Plowing New Pathways:
Developing Quality Offsets in a Maturing Market

THE CLIMATE TRUST'S FIVE-YEAR REPORT TO THE OREGON ENERGY FACILITY SITING COUNCIL

The ClimateTrust

OCTOBER 2014

Forward

The Climate Trust would like to commend the State of Oregon for having the vision to enact the Oregon Carbon Dioxide Standard over 15 years ago. In addition, we would like to thank the State of Oregon and our Oregon Program funders for entrusting us with the critical task of developing carbon offset projects in compliance with the legislation to help mitigate climate change and preserve the environment for generations to come. Program offset funding has been provided by Avista Corporation, Calpine, Iberdrola Renewables and its predecessor PPM Energy, NW Natural, and Portland General Electric. This report presents a full accounting of our performance administering the Oregon Program, provides insight into policy and market trends that impact our work, and offers recommendations for improving the implementation and environmental benefit of the law.

Lastly we would like to thank our reviewers Colin McConnaha, Oregon Department of Environmental Quality, Shanna Brownstein, NW Natural, and Jessica Shipley, Matt Krumenaur, Julie Peacock, and Andy Ginsburg, Oregon Department of Energy for their feedback and contributions in guiding this report.

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Executive Summary

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The Climate Trust's Oregon Program has invested offset funding provided by energy facilities into a diverse portfolio of twenty-six projects, resulting in nearly 1.4 million metric tons carbon dioxide emission reductions; the equivalent of removing 289,764 passenger vehicles from the road, or nearly 10 percent of all registered passenger vehicles in Oregon.

I Executive Summary

In 1997 the State of Oregon took a bold step when it passed the first legislation in the nation to curb carbon dioxide emissions. Called the Oregon Carbon Dioxide Standard ("Oregon Program"), the law requires new energy facilities sited in the state to meet an emissions standard that is 17 percent below the level of the best existing gas combustion-turbine plant anywhere in the U.S.

Facilities can comply with the Oregon Program by adopting carbon-mitigating technologies and practices onsite; directly managing (or retaining a third party to manage) a portfolio of offset projects; or providing funding to a state-recognized nonprofit responsible for selecting and managing carbon reduction projects on their behalf (the "monetary path"). In 1997, The Climate Trust was founded in Oregon as a 501(c)(3) nonprofit organization qualified under the Oregon Program to acquire carbon offsets on behalf of energy facilities. To date, all regulated utilities have chosen to mitigate their carbon pollution through this third option with The Climate Trust, entrusting the organization with approximately $24,286,154 to purchase emission reductions from projects that avoid, sequester, or displace greenhouse gas emissions. This highly successful model has been replicated with new power plants in Massachusetts, Montana, and Washington State.

Oregon's approach to giving its new electric facilities flexibility in how to mitigate carbon emissions has stood the test of time when one considers the many international, federal, regional and state efforts on carbon that have come and gone in the last 17 years.

Meeting regulatory requirements

For more than fifteen years, The Climate Trust has continued to meet all of the statutory requirements of a qualified organization. One key requirement is to provide a performance report to the Energy Facility Siting Council (EFSC) every five years. The report offers an opportunity for The Climate Trust and EFSC to review our performance administering the Program and to recommend any changes to the Standard to the Legislature, if necessary. We presented our first report titled "Purchasing Quality Offsets in an Emerging Market" in September 2004, five years after receiving our first offset funds. We are presenting this report to the Energy Facility Siting Council in November 2014, to fulfill this requirement.

The Oregon Program is making a difference

The Oregon Program demonstrates that climate mitigation policy works. To date, all energy facilities have chosen the monetary path option, thereby proving that they can bear the cost of carbon emission reductions, which adds less than 0.5 percent to the lifetime cost of a new energy facility.

The chief goal of The Climate Trust's Oregon Program is to provide an advance market commitment by purchasing high quality carbon offsets from projects that reduce, eliminate, sequester, or avoid carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O) emissions.[1] Our Oregon Program has invested offset funding provided by the energy facilities in a diverse portfolio of twenty-six projects that has resulted in nearly 1.4 million metric tons carbon dioxide equivalent (CO_2e) emission reductions with a further 1.6 million more to come. Those emission reductions cost an average of $4.32 per metric ton.

1 Note that in our last 5 year report, carbon dioxide was the only eligible greenhouse gas under the Oregon Program, but the legislature was updated to include methane and nitrous oxides as eligible greenhouse gases.

In addition to achieving real, verified, and permanent emission reductions, offset projects provide a wealth of other benefits to the state.

Most notably, the Oregon Program has an in-state economic development benefit. The Climate Trust has committed $6.5 million to instate offset projects. This translates to an instate spending commitment of 51 cents of every dollar we've committed to spend on projects under the Oregon Program. To date, The Climate Trust has committed funds to projects in Boardman, Klamath Falls, Junction City, Portland, Roseburg, and Tillamook.

Lessons learned from the Oregon Program

The Monetary Pathway mechanism is an intriguing option that Oregon and state policymakers should examine in depth and strongly consider when developing and implementing new carbon reduction policies. While the Oregon Program is focused on new fossil fired power plants, a monetary pathway whereby funds are redirected to a special purpose entity is a design feature that could be applied to many different policy options such as cap and trade, a carbon tax, and a low carbon fuel standard among others. Based on our 17 years of experiencing administering the Oregon Program, the monetary pathway option has produced four notables: cost certainty, innovation, economic development, and environmental benefits.

Benefit 1: Financial certainty for regulated entities

The monetary pathway establishes a clear formula for power generation companies to integrate the cost of carbon mitigation into their financial planning models. Such financial certainty has proven to be a compelling case for regulated entities, all of which have chosen the monetary pathway over alternatives which are less certain in determining the ultimate cost of compliance. Additionally, the inherent certainty of the monetary pathway approach can be used to counteract the cost of compliance uncertainty that is commonly associated with new low-carbon policies. In the case of the Oregon Program, the fact that it accounts for one-half of one percent of the projected 30-year cost of a new facility illustrates that there are policy options available to reduce carbon emissions, without markedly raising energy prices.

Benefit 2: Special purpose entities have competitive advantages and foster innovation

A common challenge with many low carbon policies is the fact that regulated entities face other policy constraints and may not have the structure or expertise to effectively support new and/or innovative emission reduction ventures. For example, Investor Owned Utilities in California face constraints in purchasing carbon offsets because of regulations designed to protect ratepayers from compliance cost uncertainties associated with that state's cap and trade legislation. Additionally, regulated entities face internal constraints such as limits on upfront funding and a lack of experience on evaluating start up project developer counterparties and/or project types that can be well outside of the regulated company's core business. As such, transaction costs, and project management costs can be managed more efficiently by designating Special Purpose Entities whose core business is supporting carbon reduction businesses, projects and initiatives.

The Climate Trust, as a Special Purpose Entity or what is known as a Qualified Or-

ganization under the Oregon Program, is well equipped to support the transition to a low-carbon economy. This is evidenced by our track record and ability to enter into long term financial commitments and play a significant capacity building role in the offset market. Currently, the Oregon Program has enabled The Climate Trust to focus our purchasing power on nascent project sectors that include the agricultural offset market. Earlier this year, The Climate Trust executed the first nutrient management carbon offset market transaction with Delta Institute using Oregon Program funds. This early market commitment stands out as few organizations nationally are in the position of being able to obligate funding over several years for a first-of-its-kind effort. Further, this unique advantage afforded by the Oregon Program is something that is earning high profile national attention as evidenced in the latest White House Report on climate resilience[2].

The Climate Trust is able to pursue upfront funding, but in a very limited manner, as this risk needs to be weighed against our primary objective of receiving delivery of—and retiring carbon dioxide emission reductions to offset the emissions from the facilities that have chosen the monetary pathway under the Oregon Program. This constrains The Climate Trust's role somewhat as a Special Purpose Entity that could provide significant upfront funding to enable innovative carbon reduction practices and technologies to overcome many of the financial, and technical barriers they face. The result is The Climate Trust receives many proposals to fund businesses and projects that it needs to reject because they are too risky, given the structure of our funds. This limitation could be removed by having the State underwrite and/or offer some form of financial security for Special Purpose Entities to invest in Oregon businesses and projects that are promoting carbon reduction innovation.

Benefit 3: Low carbon policies are an effective state economic development tool

Although the Oregon Program does not mandate nor specify whereoffset funds are spent geographically, directing offset funds

in the state of Oregon is a priority for several Oregon Program stakeholders. The Climate Trust shares this priority, as the Oregon Program has enabled us to develop expertise as an environmental credit buyer and affords us the opportunity to enhance the capacity of Oregon projects and businesses to tap environmental credit revenues within and beyond our home state's borders.

In 2001, the first year that we obligated funding, 61 percent was for projects located in Oregon. Since that time, The Climate Trust has been able to maintain a high proportion of offset funds for Oregon projects. Currently, out of the $12.8 million The Climate Trust has in purchase commitments, more than $6.5 million is for projects in Oregon, which is equivalent to 51 percent of the total financial commitments we've entered into using Oregon Program funds.

To ensure The Climate Trust could maintain our ability to support Oregon projects under the Oregon Program, we successfully engaged the state legislature in 2011 to update the Oregon Program regulations to allow The Climate Trust to purchase methane and nitrous oxide emission reductions. The regulation initially only allowed for carbon dioxide emission reduction purchases. By initiating this expansion to methane and nitrous oxide, The Climate Trust not only enabled the Oregon Program to additionally mitigate two potent greenhouse gases, which are respectively 25 and 298 times stronger than CO_2, but also allowed us to target a greater share of our investments in Oregon. Since this change was implemented, it has proven to aid in The Climate Trust's ability to support rural economic development, as non-CO_2 project funding from the Oregon Program has been committed to projects located in Boardman, Junction City, Roseburg, and Tillamook.

Benefit 4: Meaningful environmental benefits occur

The Oregon Program portfolio currently consists of 26 projects,[3] 16 of which are active and 14 of which are located in Oregon, in a diverse number of sectors including, agriculture, biogas, composting, forestry, renewable energy and transportation. Although approximately 55 percent of the contracted volume of emission reductions is pending future delivery, the 45 percent that The Climate Trust has retired is equivalent to the combined annual household energy use of Gresham and Salem. Beyond the carbon mitigation impact, these investments have generated additional ancillary environmental benefits such as cleaner air, cleaner water, repurposing and utilization of waste products, and biodiversity.

Although the Oregon Program's principle environmental objective is to reduce greenhouse gas emissions, the benefits of our investments go well beyond mitigating climate change. Our investments in carbon reduction projects have also supported energy conservation, renewable energy generation, improved forest management, reducing fertilizer use on corn and soy fields, composting, and the reuse of waste. There are a disperse number of benefits from the projects such as the following:

- Renewable energy and energy efficiency projects have also improved air quality by contributing to a reduction in such pollutants as nitrogen oxide, sulfur dioxide, and mercury. Additionally, the energy efficiency efforts had the social and economic benefit of lowering energy costs for low-income residences;
- The forestry projects have protected ecosystems that have enhanced biodiversity, and water quality, while providing recreation opportunities. Additionally, offset funding has helped to reforest degraded lands that would have been denuded, but is instead recovering; and
- The reuse of waste projects such as livestock manure management has alleviated soil, ground water, and odor impacts at the dairies where they are located. The livestock projects have also improved the competitiveness of dairies by turning a cost source (manure) into a revenue stream.

The multiplier effect of co-benefits from offset project commitments can be substantial. A recent Imperial College London University[4] study found that every metric ton of CO_2 emission reduction removed through a carbon offset program generated $664 in economic, social and environmental benefits.

Figure 1- Imperial College co-benefits summary

2 See page 26 of Council On Climate Preparedness and Resilience, "Enhancing the Climate Resilience of America's Natural Resources," 2014, http://www.whitehouse.gov/sites/default/files/docs/enhancing_climate_resilience_of_americas_natural_resources.pdf.

