. Advisory Group on Global Warming*

In 2004 the Governor's Advisory Group on Global Warming issued the most comprehensive set of recommendations yet on Climate Change.<sup>29</sup> The broad-based group included nearly thirty high-level members from a wide variety of interests and was co-chaired by Dr. Jane Lubchenko, then a Distinguished Professor of Zoology and Marine Biology at Oregon State University, now the Administrator of the National Oceanic and Atmospheric Administration, and by Mark Dodson, then CEO of Northwest Natural, Oregon's largest natural gas utility.<sup>30</sup> Members included farmers, environmentalists, the faith community, businesses that use energy, utilities, scientists, local and state governments, and other stakeholders. The Advisory Group received the active support of multiple state agencies, including the Department of Energy, the Department of Environmental Quality, and the Public Utility Commission.

The Advisory Group unanimously passed a series of

° Reduce emission levels by 75% below 1990 levels by 2050.<sup>31</sup>

These goals were subsequently passed into law by the 2007 Legislature and are discussed below. The Advisory Group also endorsed the energy efficiency target set for Oregon by the Northwest Power and Conservation Council, which set a goal of 960 average megawatts of electricity savings by the year 2020 and comparable conservation of natural gas and oil.<sup>32</sup>

#### *F. Renewable Energy Working Group*

The Renewable Energy Working Group was another large stakeholder group, consisting of nearly 30 members from all interested sectors. The Renewable Energy Working Group issued a Final Report in April of 2005.<sup>33</sup> The Final Report recommended short and long term goals, legislation and administrative actions that could be taken to increase renewable energy development. The report focused on each of the renewable energy technologies. Its legislative recommendations became the basis for the major renewable energy legislative package that was passed in 2007. That package is discussed below.

#### *G. Carbon Allocation Task Force*

Two other citizen task forces contributed to Oregon's efforts to address climate change. The first was the Carbon Allocation Task Force. The focus of this group was on a cap-and-trade structure for Oregon. After much discussion, the Task Force focused on the electric utility sector, rather than a broader cap-and-trade program for all sectors. The Task Force examined a number of scenarios using a cap-and-trade system and concluded that a cap on greenhouse gas emissions was feasible. While electricity rates would likely rise, electricity bills would likely be reduced through increased energy efficiency and renewable energy.

Reflecting the complexity and controversial nature of the cap-and-trade issue were eight letters from members of the Task Force

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31. *Id.* at ii, 8–9.

32. *Id.* at 57.

33. OREGON DEPARTMENT OF ENERGY, OREGON'S RENEWABLE ENERGY ACTION PLAN (Apr. 12, 2005), available at <http://www.oregon.gov/ENERGY/RENEW/docs/FinalREAP.pdf>.



explaining their positions or containing reservations to aspects of the Task Force's conclusions that accompanied the Task Force's final report.<sup>34</sup> The Task Force's work became the basis for cap-and-trade legislation proposed in both 2007 and in 2009, but which were not successfully passed in either session. Other legislation on carbon emissions was passed and is discussed below.

#### *H. Climate Change Integration Group*

The Climate Change Integration Group focused more broadly on climate change issues, as the successor to the Governor's Advisory Group on Global Warming. The Group was co-chaired by Dr. Mark Abbott, Dean of the College of Oceanic & Atmospheric Sciences, Oregon State University, and Ned Dempsey, President of Century West Engineering. Again, it was broadly based with more than twenty stakeholders, and it was provided technical support by more than ten state agencies. The Climate Change Integration Group met for nearly two years before issuing its final report of over 120 pages in January 2008.<sup>35</sup>

Whereas prior committees and working groups focused on the need for actions to reduce greenhouse gas emissions, the Climate Change Integration Group emphasized a number of immediate actions to respond to the effects of climate change. These included the following:

- begin preparing now for climate change;
- act now to expand mitigation efforts;
- determine how climate change will affect Oregon's regions;
- assist Oregonians to respond to climate change;
- incorporate the public health implications of climate change;