3 Note that The Climate Trust also entered into contracts for 7 projects that were terminated, 3 of which were located in Oregon. Therefore, the overall total under the Oregon Program for reporting purposes is 33.

4 Makuck, Kountouris and Feng Tan Loh, Imperial College London University, 2014. Unlocking the Hidden Value of Carbon Offsetting. International Carbon Reduction and Offset Alliance. http://www.icroa.org/42/icroa-research/

Introduction & About The Climate Trust

II

Sixteen of the twenty six Oregon Program projects have been developed in the state, providing Oregonians with a greater share of the benefits; including investment in clean energy, innovative technology, and new jobs, as well as real, measured, and permanent reductions in carbon dioxide emissions and a host of other environmental benefits.

II Introduction

The State of Oregon enacted legislation (HB 3283) in 1997 that authorized the Energy Facility Siting Council (EFSC) to adopt carbon dioxide emissions standards for new fossil-fueled power plants[5]. This legislation established The Climate Trust as a qualified organization that energy generating facilities could engage to comply with the Oregon Carbon Dioxide (CO_2) Standard (Oregon Program). As a qualified organization, The Climate Trust is required to submit a report to EFSC at five year intervals beginning on the date it first received funding. Since The Climate Trust received its initial funds in 1999, this marks the third five year report to EFSC.

The report describes The Climate Trust and the Oregon Program in addition to examining two main sections pertinent to 2014 and the future. The first part focuses on The Climate Trust's performance as a qualified organization and the impact it has had in Oregon and beyond. The second part examines several different carbon policy mechanisms the State of Oregon can consider and discusses how The Trust can interact with each to achieve the objectives of promoting the development of a low carbon economy, while reducing greenhouse gas (GHG) emissions.

5 The statutory authority for the Oregon Program is found in ORS 469.503. The standards and applicable rules are found in the Oregon Administrative Rules, Chapter 345, Division 24.

About The Climate Trust

The Oregon Program has positioned the state as a leader in carbon offsets and sustainable development, and Oregon's leadership has placed The Climate Trust in a position of national influence. The Climate Trust continues to grow in size and stature, helping further the State of Oregon's goals of building on the state's climate leadership and leading the transition to a more environmentally sustainable and global competitive state economy."[6]

The Climate Trust today

The Climate Trust continues to grow in size and influence. The Oregon Program was our first, and remains our largest, program. Our Oregon offset portfolio has funded twenty six projects that are anticipated to reduce almost 3 million metric tons of carbon dioxide (CO_2). Sixteen of the twenty six projects have been developed in Oregon, providing Oregonians with a greater share of the benefits, which include investment in clean energy, innovative technology, and new jobs, as well as real, measured, and permanent reductions in carbon dioxide emissions and a host of other environmental benefits.

In addition to Oregon, we have acquired offsets as part of regulatory processes involving Massachusetts, Montana, and Washington State. We have also leveraged our experience with the Oregon Program to develop customized voluntary offset services for large businesses, governments, and utilities. We design and implement voluntary offset programs such as the Colorado Carbon Fund in collaboration with the Colorado Energy Office and the Smart Energy program in collaboration with NW Natural. These additional regulatory and voluntary programs have expanded our portfolio to an overall total of 33 projects, which are anticipated to result in an additional one and a half-million metric tons of CO_2 emission reductions.

What makes The Climate Trust unique

Our vision is to transform the economy to value our climate. The Trust has more than 15 years experience as a fund manager in the carbon market and we take a comprehensive approach to climate solutions—simultaneously financing projects and programs in ten states, and developing climate policies and industry standards to accelerate greenhouse gas reductions in over eight industrial sectors in the U.S.

As a result of our efforts that began with the Oregon Program, The Climate Trust has entered into nearly $21.6 million in funding commitments. These commitments have produced over 1.8 million metric tons in greenhouse gas emission reductions with a projected 2.6 million more metric tons on the way once all of the current contracts in our portfolio are fulfilled.

Being at the intersection of a public interest nonprofit and fund manager sets us apart. The Climate Trust is not only interested in funding established emission reduction sectors such as biogas and forestry, but we also take our capacity building role seriously. We stand out as a buyer that is willing to put money towards innovative projects such as those in the agriculture sector that are just starting to enter the carbon market. This position is matched by our maturity in assessing project and commercialization risk as responsible stewards of the fund.

6 The Oregon Governor's Climate Change Integration Group: Final Report to the Governor, January 2008.

High standard of accountability

As a qualified organization under the Oregon Program, The Climate Trust is subject to a high standard of accountability. We are primarily accountable to the Energy Facility Siting Council, which has regulatory oversight, and our Board of Directors, which delivers recommendations and oversight on our operations and the offset project acquisition process. However, we also consider ourselves accountable to the energy facilities that provide offset funding, the people of Oregon, and the environment.

One of the most critical ways that we live up to this responsibility is by observing exemplary fiscal practices. We have consistently achieved excellent financial audit results, which we share annually with the Energy Facility Siting Council.

Strong investment policy

The Climate Trust has adopted a prudent investment policy to ensure funds under The Climate Trust's management are invested to preserve capital and earn income to supplement normal operating expenses. The time horizons for investments are: short term (2 years or less); mid-term (2-5 years); and long-term (5-7 years).

Our policy takes the following standards of care:

1. The "prudent person" standard shall be used and investments shall be made by Board Members on behalf of TCT with the judgment and care that persons of prudence, discretion and intelligence would exercise in the management of their own affairs;
2. Board Members, hired consultants, or hired additional specialists involved with the investment process shall refrain from personal business activity that may conflict with the proper execution of the investment program or impair their ability to make impartial investment decisions; and;
3. Board members, officers, consultants, investment managers and all other parties involved in the stewardship of the investment assets are required to exercise reasonable care, skill and caution to make and implement investment and management decisions as a prudent investor would for the entire portfolio as it relates to applicable Oregon law.

Further, to ensure the funds entrusted to our manager are not used in an unduly risky manner, The Climate Trust portfolio is prohibited from making direct investments in, or from engaging in transactions in the securities or investment vehicles listed below:

1. Individual Commodities and Futures Contracts
2. Private Placements (with the exception of allowed structured index notes)
3. Options
4. Private, Non-registered Limited Partnerships
5. Venture-Capital Investments
6. Private investments in which any board members holds an interest
7. Securities whose issuers have filed a petition for bankruptcy
8. Short sales (unless through a mutual fund or hedge fund)
9. Margin transactions
10. Purchase or sale of interest rate fixtures (unless through a mutual fund)
11. Purchase of letter stock (acceptance of donated letter stock is always permissible)

The Climate Trust's objective is to include high quality "climate-friendly" investments that deliver environmental and social results consistent with The Climate Trust mission. Our Social and Environmental Screening Preferences are:

- Carbon disclosure made, score in preferred category
- Participation and disclosure on the Carbon Disclosure Project
- Disclosure of carbon and GHG emissions
- Active corporate policy identifying carbon and GHG emission reduction strategies
- Alternative energy production or use of energy efficiency technology
- Board governance score in preferred category
- Affirmative action—strong record of hiring women and minorities into management.
- Community investment or efforts to rebuild depressed communities
- Employee relations score in preferred category

Conversely, The Climate Trust investment policy is averse to and seeks to exclude companies that consistently engage is selected activities:

- Alcohol production or sales generating over 10% of revenues
- Chemical, biological or nuclear weapons production over 10% of revenues
- Environmental conduct—recurrent violations of laws and/or government standards
- Environmental responsibility as a primary party (PRP) to EPA super-fund sites
- Foreign workers in abusive or substandard conditions or use of forced labor
- Gambling involvement generating over 10% of revenues
- Military industrial applications exceeding 10% of revenues
- Coal power generation accounting for over 10% of utility revenues
- Repressive regimes supported directly through foreign business activities

A national reputation for quality

The Climate Trust believes that offsets must be of the highest quality in order to ensure the integrity, accountability, and stability of the carbon offset market. We work to ensure the quality of offsets in a number of ways. First, we use a rigorous process for evaluating, selecting, and managing the quality and performance of offset projects acquired on behalf of Oregon energy facilities. Second, we have been involved in developing third-party standards by playing an advisory role and directly developing project standards for the American Carbon Registry, Climate Action Reserve, and Verified Carbon Standard.

We have been responsible stewards of the Oregon Program and we look forward to continuing in that important role. In addition, we look forward to continuing to inform, innovate, and develop the U.S. carbon market in the years to come.

The Climate Trust's Oregon Program

III

Our Oregon offset portfolio has funded twenty six projects that are anticipated to reduce almost 3 million metric tons of carbon dioxide (CO_2); the equivalent of over 400,000 homes' electricity use for one year.

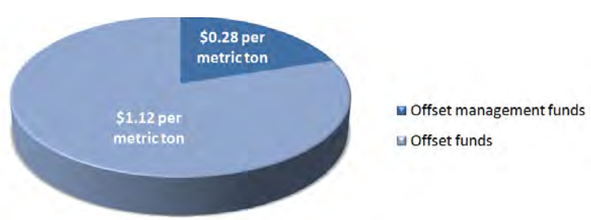
III The Climate Trust's Oregon Program

The Climate Trust as a 'qualified organization'

The Climate Trust was chartered in 1997 to be an independent nonprofit organization qualified to administer the Oregon Carbon Dioxide Standard's "monetary path," and we remain the only organization to do so. The criteria for a "qualified organization" are:

- Be a tax-exempt 501(c)(3) nonprofit incorporated in, or authorized to do business in, Oregon
- Have a seven-person body that makes decisions about the use of the carbon funds chosen in the following way: Three (3) appointed by the Energy Facility Siting Council; Three (3) Oregon residents appointed by an environmental nonprofit organization named by the qualified organization (presently the Northwest Energy Coalition); and One (1) appointed by the applicants for energy facility site certificates
- Ensure offset funds received under the Oregon Program result in the direct reduction, elimination, sequestration, or avoidance of carbon dioxide emissions
- Obligate at least 60 percent of the offset funds in contracts to implement offsets within two years after construction begins on the energy facility that provided the funds
- Use at least 80 percent of the offset funds for contracts to implement offsets
- Make available annually a signed opinion of an independent certified public accountant stating that the qualified organization's use of funds conforms to generally accepted accounting procedures

Figure 2- Breakdown of how current monetary path rate is spent



Monetary path rate

To date, all new energy facilities have chosen the third option for compliance. Known as the "monetary path," this option allows energy facilities to comply with the Oregon Program by providing offset funds on a fee-per-ton basis for emissions that exceed those allowed by law. This option provides energy facilities with certainty about the cost of compliance and allows them to avoid developing and managing offset projects themselves.

The law set the original monetary path rate at $0.57 per metric ton but allowed EFSC to adjust the price up to 50 percent every two years. EFSC has raised the price twice, most recently in May 2007, to its current rate of $1.40 per metric ton.

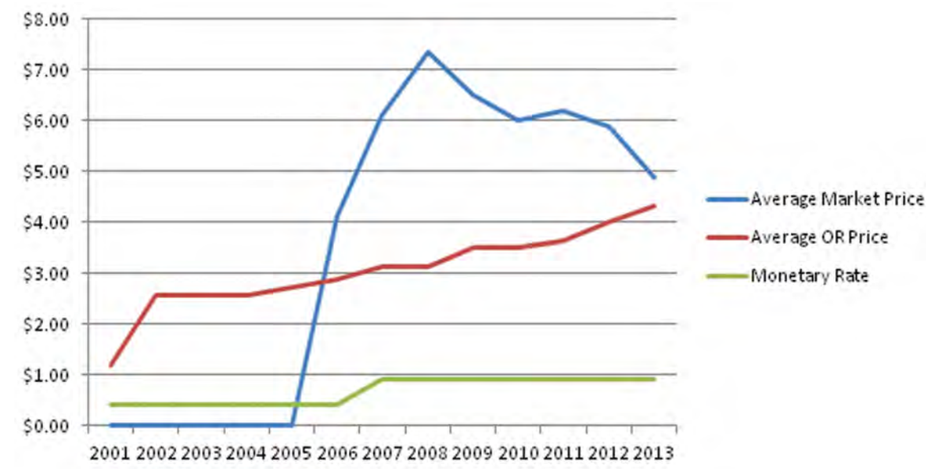
The Oregon Program neither requires a qualified organization, nor does it provide sufficient funding, to offset the full 17 percent of an energy facility's carbon emissions. This is because the monetary pathway acts as a carbon price-based approach for energy facilities to comply with the Standard. The way the monetary path rate is designed precludes a qualified organization from fully offsetting an energy facility's emissions for two reasons:

- Up to twenty percent of offset funding is set aside to cover the costs of "monitoring, evaluation, administration and enforcement of contracts to implement offsets;" and
- The monetary path rate has not kept pace with market prices.

Twenty percent of the monetary path payment is set aside to manage the offset contracts over their lifetimes, thereby reducing the amount of funds available for offsets to $0.46 per metric ton at the original monetary path rate and to $1.12 per metric ton at the current rate.

The second reason is that the monetary path rate has never kept pace with market prices. The current monetary path rate provides $1.12 per metric ton for offset contracts, whereas the average offset price The Climate Trust has been able to negotiate is $4.32 per metric ton; this is in comparison to average market prices ranging from a high of $7.34 in 2008 to $4.90 in 2013.

Figure 3- Pricing Comparison Chart



Sources: Average Market Price: Ecosystem Market Place and Bloomberg New Energy Finance, State of the Voluntary Carbon Market Reports 2008-2014; Average OR Price: The Climate Trust internal calculations, Monetary Rate: Oregon Carbon Dioxide Standard.

Selection and contracting funds

The Oregon Program also stipulates additional funds to compensate the qualified organization for the cost of selection and contracting of offset projects. The reasoning was that an energy facility would incur such costs anyway if it developed its own offset projects. The selection and contracting funds are equal to:

- For larger projects: 10 percent of the first $500,000 of monetary path funds and 4.286 percent of monetary path funds in addition to the $500,000, with a minimum of $50,000; or
- For smaller projects: 20 percent of the first $250,000 of monetary path funds and 4.286 percent of any amount in addition to the $250,000

This is approximately equal to an additional 5 percent over the total funds paid to the qualifying organization for offset contracts and management of offset projects.

How the Oregon Program Functions

IV

When making decisions about which offset projects to fund, The Climate Trust gives a preference to projects located in Oregon, because offset project development gives the state a competitive advantage in the emerging low-carbon economy and provides vital environmental, economic, and social benefits to Oregonians.

IV How the Oregon Program functions

This section outlines the offset requirements for the Oregon Program and explains the process for acquiring and managing high quality offsets.

Oregon Program funding

The Energy Facility Siting Council (EFSC) "shall determine the offset funds using the monetary path rate and the level of emissions reduction required to meet the applicable standard" for proposed energy facilities under consideration for a site certificate, as outlined in the Oregon Program.

Once a site certificate is received, an energy facility enters a memorandum of understanding with the qualified organization regarding payment of the funds. The selection and contracting funds are required to be paid in full to the qualified organization at the time construction of the facility begins, and the monetary path payment is due as a lump sum when the qualified organization is ready to execute its first offset contract on the facility's behalf.

Requirements in placing funds

The Oregon Program stipulates that a qualified organization must meet two important requirements in placing monetary path funds:

- At least 60 percent of the funds must be obligated (committed) via contracts to implement (secure) offsets within two (2) years after the commencement of construction of the energy facility, unless there is good cause for failing to do so; and
- At least 80 percent of the funds must be used for contracts to implement offsets, with the remaining 20 percent set aside for managing the contracts over the life of the project.

To date, The Climate Trust has met the 60 percent criterion for all eligible facilities, with the exception of one facility (Carty) where the two year timeline expires in January 2016. The Climate Trust has also satisfied the 80 percent criterion for one facility. A more detailed evaluation of our track record in placing funds is presented in the Our Performance section below.

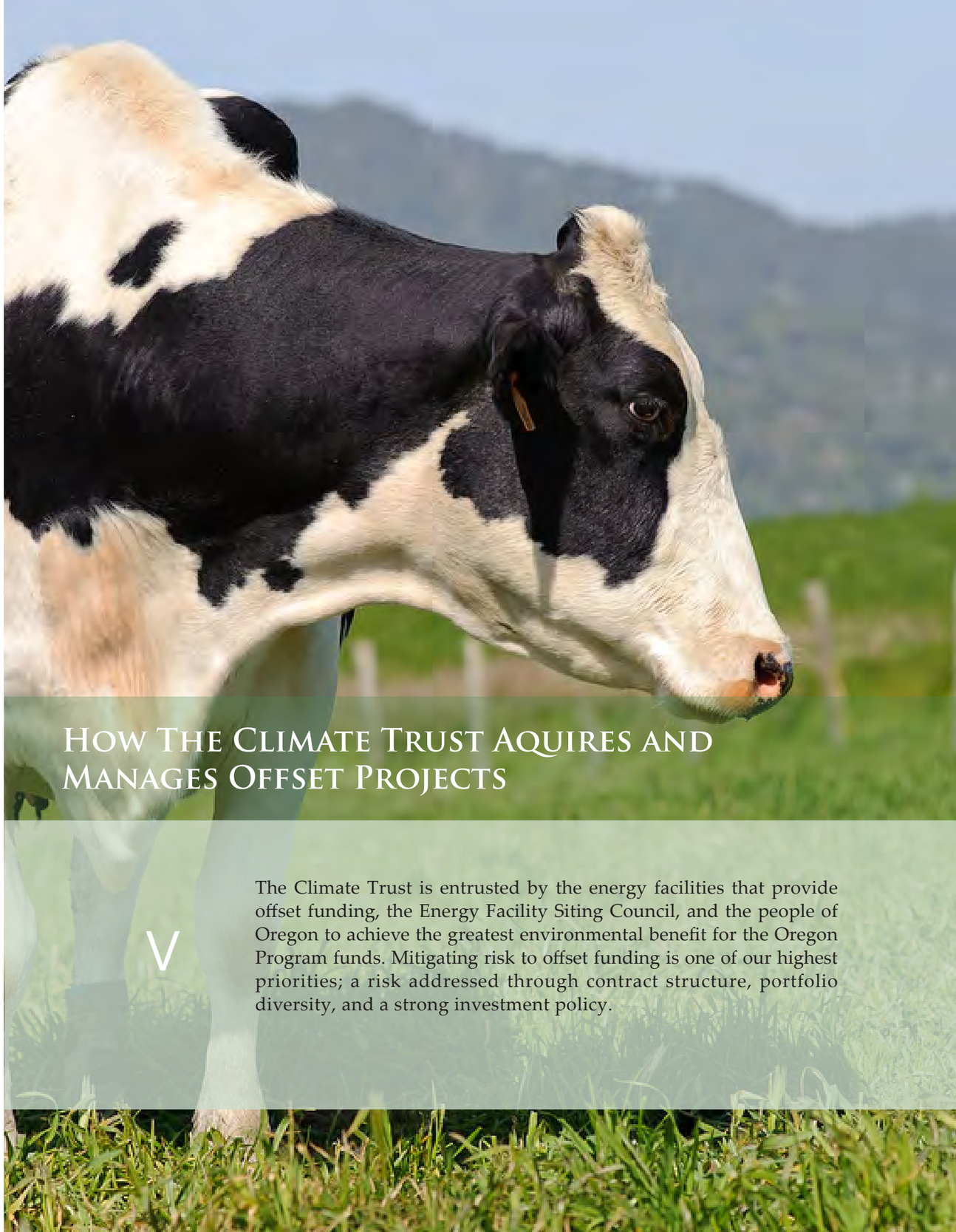
Offset project requirements

The Oregon Program defines offsets as "an action that will be implemented by the applicant, a third party or through the qualified organization to avoid, sequester or displace emissions of carbon dioxide." Using this definition and best carbon market practices, The Climate Trust acquires offset projects that meet the following requirements:

- Reduce carbon dioxide, methane and nitrous oxide (none of the other three greenhouse gases recognized by the Kyoto Protocol—sulfur hexafluoride, hydrofluorocarbons, and perfluorocarbons—is eligible);
- Are independently verified by a qualified auditor that will determine the volume of verified emission reductions as the basic product delivered to The Climate Trust;
- Are being undertaken voluntarily such that regulatory measures are not resulting in emission reductions, which is also known as regulatory surplus additionality;
- Meet recognized additionality standards such as a common practice test and/or whereby offset revenues help the project to overcome financial, technical, or institutional barriers;
- Unambiguous ownership can be established by the project developer who will also attest in a contract that the offsets are not being double counted and that ownership is transferred to The Climate Trust.

When making decisions about which offset projects to fund, The Climate Trust factors in other considerations including:

- **Price.** The motivation to acquire the highest quality offsets at the lowest price possible;
- **Certification.** The use of third party standards that provide transparent and credible procedures for determining the net emission reductions;
- **Diversity.** It is important to acquire a portfolio of diverse project types in order to help mitigate the risk of failure and/or underperformance by individual projects;
- **Innovation.** Promoting the development of innovative zero- and low-carbon technologies helps the carbon market reach its full potential as a climate change mitigation tool; and
- **Geography.** A preference is given to projects located in Oregon, because offset project development gives the state a competitive advantage in the emerging low-carbon economy and provides vital environmental, economic, and social benefits to Oregonians.



How The Climate Trust Aquires and Manages Offset Projects

V

The Climate Trust is entrusted by the energy facilities that provide offset funding, the Energy Facility Siting Council, and the people of Oregon to achieve the greatest environmental benefit for the Oregon Program funds. Mitigating risk to offset funding is one of our highest priorities; a risk addressed through contract structure, portfolio diversity, and a strong investment policy.

V

How the Climate Trust acquires and manages offset projects

The Climate Trust has built a diverse portfolio of high quality offset projects through competitive requests for proposals and a targeted project acquisition process. Using the requirements of the Oregon Program as a guide, we have pioneered and refined processes for evaluating, selecting, and acquiring offset projects. We take the following steps to acquire projects for the Oregon Program:

1. Evaluate offset quality;
2. Conduct rigorous project and counterparty due diligence;
3. Review our due diligence findings and discuss technical, market, and delivery risks and risk mitigation strategies with our Programs Committee (see sidebar);
4. Negotiate a strong contract, known as an ERPA (Emissions Reduction Purchase Agreement).

The Climate Trust's Programs Committee and Board of Directors[7] provide feedback and oversight over this acquisition process, and the Board makes the final decision about whether to approve an offset contract and fund a project.

Once an emissions reduction purchase agreement is signed, The Climate Trust remains actively involved in tracking the project's performance to ensure implementation and performance milestones are met. In addition to regular communications with project developers, we oversee ongoing monitoring and verification of projects, offset delivery, and appropriate retirement of offsets.

Figure 4 provides the life cycle of an offset in the Oregon Program, from funding through retirement. The process, which can be time-consuming and costly, is designed to ensure the environmental and economic quality and integrity of the offsets.

The Programs Committee

The Programs Committee consists of several Board and external stakeholders who posses market, technical and legal expertise. This committee serves as an external check on our evaluation efforts and their approval is necessary before we begin contract negotiations.

Risk mitigation

The Climate Trust is entrusted by the energy facilities that provide offset funding, the Energy Facility Siting Council, and the people of Oregon to achieve the greatest environmental benefit for the Oregon Program funds. Therefore, mitigating risk to offset funding is one of our highest priorities. We address this risk through three strategies: contract structure, portfolio diversity, and a strong investment policy. Since this report previously described our investment policy, this section will examine contracts and diversity in more depth.