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34. See Letter from David Stewart-Smith, Chairman, The Carbon Allocation Task Force (Jan. 9, 2007) available at <http://www.oregon.gov/ENER>

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° look for the economic development opportunities of climate

must report every two years on Oregon's progress toward achieving those goals.<sup>41</sup>

While House Bill 3543 expressly provides that the greenhouse gas reduction goals by themselves give no added regulatory authority,<sup>42</sup> the bill does provide that the Global Warming Commission may recommend legislation, changes in rules, and other measures that can be taken to achieve those goals. The Commission is also responsible for developing an outreach strategy to educate Oregonians on the impacts of climate change and ways to reduce greenhouse gas emissions.<sup>43</sup>

House Bill 3543 also establishes the Oregon Climate Change Institute in the Oregon University System.<sup>44</sup> The Institute is housed at Oregon State University and is operated in cooperation with the other universities in the Oregon University System. The Institute is to facilitate research on climate change and its effects on Oregon, provide climate change information to the public, support the Global Warming Commission in developing strategies to prepare for and to mitigate the effects of climate change on Oregon and provide technical assistance to local governments to assist them in developing climate change policies and programs. The Institute must issue a report to the Legislature every two years on the state of climate change science as it relates to Oregon.<sup>45</sup>

The 2007 Legislature also passed House Bill 2272.<sup>46</sup> That bill provides that new vehicles, beginning with model year 2009, must comply with low emission standards of the Environmental Quality Commission in order to be registered.<sup>47</sup> In addition, the bill authorizes the Oregon Department of Transportation to deny registration to 2009 or later model year vehicles that do not comply with the new standards.<sup>48</sup> This bill provides additional enforcement for the tailpipe emissions rules for carbon dioxide that the Commission adopted in 2006, requiring that new vehicles meet

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41. *See id.* § 14; *see also* OREGON GLOBAL WARMING COMMISSION, REPORT TO THE LEGISLATURE (2009), available at <http://www.keeporegoncool.org/>.

42. *See* H. See

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combusted.<sup>57</sup> In addition to electric and natural gas utilities, the reporting requirements apply to suppliers of petroleum products and to certain industries including the producers of aluminum, ammonia, cement, glass, iron, steel, lead, lime, and petrochemicals, among others.<sup>58</sup>

Perhaps the most important bill for affecting long-term energy and CO<sub>2</sub> emissions was Senate Bill 101.<sup>59</sup> That bill limits the emissions of greenhouse gasses from new power plants located in Oregon or serving Oregon load from out of state.<sup>60</sup> The bill requires that emissions from new power plants not exceed the greenhouse gas emissions of a modern natural gas power plant.<sup>61</sup> It also limits new contracts from existing power plants that fail to meet the emission limits.<sup>62</sup> This effectively restricts new coal plants from being built in Oregon or serving Oregon loads from out of state until and unless carbon sequestration for power plants becomes commercially viable and cost-effective.<sup>63</sup>

The United States Department of Energy's National Energy Technology Laboratory, which is leading the United States carbon sequestration research efforts, estimates that carbon sequestration



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about the competitive disadvantage Oregon would have had with other states that did not impose a cap-and-trade system. Senate Bill 80 did pass the Senate Environment & Natural Resources Committee in an amended form. The amendments replaced the





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petroleum, natural gas, coal, or nuclear fission.<sup>83</sup> A cost cap assures that the Renewable Portfolio Standard does not cause undue economic harm on utility ratepayers. The bill does not require electric utilities to comply with the standard in a year where the incremental cost of compliance with the standard would exceed 4% of the utility's annual revenue requirement for that year.<sup>84</sup>

Additionally, the bill provides for cost recovery in rates to comply with the standard,<sup>85</sup> creation of Renewable Energy Certificates (RECs) to determine compliance with the standard,<sup>86</sup> and requiring annual compliance reports by the utilities.<sup>87</sup> Senate Bill 838 also establishes a path of alternative compliance payments for a utility that cannot meet the targets; the compliance payments must be used for renewable energy or energy efficiency.<sup>88</sup>