Contract structure

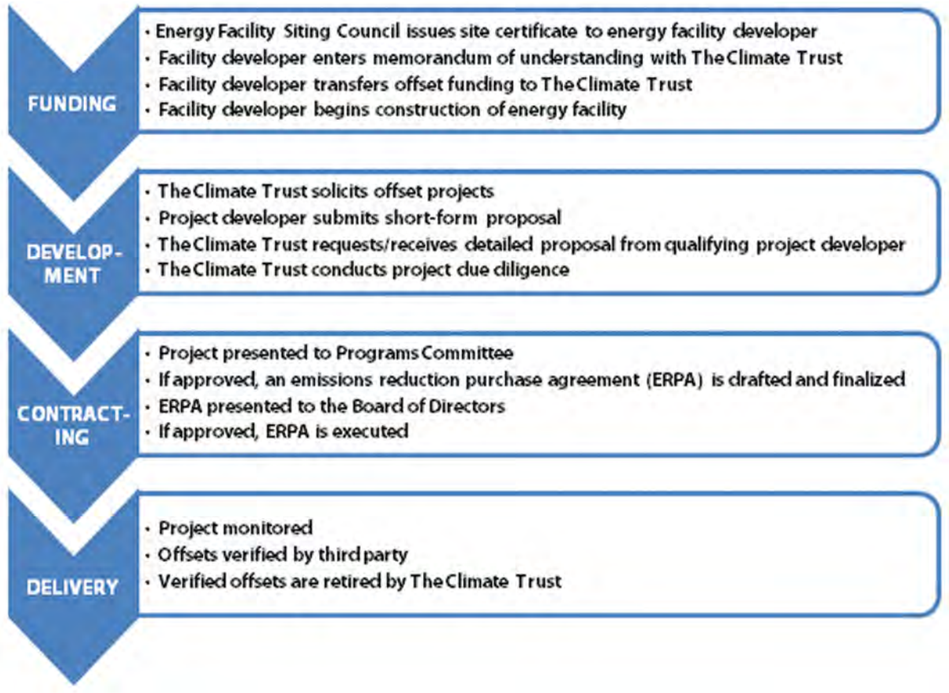
The structure of our offset contracts focuses on preserving our capital, reducing the risk of underperformance, and defining the ownership of offsets. We currently employ a variety of mechanisms to mitigate the risk of lost funds for undelivered offsets, including:

- Guarantees—The Climate Trust prefers to structure contracts where project developers take on a delivery guarantee and if not met, supply replacement offsets accepted at our sole discretion at a reduced price;
- Performance milestones—our contracts are set to establish timelines for reaching commercial operation, if applicable, and a clear delivery schedule so The Climate Trust can more informatively manage the timing of fulfilling our purchase obligations; and
- Payment after commercial operation—when The Climate Trust agrees to a pre-payment structure for offsets to be delivered in the future, we establish commercial operation of the project as the earliest milestone for disbursing payment. This ensures no funding is risked prior to the project demonstrating it can operate. Additionally, The Climate Trust is seeking to enter into security agreements on upfront payments to ensure we're protected if the project goes bankrupt prior to the fulfillment of offset delivery;

Portfolio diversity

The Climate Trust invests Oregon Program funds into a wide variety of offset projects to spread our risk across our portfolio, which is similar to the strategy that investors take with mutual funds. The risk of one type of offset project failing or underperforming is minimized by other projects performing as, or better than, expected. The portfolio as a whole is more resilient to risk than any individual project.

Figure 4- Life cycle of Oregon Program offsets



7 A list of individuals who serve on our Board and the Programs Committee can be found here: http://www.climatetrust.org/about/leadership/board/.

Oregon Program Portfolio Performance

VI

The expansion of the Oregon Program to include methane and nitrous oxide has resulted in The Trust committing over $2.1 million to support clean energy and organic waste diversion projects in Roseburg, Junction City, Tillamook, and Boardman, as well as exploring improved fertilizer application projects in the state's agriculture sector.

VI Oregon Program portfolio

The Climate Trust receives funding on a fee-per-ton basis from energy facilities complying with the law. Because the Oregon Program requires us to buy offsets that "will be" implemented, we only purchase offsets that are no earlier than the same vintage of when the facility began construction. For example, if a facility began construction in 2014, The Climate Trust will purchase offsets that are of 2014 vintage or later. This is because when offsets transition from "will be–" to "have been–" implemented is the completion of the third-party verification process. Since third party verification is at its most frequent an annual occurrence, this approach ensures the Oregon Program is helping to finance the generation of new offsets.

The result of this approach is that our offset projects provide emission reductions over many years. As intended by the Oregon Program, emissions reductions from our offset portfolio occur in a similar time frame as the release of emissions from the energy facilities utilizing the monetary path. To date, 47 percent of the total anticipated tons in our Oregon Program offset portfolio have been verified, delivered, and retired by The Climate Trust.

Oregon Program offset portfolio makeup

The Climate Trust's Oregon Program portfolio is currently made up of eight project types and twenty six offset projects. In addition to being diverse and meeting the quality benchmarks set by the Oregon Program, the portfolio's average offset price is $4.32 per metric ton, including every project since the first one was contracted in 2001.

The Oregon Program portfolio is anticipated to offset 2.97 million metric tons of carbon dioxide over the project lifetimes. That is the equivalent of taking about 624,405 cars off the road for a year or saving about 334 million gallons of gasoline.

The Climate Trust's performance

The Trust has received thirteen monetary pathway payments over the past fifteen years from five different facility owners. Note that in several cases payments are tied to different units within the same facility, or multiple payments for the same unit. Since the Oregon Program mandates a timeline for committing funds, each individual monetary pathway payment is presented separately regardless of facility or generating unit.

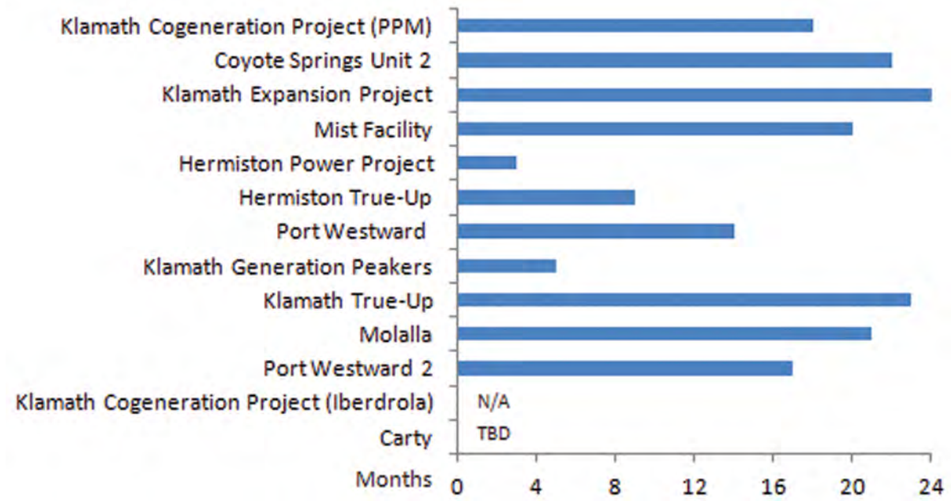
The following four metrics have been used to assess our performance:

1. **Timeliness**—the rate at which The Trust obligates funds towards offset projects;
2. **Financial**—the proportion of total funds currently obligated, the overall portion of funds that have been obligated, and unrecoverable funds associated with upfront funding commitments;
3. **Oregon Impact**—the extent and impact associated with deploying Oregon program funds on offset projects located in Oregon ; and
4. **Climate Impact**—the effect of our project decisions on reducing greenhouse gas emissions and anticipated reductions from our overall Oregon program portfolio.

Timeliness

A key charge of the Oregon Program is that a qualified organization has two years to obligate (i.e. enter contractual commitments

Figure 5- Facility by Facility 60% Funding Criterion



to spend) at least 60 percent of the Offset Funds[8] it receives for projects. The construction commencement date for the applicable facility represents the starting point for this criterion. For clarification, this report distinguishes between the two components of offset funds by using the following terms:

- Offset Purchase Funds—The share of offset funds that are used to pay for the offsets delivered to The Trust; and
- Management Funds—The share of offset funds The Trust uses to administer the Oregon Program and the offset project contracts that make up the Oregon Program portfolio.

The reasoning behind this charge (two years to obligate) is to ensure the timely implementation of commitments to emission reduction projects. The trade-off of this mandate is that it may undercut the incentive for a qualified organization to seek the lowest price for offsets.

It is worth noting that this is a static requirement and once a qualified organization has met the 60 percent standard, it remains met even if the percent of obligated funds falls below 60 percent. This scenario occurs when contracts subsequently underperform or are terminated early, which result in a deobligation (offset funds that were committed via an Emission Reduction Purchase Agreement are reallocated to an unobligated status, due to under-performance or non-performance) of funds. Such subsequent decreases in project performance are generally beyond the control of the qualified organization.

Figure 5 illustrates the number of months it has taken The Trust to adhere to the 60 percent criterion for each facility. Note one exception to this criterion is the Klamath Cogeneration Project (Iberdrola). This facility is exempt from the 60 percent criterion because the facility was the first and only with a carbon mitigation commitment that pre-dated the legislative standard and the establishment of The Trust. Iberdrola, with EFSC's approval, made a monetary

8 Under the Oregon Program Offset Funds are funds that are reserved for offset projects. The Program, further, allows such funds to be divided as long as at least 80 percent goes to project costs, and up to 20 percent goes to a qualified organization's management of the offset project portfolio.

payment to The Trust in 2008 as a contingency measure after Iberdrola requested transferring its long standing CO_2 obligation to The Trust. Given this unique scenario, The Trust was not required to meet the 60 percent criterion for this facility. To date, The Trust has met the 60% requirement for each eligible facility.

On average for the facilities where the criterion has been met, it has taken The Trust 16 months. In several cases, The Trust has needed in excess of 20 months to meet this criterion. The primary factors in determining the length of time necessary to meet this criterion were the limitation to purchase offsets from projects that reduced carbon dioxide only and the lack of standards for designing and quantifying projects. Currently, the Carty facility, which commenced construction January 9, 2014, is the only active facility where The Trust is still in the process of meeting the 60 percent requirement.

The Trust is preparing to focus on purchasing offsets to meet this criterion for Carty in 2015. The Trust's ability to adhere to this timeliness standard has been substantially aided by a legislative change, implemented in 2011, that allows The Trust to purchase methane and nitrous oxide offsets. An additional factor that improves our ability to meet this criterion is the overall maturation of the carbon market. This maturation is a result of the establishment and expansion of third party standards, which provide clear guidance on project additionality and carbon accounting practices for both offset project operators and offset purchasers alike. As a result, the transparency and efficiency in determining project eligibility and quantifying offset volumes has accelerated the timing for project selection and contracting among certain segments of the market. For The Trust, this has enabled rapid engagement with more projects when working with experienced offset project specialists.

Financial

During our 17 year tenure as a qualified organization, The Trust has received nearly $24.3 million dedicated to the acquisition of offsets (excluding the share of offset funds that is allocated for management purposes). This section examines The Trust's performance obligating the offset purchase funds received, and the track record of providing upfront funding to offset projects. The facility funding status with regards to carbon funding, amounts obligated, and amounts available is illustrated in Table 1.

Obligation Performance

As Table 1[9] indicates, The Trust has presently committed more than $12.8 million to offset projects through the Oregon Program or approximately 53 percent of total funds. To date, The Trust has spent all of the offset purchase funds from one facility (Klamath Generation Peakers). The Trust has also obligated the full offset purchase funds from another four facilities (Hermiston True-Up, Mollala, Mist, and Klamath True-Up), but in each case due to less than anticipated performance from the West Main Cool Climate Concrete Project these funds were subsequently deobligated. Therefore, these funds, which were initially obligated in late 2008, and stayed obligated to the West Main project until spring 2014, are available once more to purchase offsets from new projects.

This example of having to re-obligate the same tranche of funds after years of being obligated is indicative of the challenges The Trust faces administering Oregon program funds in a nascent environmental crediting market. This challenge is compounded by

9 Note that PPM Energy was the original owner of the Klamath Cogeneration Project, but owner ownership was subsequently transferred to Iberdrola. Because there are two separate facilities named Klamath Cogeneration Project. They are delineated in this report by PPM and Iberdrola even though Iberdola owns both facilities.

Table 1- Facility by Facility Funding Status

Facility/Owner	Offset Purchase Funds	Current Obligated Funds	Current Available Funds
Klamath Cogeneration Project (PPM)[9]/ Iberdrola	$958,158	$841,749	$116,409
Coyote Springs Unit 2/ Avista	$2,114,477	$1,448,193	$666,284
Klamath Expansion Project/ Iberdrola	$209,182	$136,590	$72,592
Mist Facility/ NW Natural	$18,853	$17,023	$1,830
Hermiston Power Project/ Calpine	$3,375,008	$2,336,395	$1,038,613
Hermiston True-Up/ Calpine	$347,313	$335,857	$11,456
Port Westward/ PGE	$4,320,452	$3,240,280	$1,080,172
Klamath Generation Peakers/ Iberdrola	$847	$847	$0
Klamath True-Up/ Iberdrola	$400,462	$347,647	$52,815
Molalla/ NW Natural	$26,913	$23,357	$3,556
Klamath Cogeneration Project (Iberdrola)/ Iberdrola	$2,649,222	$223,500	$2,425,722
Port Westward 2/ PGE	$3,532,388	$2,661,760	$870,628
Carty/ PGE	$6,332,879	$1,192,600	$5,140,279
Total	**$24,286,154**	**$12,805,798**	**$11,480,356**

two factors. First, many of our earliest projects were first-of-their-kind efforts where there is an inherent likelihood of projects not performing as expected. Second, because there isn't a clear price signal for carbon, there is no secondary market available to act as a ready source of replacement offsets. Although under-delivery or project failure has generally necessitated The Climate Trust starting from scratch in finding replacement credit supply, there are encouraging signs that this challenge will dissipate in the future. The Climate Trust's move to focusing on specific sectors such as biogas and forestry allows us to leverage our technical and commercial expertise to reduce the time and effort in securing new projects. Additionally, the expansion of standards has made it easier to identify the viability and reliability of the future volume of offsets available from potential projects.

The Trust invests substantial time and effort finding and evaluating projects and then structuring purchase agreements. Further, there are two factors at play that necessitate The Trust primarily entering into forward commercial agreements, where the full outcome of the evaluation and contracting efforts will not be known until ten to twenty years later depending on the project type and transaction.

The first factor has to do with the types of projects that are eligible to generate offsets. By their very nature, quality offset projects are defined as those that are not business-as-usual because they face significant implementation barriers such as financing. The second factor is the Oregon Program's criterion to fund new projects (i.e. those projects whose start date occurs subsequent to The Trust's receipt of Offset Funds).

In this context, ensuring that purchase funds are committed and paid takes longer than may have been anticipated when compared against larger and more mature markets such as electricity, oil, and gas. To further underscore this point, The Trust examined the effective obligation rate, which is defined as the percentage of funds The Trust would have obligated overall if it did not have to deobligate funds due to underperformance and cancel contracts because of a failure on the part of the project developer. When de-obligations are removed from the equation, The Trust's obligation rate raises from 53 to 73 percent or $17,627,984. This metric demonstrates that The Trust has had to reobligate 30 percent of its total obligations; a significant lift. As noted above, however, The Climate Trust anticipates its reobligation rate to decline over time as we fund well established and replicable project types such as livestock manure management (also known as bioagas) and forestry, while leveraging the growth in standards and our expertise when entering into innovative project commitments.

Given the diverse number of sectors The Trust has funded, it is not possible to compare this reobligation metric against other markets, but it nonetheless illustrates the inherent challenges in funding innovative project types. On a final note, the fact that these funds have been recovered or structured on a pay-on-delivery basis demonstrates that The Trust is taking steps to ensure offset purchase funds are obligated and managed prudently.

Upfront Funding Performance

To date, The Trust has obligated and disbursed $5,085,280 in upfront funding through the Oregon Program. This upfront funding is disbursed against differing milestones, but in all cases, it represents funds The Trust has committed to project developers prior to the delivery of verified offsets. Upfront funding has been essential for many of these projects to become realities and to overcome barriers that could not be surpassed if payment was disbursed upon offset delivery. Nonetheless, this payment structure exposes The Trust to the risk of purchase funds being lost due to bankruptcy, or subsequent underperformance where shortfalls cannot be made up.

For the purpose of this report, lost purchase funds are defined as those upfront funds that were disbursed where less than the contracted volume of offsets was ultimately delivered to The Trust. Based on this definition, The Trust has (to date) not received commensurate value for $480,746 in upfront funding for six completed or terminated contracts. The projects that contribute to this figure are as illustrated in Table 2:

The percentage of upfront funds lost is equivalent to 9.43 percent of total upfront funding currently dispersed. This figure is comparable with loss rates in other more established sectors. However, when this amount of lost funds is factored against the overall amount of Oregon Program funds currently obligated into contracts, it falls to 3.87 percent. In other words, less than 4 cents of every dollar The Trust has currently obligated to purchase offsets for Oregon Program facilities has been lost due to underperformance.

Oregon impact

The Climate Trust has entered into 17 project commitments that are located in Oregon. Of these projects, 7 are active, 7 are completed, and 3 were terminated. The Trust makes every possible effort to commit as many offset purchase funds to Oregon-based projects. Even though greenhouse gases are a global pollutant and the statute regulating the Oregon program does not stipulate any geographic limitation to offsets, we are committed to supporting Oregon's economy and environment whenever possible.

The Trust has committed $6,534,572 in Oregon Program purchase funds to Oregon-based offset projects. Collectively, these projects, which are located throughout the state have reduced 635,321 metric tons of CO_2-e

Although the total amount spent in Oregon has risen by several hundred thousand dollars, the proportion of every dollar spent has dropped in the past year when it was $0.60 per every dollar obligated. The reasons behind the shift include a de-obligation of almost $670,000 resulting from the termination of the Deschutes River Conservancy contract earlier this year and new obligations for projects in Alaska, Colorado, Maine, the Midwest, Nevada, and Washington. These obligations, which were made over the past year, played a substantial role in meeting the 60 percent two year obligation mandate for the Port Westward 2 facility, and initiating the 24-month clock for the Carty facility.

It is also worth noting that 33 percent of the funds obligated to Oregon projects are those that reduce methane. This is noteworthy because up until 2011, The Trust was only permitted to commit funds to projects that offset CO_2 emissions. The expansion of the Oregon Program to include methane and

Table 2- Upfront Funding Summary

Project	Location	Contracted $	Funding Disbursed	Unrecouped Funding	Summary
Carpool Match NW	Portland metro	$120,000	$120,000	$115,916	Only a fraction of offsets were supplied following the verification report, but while a sufficient volume of replacement offsets were supplied to comply with the contract, The Trust chose not to retire these offsets.
Sure Power Data Center	Nationwide	$1,200,000	$5,000	$5,000	Sure Power declared bankruptcy and The Trust lost a small amount of funds associated with preparing a Monitoring and Verification Plan on the project's behalf.
CERF	Nationwide	$580,125	$34,176	$34,176	An upfront administrative fee was provided for this green concrete project, but the contract was terminated due to it not meeting certain requirements. The Trust was unable to recover funds from this project.
Blue Heron Pulp Mill	Oregon City	$500,000	$500,000	$150,861	The facility declared bankruptcy and The Trust was only able to receive 70 percent of the contracted volume of offsets.
Biotactics	Klamath Falls	$127,500	$63,750	$63,750	Due to the small size of the transaction and project it became uneconomic to verify offsets.
Deschutes River Conservancy	Deschutes County	$780,000	$223,043	$111,043	Due to under-enrollment and the subsequent and unexpected substantial increase in ongoing carbon offset contract management, The Trust negotiated a termination agreement with DRC whereby we recovered 50 percent of the upfront funding that was disbursed.
Total		**$3,307,625**	**$945,969**	**$480,746**	

Figure 6- The CO_2 Program's "Made in Oregon" Projects

nitrous oxide has resulted in The Trust committing over $2.1 million to support clean energy and organic waste diversion projects in Roseburg, Junction City, Tillamook, and Boardman. The inclusion of nitrous oxide allows The Trust to examine and potentially fund improved fertilizer application projects in the state's agriculture sector. Biogas in the form of organic and dairy waste digestion has been a big beneficiary of expanding the legislation to include methane. Building such digesters generally result in 10-15 construction jobs and 2-3 permanent jobs managing the project site.[10]

Climate impact

There are 16 active projects, 10 complete projects and a total of 14 are located in Oregon. Additionally, The Climate Trust entered into 7 project agreements which have been terminated. The three terminated Oregon projects are Collins Pine Cogeneration, Biotactics Fuel Switching, and Deschutes Reforestation. Appendix A lists all 33 projects including the seven projects where contracts were terminated. To date, The Trust has contracted for and allocated nearly 3 million offsets to the different facilities under the Oregon Program.

The difference between the current volume contracted and volume retired is indicative of the maturity of our portfolio. Although several contracts and/or projects are complete, the majority of the offset project contracts The Trust has entered into under the Oregon Program are active with terms that are not set to end until later this decade or in the 2020's.

As discussed previously, contracted values are variable and subject to change as projects do not always perform exactly as anticipated. Thus, the number of offsets retired by The Trust through the Oregon Program is a strong indicator of our impact on mitigating climate change. Figure 7 illustrates the impact of

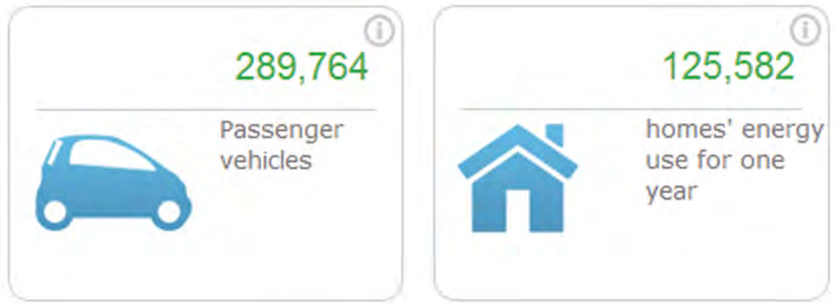
10 Although job creation depends on project size, this release of a 2 megawatt digester project cited 15 construction jobs and 3 permanent jobs. https://www.countyofdane.com/press/details.aspx?id=2182.

Table 3- Facility by offset contracting and retirement status

Facility	Owner	Contracted Offsets mtCO2e	Retired Offsets mtCO2e
Klamath Cogeneration Project (PPM)*	Iberdrola	401,143	86,354
Coyote Springs Unit 2	Avista	464,702	439,731
Klamath Expansion Project	Iberdrola	22,090	13,123
Mist Facility	NW Natural	3,068	1,147
Hermiston Power Project	Calpine	615,671	455,967
Hermiston True-Up	Calpine	82,706	76,918
Port Westward	PGE	750,973	188,693
Klamath Generation Peakers	Iberdrola	285	285
Klamath True-Up	Iberdrola	60,567	33,851
Molalla	NW Natural	4,092	2,303
Klamath Cogeneration Project (Iberdrola)	Iberdrola	70,904	55,023
Port Westward 2	PGE	340,721	22,984
Carty	PGE	149,000	0
Total		2,965,922**	1,376,379

* Note that PPM Energy was the original owner of the Klamath Cogeneration Project, but owner ownership was subsequently transferred to Iberdrola. Because there are two separate facilities named Klamath Cogeneration Project. They are delineated in this report by PPM and Iberdrola even though Iberdola owns both facilities.** Note that the contracted total by facility does not equal the project-by-project total in Appendix A. This is because contracted offsets totals by facility are automatically adjusted when a financial deobligation to pay occurs, whereas Appendix A of this report shows the original contracted volume prior to any downward adjustments in contracted volume. For example, the original contracted volume for the Portland Energy Efficiency project was 240,172 VERs, but the project ultimately delivered 242,408 VERs. As such while the 240,172 figure is listed in the Appendix for this project, the contracted volume of 242,408 is dispersed amongst the facilities under Table 2 that provided obligated funds to this project.