House Bill 3201 makes the following changes in the Business Energy Tax Credit:

- increases the percentage of eligible cost for the credit from 35% to 50 %;<sup>93</sup>
- increases the eligible cost from \$10 million to \$20 million per project;<sup>94</sup>
- provides that renewable manufacturing plants are eligible for the increased tax credit.<sup>95</sup>

The changes to the Business Energy Tax Credit tripled the amount of the credit, from a maximum credit of \$3.5 million to a maximum credit of \$10 million.<sup>96</sup> These changes and the changes making renewable manufacturing facilities eligible for the credit had a dramatic impact on the pace of renewable energy development in Oregon, as will be discussed below.

House Bill 3201 makes the following changes to the Residential Energy Tax Credit:

- increases the amount of the tax credit for wind and fuel cells to be equal to solar energy, from \$1,500 to a maximum of \$6,000 over four years;<sup>97</sup>
- allows individuals to receive separate tax credits for more than one solar device in the same year, such as a system for hot water heating and a PV system to generate electricity; individuals can also receive separate tax credits for multiple qualifying energy-efficient appliances acquired in the same year;<sup>98</sup>
- makes high efficiency wood stoves eligible for the tax credit.<sup>99</sup>

The Legislature also passed House Bill 2210, a comprehensive biofuels bill that helps address greenhouse gasses in the transportation sector.<sup>100</sup> A number of factors led to support

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93. *Id.* § 14.

94. *Id.* § 17.

95. *Id.* § 14.

96. *Id.* § 14(4)(a).

97. *See id.* § 28.

98. *See id.* § 29.

99. *See id.* § 32.

100. H.B. 2210, 74th Leg. Assemb., Gen. Sess., 2007 Or. Laws 739 (enrolled).

of the bill, including environmental, energy, farming and business reasons.<sup>101</sup> Among other provisions, the bill includes the following:

- establishes a new tax credit for producers and collectors of biofuel raw materials;<sup>102</sup>

- expands the use of property tax exemptions for biofuels through “rural renewable energy development zones;”<sup>103</sup>

establishes a Renewable Fuel Standard for biodiesel that requires all diesel fuel sold in Oregon to contain either 2% (B-2) or 5% (B-5) of diesel fuel sold in Oregon, based on the production level of biodiesel in Oregon, Washington, Idaho and Montana;<sup>104</sup>

- establishes a Renewable Fuel Standard for ethanol: all gasoline sold in Oregon must be at least 10% ethanol when production capacity in Oregon is at least 40 million gallons;<sup>105</sup>

- prohibits use of certain fuel additives, including methyl tertiary butyl ether (MTBE);<sup>106</sup>

- creates an income tax credit for consumer use of biofuel;<sup>107</sup>

- modifies the criteria for exemption from certain energy facility siting requirements for ethanol and biodiesel production facilities to preclude coal-fired facilities from the exemption by imposing a carbon dioxide emission standard;<sup>108</sup> and

- allows farm biofuel production facilities which meet certain criteria to be sited on land zoned for exclusive farm use (EFU).<sup>109</sup>

The 2007 Legislature also passed nearly twenty other bills to

or sulfur.<sup>110</sup> The ban was subsequently extended by the 2010 Special Session through the year 2020;<sup>111</sup>

- Senate Bill 375<sup>112</sup> and House Bill 2565,<sup>113</sup> which establish energy efficiency standards for certain appliances, lighting fixtures and other electrical equipment based on California's stringent energy efficiency standards;

- House Bill 2620, which requires that all new or renovated public buildings must devote at least 1.5% of the cost of the building to solar energy technologies if the building receives any state funds;<sup>114</sup>

- House Bill 3488, which expands the property tax exemption for the value of solar energy systems for residential property to apply to commercial property and authorizes the Public Utility Commission to establish tariffs and rules to further encourage investor-owned utilities to invest in renewable energy beyond what is provided by utilities through the public purpose charge.<sup>115</sup>

### *B. 2008 Legislation*

Two important energy-related bills were passed in the Special Session in 2008, House Bill 3612 and House Bill 3619. House Bill 3612 authorizes state agencies to enter into energy savings performance contracts for energy efficiency and renewable energy improvements in state buildings, subject to standards established by the Oregon Department of Energy.<sup>116</sup> Energy savings performance contracts, commonly offered by energy service companies, known as ESCOs, are a valuable tool for customers to invest in energy efficiency and renewable energy with little or no upfront costs. Instead, the ESCO carries most or all of the cost and is paid back over time by the customer.