Figure 7- Annual Emissions Equivalent to Retired



reducing of 1,376,379 metric tons of CO_2-equivalent emissions in terms of everyday activities such as driving and household energy use.[11] Note that these represent the equivalent annual emissions of the volume of offsets The Climate Trust has retired on behalf of the Oregon Program.

To provide further context regarding The Trust's impact in reducing emissions the number of passenger vehicles is equivalent to the number of registered vehicles in Lane County.[12] The number of households is more than the combined total of households in Gresham and Salem.

11 U.S. Environmental Protection Agency, Greenhouse Gas Equivalencies Calculator. Accessed on August 11, 2014 http://www.epa.gov/cleanenergy/energy-resources/calculator.html#results.

12 Oregon Department of Transportation, Driver and Motor Vehicle Services Division, OR Motor Vehicle Registrations by County, as of December 31, 2013. Accessed on August 11, 2014, http://www.oregon.gov/ODOT/DMV/docs/stats/vehicle/2013_Vehicle_County_Registration.pdf.

Looking Ahead

VII

Working with projects from the beginning of project development allows The Climate Trust to directly fund new, innovative project types that are not being pursued by the rest of the carbon market. We often work with project types for which there are not yet existing methodologies, requiring us to develop our own, and paving the way for the rest of the market to follow.

VII Looking ahead

Advantages of the Oregon Program

The Climate Trust is integrally tied to the Oregon Carbon Dioxide Standard. We have been a qualified organization authorized to buy carbon offsets on behalf of Oregon energy facilities seeking to comply with the Oregon Standard since the year the law was passed. We designed our operations in accordance with the Oregon Program, resulting in three primary benefits: ensuring quality, filling funding gaps, and driving innovation.

First, proving that the emission reductions achieved by a project are "in addition to" business-as-usual, which is termed additionality, is one of the most important criterion for offset quality. Proving the soundness of the additionality case provides our funders, and Oregonians, with the assurance that the offsets in our Oregon Program portfolio are of the highest integrity and quality.

Second, because we contract with project developers before project implementation, we agree to a carbon price in advance, which is often critical for project developers seeking to secure additional financing. We also have the flexibility to provide upfront capital in cases where projects otherwise could not be implemented. Having a fixed carbon price and the ability to provide upfront capital are both vital in helping overcome funding gaps in what is still an emerging market.

Lastly, working with projects from the beginning of project development also allows us to direct funding to new, innovative project types that are not being pursued by the rest of the carbon market. We often work with project types for which there are not yet existing methodologies, requiring us to develop our own, and paving the way for the rest of the market to follow. This approach is flexible and nimble, allowing us to develop, test, and prove innovative project types. This role is critical to the development of a more mature and robust carbon market in the United States.

Informing Future Policy

VIII

The Oregon Program's Monetary Pathway mechanism is an intriguing option that Oregon and state policymakers should examine in depth and strongly consider when developing and implementing new low carbon policies.

VIII Informing future policy

The Oregon Program represents a single policy, which after 17 years in effect has several lessons for informing the design of additional policies attempting to assign a price to greenhouse gas emissions. Although Oregon has debated cap-and-trade in the past, through the Western Climate Initiative, and there are discussions around a carbon tax, it is important to note that neither a carbon tax nor a cap and trade system is enough to meet our carbon reduction goals alone. This is evidenced by jurisdications that have policies that generate greenhouse gas emission reductions as an ancillary benefit such as renewable portfolio standards, smart growth policies, mass and bicycle transit incentives, and land conservation measures. Complementary policies such as those that address low-carbon fuels, energy efficiency, renewables and transit improvements are necessary and should link with, rather than contradict, the carbon pricing mechanism. Given this context, this section examines lessons learned via the monetary pathway that could inform the following low carbon policy options:

- Cap and Trade
- Carbon Tax
- Low Carbon Fuel Standard
- Senate Bill 844 (Voluntary Greenhouse Gas Program for Natural Gas Utilities)
- Clean Power Plan
- Green Reserve

Cap and Trade

Cap and trade is a quantity-based approach for reducing greenhouse gas (GHG) emissions. Under this mechanism, a quantity ceiling is placed on regulated sectors. Businesses subject to a cap can then secure allowances, which are equivalent to one metric ton of CO_2 equivalent ($mtCO_2e$). Entities that pollute less are able to sell allowances to those who pollute more; this is the "trade" portion of the name. Since it is not practical or desirable to cap every sector of the economy (e.g. forests, agriculture, and sectors with facilities that generate a relatively small amount of emissions annually), uncapped sectors could be eligible to generate offsets, which could be used by the regulated entities to comply with the emissions cap.

As a mechanism that imposes limits on emissions, the price associated with allowances is variable. While cap and trade can be designed with a price floor and/or price ceiling, a big determinant of the price associated with allowances is the extent to which they are auctioned. The auctioning of allowances helps to establish and send regular price signals to the market, while truly internalizing the cost of emissions among regulated entities.

Further, auctioning generates revenues that the cap and trade regulator can use to not only enhance emission reductions, but also address the cost impacts associated with the policy on small businesses and low-income households. Some examples of complementary uses of auction proceeds are funding energy efficiency, mass transit and bicycling infrastructure, and creating a green climate bank that could provide capital to businesses and/or projects that further reduce emissions.

The integration of offsets in the Oregon Program and the capacity building it has offered in funding instate offset projects indicate that Oregon is well positioned to draw off of these experiences should it adopt a cap and trade policy.

Carbon Tax

A carbon tax is a price-based approach for reducing GHG emissions. The price per ton of carbon is constrained, and this fixed price can increase or decrease depending on government approval. High-carbon activities like energy and transportation use become more expensive for entities to provide, and this increased price passes through to end consumers. Theoretically due to the higher price, entities have an incentive to transition to low-carbon alternatives to decrease operating expenses while individuals have an incentive to switch to lower-carbon behaviors as consumers. Actual carbon reduction targets are not regulated under carbon taxation.

Similar to cap and trade, a carbon tax generates government revenues and raises key questions such as how should the tax be used and/or to what extent should other taxes be reduced to offset a new economy-wide tax. The latter question around the implications for tax reductions and/or the revenue neutrality is beyond the scope of this report. The former, however, is worth a brief discussion, since how the revenues are used plays a substantial role in the extent the tax is successful in lowering GHG emissions. As noted in the cap and trade section, directing revenues towards initiatives such as mass transit and bicycling infrastructure, energy efficiency, and establishing a capital funding mechanism for innovative technologies and projects can augment emission reductions achieved as a result of the tax.

Additionally, revenue proceeds could be used to securitize the underwriting of climate bonds that could be issued as means of attracting private capital towards carbon mitigation projects and businesses.

Low Carbon Fuel Standard

A Low Carbon Fuel Standard (LCFS) is a carbon reduction policy that is designed to address GHG emissions in the transportation sector. The transportation sector consists of a large number of small emitting point sources that taken as a whole emit approximately 40% of Oregon's GHG emissions.[13] Further, Oregon has no oil and gas refineries.

An LCFS works by defining the "carbon intensity" for each transportation fuel. The LCFS sets an annual carbon intensity target which the average of all transportation fuels consumed must meet. This target provides an incentive for the production and use of fuels that are below the target, which currently include electricity, biodiesel blends, natural gas, and biogas. Producers of such fuels are given the additional economic benefit of revenues through the generation and trading of LCFS credits.

The LCFs was passed in 2009 and included a 2015 sunset, which stymied the development of rules and a market. The upcoming 2015 legislative session will determine whether the sunset gets lifted and a market can develop. Due to its successful experience with The Oregon Program, The Climate Trust is seen as the in-state, non-profit expert on environmental commodities and markets. As such, we are well-positioned to inform and facilitate development of the LCFS program, and potentially act as a "qualified party" to aid in credit trading.

Senate Bill 844

Oregon Senate Bill (SB844) was signed into law on July 1, 2013 and directs the Public Utility Commission (PUC) to develop and oversee a voluntary incentive program for natural gas utilities to invest in projects that reduce GHG emissions. Under the draft rule

13 Oregon Environmental Council, Low Carbon Fuels Webpage, http://www.oeconline.org/our-work/economy/low-carbon-fuels, accessed on July 24, 2014.

proposed by the PUC,[14] natural gas utilities may recover up to 25 percent of project costs associated with an emission reduction project. The PUC has relied heavily on The Climate Trust and its experience with the Oregon Program to ensure that SB844 rules are structured appropriately regarding GHG monitoring, verification, by establishing clear recovery rates, project cost caps, and unit cost caps for gas utilities to implement innovative carbon reduction initiatives while not placing an excessive financial burden on ratepayers.

Clean Power Plan

President Obama directed the Environmental Protection Agency (EPA) in June 2013, to issue regulations of carbon pollution from existing power plants under section 111(d) of the Clean Air Act. The objective of the Clean Power Plan is to reduce power plant GHG emissions by 30% by 2030, as measured against a 2005 baseline. The plan is designed to recognize investments that states and companies are already making, and can be tailored to meet the specific energy, environmental and economic needs and goals of each state.

Under the timeline for the rule, states have until June 30, 2016 to submit their state plan; multi-state plans are due by June 30, 2018; and states must begin making reductions by 2020 giving them at least 10 years to comply with the plan.

The Plan assigns emission reduction targets by state, with each state taking on the responsibility of developing a plan for meeting the target. State percentage reduction goals vary substantially. There are eight states (Hawaii, Iowa, Kentucky, Massachusetts, North Dakota, Rhode Island, West Virginia and Wyoming) with targets below 20%, while three states have targets above 60% (Arizona, South Carolina, and Washington). Oregon's target is 48.1%. While the proposal lays out state-specific CO_2 goals that each state is required to meet, it does not prescribe how a state should meet its goal. Each state can go it alone or can collaborate with other states on multi-state plans that may provide additional opportunities for cost savings and flexibility.

The EPA has set each state's emission reduction target through the application of the Best System of Emission Reduction (BSER)—technical feasibility, costs, size of emission reductions and technology. The four BSER building blocks are:

1. Improving the operational efficiency of coal-fired plants through heat rate improvements;
2. Increasing the utilization rate of existing natural gas combined cycle plants by re-dispatching their electricity into the grid more often than more carbon intensive sources;
3. Increasing the use of renewable and zero emissions sources of electricity; and
4. Reducing energy use through demand side energy efficiency measures

The Clean Power Plan does give the states flexibility to implement trading programs whereby emission reductions could be traded among regulated units. In order for such a regime to realize substantial benefits a trading program would most likely be part of a multi-state plan.

Although the Clean Power Plan doesn't prohibit the use of offsets, the EPA does not allow offsets to count towards complying with a reduction target under 111(d). This position acknowledges pre-existing cap and trade programs in California and the Northeast. Nevertheless, trading could occur among fossil-fired generating sources that lower their carbon emissions rate and through the creation of credits sold via energy efficiency and renewable energy projects. Therefore, the EPA has provided states with many flexibility mechanisms with one being emissions trading that could conceivably rely on special purpose entities to facilitate generating cost effective emissions reductions that would be eligible under 111(d).

14 A presentation summarizing the draft rule can be found here: http://edocs.puc.state.or.us/efdocs/HAH/ar580hah101533.pdf.

Green Credit Reserve

The term Green Reserve can be applied to distinct financing programs such as capitalization carve outs, loan guarantee or loan loss reserve programs[15] and long term funding commitments. This section focuses on the last concept that was proposed specifically to support California's Low Carbon Fuel Standard (LCFS) and was intended to spur the in-state development and production of low carbon fuels. The Green Credit Reserve was challenged in California and did not come to fruition.

Financing is one of the biggest barriers to low carbon and renewable fuel development in California, and indeed in stimulating low carbon project development in general. A Green Credit Reserve can remove this barrier by providing a long-term and guaranteed revenue stream for projects that produce low carbon fuels, much like a Power Purchase Agreement provides for electricity generation projects. Although the purchase price may turn out to be lower than the actual market price, it will be guaranteed at the project development phase, which will enable project developers to secure financing.