However, prior to 2008 it was unclear whether state agencies had the authority to enter into such contracts. House Bill 3612 provides clear authority for state agencies to enter into these contracts. This is important because the governmental sector is a

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110. S.B. 790, 74th Leg. Assemb., Reg. Sess. 2007 Or. Laws 521(enrolled).

111. H.B. 3613, 75th Leg. Assemb., Spec. Sess., 2010 Or. Laws 11 (enrolled).

112. S.B. 375, 74th Leg. Assemb., Reg. Sess., 2007 Or. Laws 649 (enrolled).

113. H.B. 2565, 74th Leg. Assemb., Reg. Sess., 2007 Or. Laws 375 (enrolled).

114. H.B. 2620, 74th Leg. Assemb., Reg. Sess., 2007 Or. Laws 310 (enrolled).

115. H.B. 3488, 74th Leg. Assemb., Reg. Sess., 2007 Or. Laws 885 (enrolled).

116. H.B. 3612, 74th Leg. Assemb., Spec. Sess. §3 (Or. 2008).

significant user of energy. Reducing state agency energy consumption can reduce state agency expenses, saving taxpayer dollars.

For example, by the end of 2005 under a program run for five years by the Oregon Department of Energy, nearly 100 buildings had been built or renovated with energy efficiency measures beyond those required by code. Average energy savings exceeded 20% better than the energy building code, resulting in a savings of \$3 million a year.<sup>117</sup>

There are thousands of state buildings, including those of the state universities, state agencies, state prisons and other state facilities. House Bill 3612 is an important tool in reducing state agency use of fossil fuels.

The 2008 Legislature also passed House Bill 3619.<sup>118</sup> This bill increased the Business Energy Tax Credit for manufacturing facilities that produce renewable energy components, such as solar cells, wind turbines and other equipment.<sup>119</sup> The amount of eligible cost was increased from 35% to 50%; this doubled the maximum amount of tax credit each manufacturing facility could receive, up to \$20 million.<sup>120</sup> The bill also imposed standards that must be met, including the number of jobs created, financial viability of the applicant and other economic standards to assure that the state receives economic benefit for the large amount of state tax credit provided.<sup>121</sup> This bill was an important tool in the effort to expand solar manufacturing in Oregon, discussed below.

### C. 2009 Legislation

The 2009 Legislature built on the foundation of the 2007 and 2008 Legislatures in three areas, energy building codes, residential weatherization, and solar energy.

Senate Bill 79 directs the Department of Consumer & Business Services to adopt by the year 2012 updated building codes which save 10–15% more energy than residential buildings

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117. OREGON DEP'T OF ENERGY, STATE OF OREGON ENERGY PLAN 2007409 55 (Mar. 2008) [hereinafter *Energy Plan*] available at <http://www.oregon.gov/ENERGY/docs/EnergyPlan07-09.pdf>.

118. H.B. 3619, 74th Leg. Assemb., Spec. Sess., 2008 Or. Laws 29 (enrolled).

119. *Id.* § 2.