Under the design proposed in California, the Reserve would have entered into long-term contracts to purchase low carbon fuel standard credits from developers, providing developers with financial certainty about the long-term value of the LCFS credits. However, the Reserve would not have actually bought the credits until the fuel was produced. Once the Reserve purchased the credits, it could have held them or resold them to parties obligated to purchase LCFS credits or others. This structure insulates the Reserve from delivery risk, while providing the Reserve the opportunity to be self sustaining by presumably selling the credits at a sufficient margin above the guaranteed price the Reserve initially agreed to pay for the credits. Conversely, there is some risk in losses if the market fluctuates and the value of credits decline over time.

15 For references see http://water.epa.gov/grants_funding/cwsrf/Green-Project-Reserve.cfm and http://www.colorado.gov/cs/Satellite/GovEnergyOffice/CBON/1251610998034.

While the state of Oregon could certainly consider a Green Credit Reserve to support its own LCFS efforts in the state, the Reserve case could be applied to carbon reductions too if that is factored into the framework of a carbon pricing mechanism for the state. A state-sponsored Reserve-type structure could offer the same sort of market certainty to green product/technology, green service suppliers, or offset project developers in Oregon.

Conclusions

A common challenge with many low carbon policy options is the institutional barriers associated with efficiently directing policy revenues towards projects or initiatives that accelerate GHG emission reductions. In many cases, businesses with carbon constraints and/or government agencies are subject to other pre-existing policies that impede their ability to fund nascent businesses and projects that reduce GHG emissions. For example, many large companies that would be subject to carbon limits have credit risk requirements in place that make it difficult to fund the startup companies that typically pioneer and implement low carbon technologies and/or practices. For state agencies, procurement rules could impose fiscal year spending requirements that do not align with the extended timelines it often takes to develop and implement a GHG reduction project. To this end, establishing or leveraging a "qualified organization" to receive a share of carbon revenues or earmarking start up funds to establish a green credit reserve has a lot of merit in accelerating and expanding the impact of these policies.

State regulators in Oregon and beyond should seriously consider the Oregon Legislature's approach back in 1997 when it provided energy facilities flexibility in how to meet the CO_2 mitigation requirements. Pooling compliance funds from multiple facilities and allowing those funds to be managed by a nonprofit organization can offer several advantages. This "fund" model not only lowers transaction costs, but also allows more access to the market, particularly among smaller, regulated entities unable to procure environmental credits or reduce GHG emissions due to lack of expertise and financial constraints. This model also has the benefit of allowing the qualified organization to engage in funding agreements that may be difficult to justify in a large corporate or state agency environment.

The monetary pathway option has produced four notable areas for discussion: cost certainty, innovation, economic development, and environmental benefits.

Benefit 1: Financial certainty for regulated entities

The monetary pathway establishes a clear formula for power generation companies to integrate the cost of carbon mitigation into their financial planning models. Such financial certainty has proven to be a compelling case for regulated entities all of which have chosen the monetary pathway over alternatives which are less certain in determining the ultimate cost of compliance. Additionally, the inherent certainty of the monetary pathway approach can be used to counteract the cost of compliance uncertainty that is commonly associated with new low carbon policies. In the case of the Oregon Program, the fact that the expense is only one-half of one percent of the projected 30-year cost of a new facility, illustrates that there are policy options available to reduce carbon emissions, without markedly raising energy prices.

Benefit 2: Special purpose entities have competitive advantages and foster innovation

A common challenge to many low carbon policies is regulated entities face other policy constraints and may not have the structure or expertise to effectively support new and/or innovative emission reduction ventures. For example, Investor Owned Utilities in California face constraints in purchasing carbon offsets because of regulations designed to protect ratepayers from compliance cost uncertainties associated with that state's cap and trade legislation. Additionally, regulated entities face internal constraints such as limits on upfront funding and a lack of experience on evaluating start up project developer counterparties, and/or project types that can be well outside of the company's core business. Transaction costs and project management costs can be managed more efficiently by Special Purpose Entities (SPEs) whose core business is supporting carbon reduction businesses, projects and initiatives.

The Climate Trust is an SPE, or what is known as a Qualified Organization under the Oregon Program, and is therefore not as encumbered in supporting the transition to a low carbon economy. This is evidenced by our ability to enter into long-term financial commitments and play a significant capacity-building role in the offset market. Currently, the Oregon Program has enabled The Climate Trust to focus our purchasing power on the nascent agriculture offset project market. Earlier this year, The Climate Trust executed the first nutrient management carbon offset market transaction with Delta Institute using Oregon Program funds. This early market commitment stands out in the market, as few organizations are in the position of being able to obligate funding over several years for a first-of-its-kind effort. Further, this unique advantage afforded by the Oregon Program is something that is earning high profile national attention as evidenced in the latest White House Report on climate resilience.[16]

16 See page 26 of Council On Climate Preparedness and Resilience, "Enhancing the Climate Resilience of America's Natural Resources," 2014, http://www.whitehouse.gov/sites/default/files/docs/enhancing_climate_resilience_of_americas_natural_resources.pdf.

The Climate Trust is able to pursue upfront funding, but in a very limited manner, as this risk needs to be weighed against our primary objective of receiving delivery of and retired carbon dioxide emission reductions to offset the emissions from the facilities that have chosen the monetary pathway under the Oregon Program. This constrains The Climate Trust's role somewhat as a SPE that could provide meaningful upfront funding to enable innovative carbon reduction practices and technologies to overcome many of the financial, and technical barriers they face. The result is The Climate Trust receives many proposals to fund businesses and projects that it is unable to pursue because they are deemed too risky. The Climate Trust recommends Oregon policymakers examine ways to mitigate these risks by underwriting and/or offering some form of financial security for SPEs to invest in Oregon businesses and projects that are promoting carbon reduction innovation.

Benefit 3: Low carbon policies are an effective economic development tool

Although the Oregon Program does not mandate nor carve out where offset funds are spent, it is acknowledged that directing offset funds in Oregon is a priority for several Oregon Program stakeholders. The Climate Trust shares this priority, as the Oregon Program has enabled us to develop expertise as an environmental credit buyer, it also affords the opportunity to enhance the capacity of Oregon projects and businesses to tap environmental credit revenues within and beyond our home state's borders.

In 2001, our first year to obligate funding, 61 percent was destined for projects located in Oregon. Since then, The Climate Trust has been able to maintain a high proportion of offset funds for Oregon projects. Currently, more than $6.5 million has been spent or is obligated to Oregon projects, which is equivalent to 51 percent of the total financial commitments The Climate Trust has entered into using Oregon Program funds.

To ensure The Climate Trust could maintain its ability to support Oregon projects under the Oregon Program, we successfully engaged the state legislature in 2011 to update the Oregon Carbon Dioxide Standard regulations to allow The Climate Trust to purchase methane and nitrous oxide emission reductions. The regulation initially only allowed for carbon dioxide emission reduction purchases. By initiating this expansion to methane and nitrous oxide, The Climate Trust not only enabled the Oregon Program to mitigate two potent greenhouse gases, which are respectively 25 and 298 times stronger than CO_2, but also allowed us to target a greater share of the state. Since this change was implemented, it has proven to aid in The Climate Trust's ability to support rural economic development, as non-CO_2 project funding from the Oregon Program has been committed to projects located in Boardman, Junction City, Roseburg, and Tillamook.

Benefit 4: Meaningful environmental benefits occur

The Oregon Program portfolio currently consists of 26 active and complete projects in a diverse number of sectors including, agriculture, biogas, composting, forestry, renewable energy and transportation. Although approximately 55 percent of the contracted volume of emission reductions is pending future delivery, the 45 percent that The Climate Trust has retired is equivalent to the combined annual household energy use of Gresham and Salem. Beyond the carbon mitigation impact, these investments have generated additional ancillary environmental benefits such as cleaner air, cleaner water, repurposing and utilization of waste products, and biodiversity.

In Closing

IX

The Oregon Program is a success story that should be a source of pride for Oregonians. The legacy of this landmark legislation includes the carbon emission reductions that will continue to be realized for decades to come; the additional environmental, economic, and social benefits that offset projects provide; as well as the sharing of important lessons that are helping advance climate policy and the carbon market in the United States.

IX In closing

The State of Oregon has shown vision and leadership in passing the Oregon Carbon Dioxide Standard and providing for a non-profit to administer it on behalf of the facilities operating in Oregon and all Oregonians. Since its enactment in 1997, Oregon has served as a model for other states and regions considering climate legislation.

As Oregon looks to the future and contemplates the design and implementation of a suite of low carbon policies, The Climate Trust urges the Legislature to draw on our experiences and lessons learned over the past seventeen years. The main takeaways that we can offer about low carbon policies are that they:

- **Are a means promote economic development**—The Climate Trust not only takes great pride in the fact that more than half of every Oregon Program dollar it has committed goes to in state projects, but also at the role it's played in supporting both urban and rural economic development.
- **Can be designed to provide financial certainty to regulated entities**—The monetary pathway has been the consensus choice because of the financial certainty it has given to power companies. This infers that the monetary pathway is a policy design element that could be added to other low carbon policies as a way to eliminate uncertainty about the costs imposed on regulated entities.
- **Lead to the development of new entities and expertise that Oregon can export beyond its borders**—The creation of a qualified organization or SPE enables the creation of new business and market expertise whose core business is on utilizing markets to engender carbon emission reductions in different sectors. As the growth of The Climate Trust illustrates, this approach creates specialized knowledge that can be exported to other jurisdictions looking to apply policies initially adopted in Oregon.
- **Can generate a substantial financial transformation**—Low carbon policies are often adopted modestly because of the many uncertainties associated with how they may impact business and consumers. However, there is a case for also pursuing policies that not only minimize the costs of reducing carbon, but also promote attracting capital to carbon reduction initiatives. Over the years, The Climate Trust has received many appealing project opportunities, but they have been passed on, due to the early stage of these projects and our managerial directive to mitigate potential financial losses. There remain many opportunities that the state could play a role in unlocking by providing bonds to help with financing or underwriting low carbon investments.

The Oregon Program is a success story that should be a source of pride for Oregonians. The legacy of this landmark legislation includes the carbon emission reductions that will continue to be realized for decades to come; the additional environmental, economic, and social benefits that offset projects provide; as well as the sharing of important lessons that are helping advance climate policy and the carbon market in the United States.

We look forward to continuing to act as trusted stewards for our funders, the State of Oregon, and the environment for years to come.

Appendices 1-9

X

2015 promises to be a big year for climate policy, with the next UN Climate Summit scheduled to be held in Paris. This, many policy experts believe, is the last real chance to reach a binding international agreement on lowering greenhouse gas emissions.