120. *Id.*

121. *Id.* § 1.

using the current code and which save 15–25% more energy than commercial buildings.<sup>122</sup> The bill also directs the adoption of an optional “Reach Code” to maximize achievable energy efficiency, and that the residential and commercial building codes be

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The new standards reduce greenhouse gas emissions and also reduce other environmental pollutants. The Oregon Department of Environmental Quality (DEQ), which urged its Commission to adopt these rules, estimates that these standards reduce greenhouse gasses for new vehicles by 30% by the year 2016, reduce smog-forming emissions by 12% to 33% by 2020 and reduce hazardous pollutants by 22% to 38% by 2020.<sup>130</sup> DEQ recognizes that the new standards increase the cost of new vehicles by up to \$1,200 in

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required by the building code.<sup>145</sup> One hundred state buildings built or renovated since then save \$3 million annually.<sup>146</sup>

### *B. Renewable Energy*

There is considerable renewable energy development as well. Using state tax credits, 20,000 individuals have installed more than \$90 million worth of solar systems on their homes.<sup>147</sup> The Oregon Department of Energy's Small Scale Energy Loan Program provides low interest loans for renewable energy.<sup>148</sup> The program has issued over \$400 million in loans, yielding nearly \$100 million a year in energy savings.<sup>149</sup>

Over 2,000 megawatts of wind generation are now operating in Oregon.<sup>150</sup> Two thousand megawatts more are under construction.<sup>151</sup> One of these is the 900 megawatt Shepherd's Flat, the largest wind farm in the entire world.<sup>152</sup> Another 2,000 megawatts are under review and more are pending.<sup>153</sup> These produce as much energy as six fossil fuel plants, even factoring in wind's intermittent nature. That means the impacts on air, water, and greenhouse gasses of six fossil fuel plants have been avoided. Oregon is fourth in terms of operating wind farm capacity in the United States.<sup>154</sup>

Oregon has significant investment in other renewables. Biomass plants produce energy and help reduce forest fire danger by removing excess, decaying material from the forests. Oregon's biomass plants provide industrial heat and produce 340 megawatts

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145. *Id.*

146. *Id.*

147. *Id.* at 52–53.

148. OREGON DEPARTMENT OF ENERGY: STATE ENERGY LOAN PROGRAM (SELP), available at <http://www.oregon.gov/ENERGY/LOANS/selphm.shtml> (2011).

149. *Id.* at 57–58.

150. For a list of wind projects operating and under construction see OREGON DEP'T OF ENERGY, SITE CERTIFICATES (2010), available at [www.oregon.gov/ENERGY/SITING/certificates.shtml](http://www.oregon.gov/ENERGY/SITING/certificates.shtml).

151. *Id.*

152. *Energy Plan*, *supra* note 117, at 59; Andrew Couts, *Google Invests \$100 Million in World's Largest Wind Farm Project*, DIGITAL TRENDS

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Energy efficiency and renewable energy have created many jobs in Oregon and are an engine of our economic recovery. A Pew Charitable Trusts report states that Oregon has created over 19,000 jobs in green energy and is the #1 state per capita in clean energy jobs.<sup>170</sup>

However, Oregon is not alone in this effort. The Pew study also indicated that green jobs grew faster than the economy as a whole in 38 states in the last ten years.<sup>171</sup> Every part of the country has renewable energy of one kind or another. All states can benefit from a green economy by keeping more people employed and creating new jobs.

Oregon's two tax credit programs, the Business Energy Tax Credit and the Residential Energy Tax Credit, have been particularly important in the state's progress on renewable energy and also for economic development. A 2009 study produced for the Oregon Department of Energy by the independent consulting firm ECONorthwest reported that the two tax credits helped Oregonians reduce energy costs by nearly \$300 million in 2007 and 2008, the last years for which data was available; savings continue to accrue in subsequent years from the measures installed.<sup>172</sup>

The million dollars also helped the economic development

However, both programs are scheduled to sunset at the end of 2011, because of concern about the potential impacts of revenues foregone by the tax credits, especially the Business Energy Tax Credit,<sup>175</sup> in spite of the tax revenues produced by the increased economic activity from these projects. Oregon's efforts to meet the Oregon targets to reduce greenhouse gasses through increasing reliance on renewable energy and energy efficiency are much more difficult if these important programs are not continued.

#### VI. PROGRESS IN MEETING OREGON'S GREENHOUSE GAS REDUCTION GOALS

Oregon is making some progress in achieving the benchmarks and targets of CO2 reduction standard contained in state law. But the course has not been steady or easy, in spite of the programs and efforts listed above. For example, Oregon's per capita emissions declined each year from 2000 to 2003, then increased in 2004 and 2005.<sup>176</sup> Total emissions increased each year, in part because of the growth in population.<sup>177</sup> As noted earlier, because of the difficulty in achieving progress in reducing CO2 emissions, the benchmark was later revised to 106% of 1990 levels.<sup>178</sup>

The Global Warming Commission has found that progress is being made in achieving the 2010 goal of arresting the growth of greenhouse gas emissions. However, the Commission does not believe that the State is on pace to meet the 2020 goal of 10% below 1990 levels.



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6. Incorporate aggressive energy efficiency measures into updates of state building energy codes, with a goal of achieving at least 15% cumulative savings by 2015 in each state.

7. Organize a West Coast Governors' conference in 2005 to inform policy-makers and the public of climate change research concerning the West Coast states.<sup>184</sup>

Actions on these measures have been underway since they were approved by the Governors in 2004.

Oregon has also been an active member of the Western Climate Initiative (WCI), which built upon the work of the West Coast Governor's Global Warming Initiative. The Western Climate Initiative began in Febr

together have important implications for action on the federal level.

In recent years, Congress has found it difficult to pass major climate change legislation or even major energy legislation including a national Renewable Portfolio Standard. The recent Congressional election makes it less likely that there will be broad agreement on meaningful climate change legislation. Nevertheless, there is reason for optimism for federal action as



traditional pollutants and vehicle mileage improvement. It is very important that the states continue their efforts, especially through the three regional organizations that are currently active, in order to make progress in the absence of federal legislation and to encourage Congress to act positively on climate change legislation.

#### VIII. CONCLUSION: WATER RIGHTS OR A RIGHT TO WATER?

Traditionally in the western United States, access to water has been defined by water rights. While each state law has its unique features, often the right has been based on the concept of “first in time, first in right.” That doctrine was developed to address the fact that there often has not been enough water to serve all potential needs and users. Water rights determinations have often been contentious, accurately reflecting the old saying that “whiskey is for drinking; water is for fighting.”

If we continue to rely excessively on fossil fuels and if we fail to develop less carbon-emitting alternatives to power our vehicles, factories and homes, climate change caused by our energy choices will make the water supply situation worse. Thus, if the International Human Right to Water is to be meaningful, our energy choices must not aggravate and worsen water supply options.

The UN General Assembly last summer unanimously passed a resolution in support of the human right to water and sanitation.<sup>188</sup> While forty-one nations, including the United States, abstained for various reasons, the will of the international community was clear. This action followed previous international actions that declare access to water a fundamental human right by all.<sup>189</sup>

If an International Human Right to Water is not only desirable, but required under American or International law, then our energy choices must be guided by considerations of the implications of that right. Do we only have a system of water rights, or do we also have a right to water? How does that question inform and affect our energy choices? Without progress on

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188. Press Release, General Assembly, General Assembly adopts resolution recognizing access to clean water, sanitation as human right, by recorded vote of 122 in favor, none against, 41 abstentions, U.N. Press Release GA/10967 (July 28, 2010) *available at* <http://www.un.org/News/Press/docs/2010/ga10967.doc.htm>.

189. See WORLD HEALTH ORGANIZATION, THE RIGHT TO WATER 3 (Feb. 2003), *available at* [http://www.who.int/water\\_sanitation\\_health/en/righttowater.pdf](http://www.who.int/water_sanitation_health/en/righttowater.pdf).

greenhouse gas emissions, the effects of climate change, combined with other increasing pressures on water use, will make the human right to water an empty promise, an obligation unfulfilled, and a legacy lost.

The choice is not between clean energy or affordable energy; we must not let the question be framed that way. We will continue to need traditional sources of energy for the foreseeable future; however, energy efficiency and renewable energy are viable sources of energy both technically and, increasingly, economically. State and federal policies can increase the pace at which energy efficiency and renewable energy are developed and installed. The