X Appendix 1

The Trust's Oregon Project Portfolio Summary

Table A.1- Active Projects Summary

Project Name	Location	Contracted Tons	Retired Tons
Lummi Arlecho Creek Forest Carbon Sequestration	WA	263,159	0
Jatun Sacha Reforestation	Ecuador	58,890	52,573
Shorepower Truckstop Electrification	OR	90,000	0
JCI Duluth Steam Plant Retrofit	MN	210,328	0
Oregon State University Cogeneration	OR	338,790	44,342
Roseburg Landfill Gas to Energy	OR	66,000	0
JC Biomethane Organic Waste Digestion	OR	70,000	0
Farm Power Misty Meadow Dairy Digestion	OR	1,124	0
John Galt Biogas Van Warmerdam Dairy Digestion	CA	12,000	0
Farm Power Tillamook Dairy Digestion	OR	7,300	0
Camco Afognak Forest Carbon Sequestration	AK	386,007	233,507
Environmental Credit Corp. Composting Portfolio	CO, DE, NV	240,812	37,314
TMF Biofuels Dairy Digestion	OR	162,000	0
Delta Institute Fertilizer Use Reduction	Midwest	30,675	2
WA Beef LLC Organic Waste Digestion	WA	75,000	0
AMC Katahdin Forest Carbon Sequestration	ME	25,645	25,645
Active Projects Total		2,037,730	393,383

Table A.2- Completed Projects Summary

Project Name	Contracted Tons	Retired Tons
Carpool Match NW	30,000	1,021
BEF Wind Financing	23,178	23,178
Portland Energy Efficiency	240,172	242,408
Portland Traffic Signals Optimization	150,600	157,488
Horst Blended-Cement	212,500	212,500
Blue Heron Energy Efficiency	191,232	133,533
Portland Energy Efficiency Momentum Benefits	66,666	33,333
Portland Traffic Signals Extension	18	18
West Main Cool Climate Concrete Phase 2	300,000	156,499
Cedar Grove Organic Waste Composting	33,910	23,018
Completed Projects Total	1,248,276	982,996

Table A.3- Terminated Projects

Project Name	Contracted Tons	Retired Tons
Klickitat Landfill Gas to Energy	342,000	N/A
Deschutes Reforestation	233,333	N/A
Sure Power I Energy Efficiency	800,000	N/A
CERF/IIEC Blended Cement	297,500	N/A
Collins Pine Cogeneration	27,785	N/A
Native Energy Wind Energy	135,165	N/A
Biotactics Fuel Switching	12,750	N/A

Appendix 2

Oregon Carbon Dioxide Standard

ORS 469.503 Requirements for approval of energy facility site certificate; carbon dioxide emissions standard; offset funds; use of offset funds by qualifying organization; rules. In order to issue a site certificate, the Energy Facility Siting Council shall determine that the preponderance of the evidence on the record supports the following conclusions:

The facility complies with the standards adopted by the council pursuant to ORS 469.501 or the overall public benefits of the facility outweigh the damage to the resources protected by the standards the facility does not meet.

If the energy facility is a fossil-fueled power plant, the energy facility complies with any applicable carbon dioxide emissions standard adopted by the council or enacted by statute. Base load gas plants shall comply with the standard set forth in subsection (2)(a) of this section. Other fossil-fueled power plants shall comply with any applicable standard adopted by the council by rule pursuant to subsection (2)(b) of this section. Subsections (2)(c) and (d) of this section prescribe the means by which an applicant may comply with the applicable standard.

(a) The net carbon dioxide emissions rate of the proposed base load gas plant shall not exceed 0.70 pounds of carbon dioxide emissions per kilowatt hour of net electric power output, with carbon dioxide emissions and net electric power output measured on a new and clean basis. Notwithstanding the foregoing, the council may by rule modify the carbon dioxide emissions standard for base load gas plants if the council finds that the most efficient stand-alone combined cycle, combustion turbine, natural gas-fired energy facility that is commercially demonstrated and operating in the United States has a net heat rate of less than 7,200 Btu per kilowatt hour higher heating value adjusted to ISO conditions. In modifying the carbon dioxide emission standard, the council shall determine the rate of carbon dioxide emissions per kilowatt hour of net electric output of such energy facility, adjusted to ISO conditions, and reset the carbon dioxide emissions standard at 17 percent below this rate.

(b) The council shall adopt carbon dioxide emissions standards for other types of fossil-fueled power plants. Such carbon dioxide emissions standards shall be promulgated by rule. In adopting or amending such carbon dioxide emissions standards, the council shall consider and balance at least the following principles, the findings on which shall be contained in the rule-making record:

(A) Promote facility fuel efficiency;
(B) Promote efficiency in the resource mix;
(C) Reduce net carbon dioxide emissions;
(D) Promote cogeneration that reduces net carbon dioxide emissions;
(E) Promote innovative technologies and creative approaches to mitigating, reducing or avoiding carbon dioxide emissions;
(F) Minimize transaction costs;
(G) Include an alternative process that separates decisions on the form and implementation of offsets from the final decision on granting a site certificate;
(H) Allow either the applicant or third parties to implement offsets;
(I) Be attainable and economically achievable for various types of power plants;
(J) Promote public participation in the selection and review of offsets;
(K) Promote prompt implementation of offset projects;
(L) Provide for monitoring and evaluation of the performance of offsets; and
(M) Promote reliability of the regional electric system.

(c) The council shall determine whether the applicable carbon dioxide emissions standard is met by first determining the gross carbon dioxide emissions that are reasonably likely to result from the operation of the proposed energy facility. Such determination shall be based on the proposed design of the energy facility. The council shall adopt site certificate conditions to ensure that the predicted carbon dioxide emissions are not exceeded on a new and clean basis. For any remaining emissions reduction necessary to meet the applicable standard, the applicant may elect to use any of subparagraphs (A) to (D) of this paragraph, or any combination thereof. The council shall determine the amount of carbon dioxide emissions reduction that is reasonably likely to result from the applicant's offsets and whether the resulting net carbon dioxide emissions meet the applicable carbon dioxide emissions standard. If the council or a court on judicial review concludes that the applicant has not demonstrated compliance with the applicable carbon dioxide emissions standard under subparagraphs (A), (B) or (D) of this paragraph, or any combination thereof, and the applicant has agreed to meet the requirements of subparagraph (C) of this paragraph for any deficiency, the council or a court shall find compliance based on such agreement.

(A) The facility will sequentially produce electrical and thermal energy from the same fuel source, and the thermal energy will be used to displace another source of carbon dioxide emissions that would have otherwise continued to occur, in which case the council shall adopt site certificate conditions ensuring that the carbon dioxide emissions reduction will be achieved.

(B) The applicant or a third party will implement particular offsets, in which case the council may adopt site certificate conditions ensuring that the proposed offsets are implemented but shall not require that predicted levels of avoidance, displacement or sequestration of carbon dioxide emissions be achieved. The council shall determine the quantity of carbon dioxide emissions reduction that is reasonably likely to result from each of the proposed offsets based on the criteria in sub-subparagraphs (i) to (iii) of this subparagraph. In making this determination, the council shall not allow credit for offsets that have already been allocated or awarded credit for carbon dioxide emissions reduction in another regulatory setting. In addition, the fact that an applicant or other parties involved with an offset may derive benefits from the offset other than the reduction of carbon dioxide emissions is not, by itself, a basis for withholding credit for an offset.

(i) The degree of certainty that the predicted quantity of carbon dioxide emissions reduction will be achieved by the offset;

(ii) The ability of the council to determine the actual quantity of carbon dioxide emissions reduction resulting from the offset, taking into consideration any proposed measurement, monitoring and evaluation of mitigation measure performance; and

(iii) The extent to which the reduction of carbon dioxide emissions would occur in the absence of the offsets.

(C) The applicant or a third party agrees to provide funds in an amount deemed sufficient to produce the reduction in carbon dioxide

emissions necessary to meet the applicable carbon dioxide emissions standard, in which case the funds shall be used as specified in paragraph (d) of this subsection. Unless modified by the council as provided below, the payment of 57 cents shall be deemed to result in a reduction of one ton of carbon dioxide emissions. The council shall determine the offset funds using the monetary offset rate and the level of emissions reduction required to meet the applicable standard. If a site certificate is approved based on this subparagraph, the council may not adjust the amount of such offset funds based on the actual performance of offsets. After three years from June 26, 1997, the council may by rule increase or decrease the monetary offset rate of 57 cents per ton of carbon dioxide emissions. Any change to the monetary offset rate shall be based on empirical evidence of the cost of carbon dioxide offsets and the council's finding that the standard will be economically achievable with the modified rate for natural gas-fired power plants. Following the initial three-year period, the council may increase or decrease the monetary offset rate no more than 50 percent in any two-year period.

(D) Any other means that the council adopts by rule for demonstrating compliance with any applicable carbon dioxide emissions standard.

(d) If the applicant elects to meet the applicable carbon dioxide emissions standard in whole or in part under paragraph (c)(C) of this subsection the applicant shall identify the qualified organization. The applicant may identify an organization that has applied for, but has not received, an exemption from federal income taxation, but the council may not find that the organization is a qualified organization unless the organization is exempt from federal taxation under section 501(c)(3) of the Internal Revenue Code as amended and in effect on December 31, 1996. The site certificate holder shall provide a bond or comparable security in a form reasonably acceptable to the council to ensure the payment of the offset funds and the amount required under subparagraph (A)(ii) of this paragraph. Such security shall be provided by the date specified in the site certificate, which shall be no later than the commencement of construction of the facility. The site certificate shall require that the offset funds be disbursed as specified in subparagraph (A) of this paragraph, unless the council finds that no qualified organization exists, in which case the site certificate shall require that the offset funds be disbursed as specified in subparagraph (B) of this paragraph.

(A) The site certificate holder shall disburse the offset funds and any other funds required by sub- subparagraph (ii) of this subparagraph to the qualified organization as follows:

(i) When the site certificate holder receives written notice from the qualified organization certifying that the qualified organization is contractually obligated to pay any funds to implement offsets using the offset funds, the site certificate holder shall make the requested amount available to the qualified organization unless the total of the amount requested and any amounts previously requested exceeds the offset funds, in which case only the remaining amount of the offset funds shall be made available. The qualified organization shall use at least 80 percent of the offset funds for contracts to implement offsets. The qualified organization may use up to 20 percent of the offset funds for monitoring, evaluation, administration and enforcement of contracts to implement offsets.

(ii) At the request of the qualified organization and in addition to the offset funds, the site certificate holder shall pay the qualified organization an amount equal to 10 percent of the first $500,000 of the offset funds and 4.286 percent of any offset funds in excess of $500,000. This amount shall not be less than $50,000 unless a lesser amount is specified in the site certificate. This amount compensates the qualified organization for its costs of selecting offsets and contracting for the implementation of offsets.

(iii) Notwithstanding any provision to the contrary, a site certificate holder subject to this subparagraph shall have no obligation with regard to offsets, the offset funds or the funds required by sub-subparagraph (ii) of this sub- paragraph other than to make available to the qualified organization the total amount required under paragraph (c) of this subsection and sub- subparagraph (ii) of this subparagraph, nor shall any non-performance, negligence or misconduct on the part of the qualified organization be a basis for revocation of the site certificate or any other enforcement action by the council with respect to the site certificate holder.

(B) If the council finds there is no qualified organization, the site certificate holder shall select one or more offsets to be implemented pursuant to criteria established by the council. The site certificate holder shall give written notice of its selections to the council and to any person requesting notice. On petition by the State Department of Energy, or by any person adversely affected or aggrieved by the site certificate holder's selection of offsets, or on the council's own motion, the council may review such selection. The petition must be received by the council within 30 days of the date the notice of selection is placed in the United States mail, with first-class postage prepaid. The council shall approve the site certificate holder's selection unless it finds that the selection is not consistent with criteria established by the council. The site certificate holder shall contract to implement the selected offsets within 18 months after commencing construction of the facility unless good cause is shown requiring additional time. The contracts shall obligate the expenditure of at least 85 percent of the offset funds for the implementation of offsets. No more than 15 percent of the offset funds may be spent on monitoring, evaluation and enforcement of the contract to implement the selected offsets. The council's criteria for selection of offsets shall be based on the criteria set forth in paragraphs (b)(C) and (c)(B) of this subsection and may also consider the costs of particular types of offsets in relation to the expected benefits of such offsets. The council's criteria shall not require the site certificate holder to select particular offsets, and shall allow the site certificate holder a reasonable range of choices in selecting offsets. In addition, not- withstanding any other provision of this section, the site certificate holder's financial liability for implementation, monitoring, evaluation and enforcement of offsets pursuant to this subsection shall be limited to the amount of any offset funds not already contractually obligated. Non-performance, negligence or misconduct by the entity or entities implementing, monitoring or evaluating the selected offset shall not be a basis for revocation of the site certificate or any other enforcement action by the council with respect to the site certificate holder.

(C) Every qualified organization that has received funds under this paragraph shall, at five-year intervals beginning on the date of receipt of such funds, provide the council with the information the council requests about the qualified organization's performance. The council shall evaluate the information requested and, based on such information, shall make any recommendations to the Legislative Assembly that the council deems appropriate.

(e) As used in this subsection:

(A) "Adjusted to ISO conditions" means carbon dioxide emissions and net electric power output as determined at 59 degrees Fahrenheit, 14.7 pounds per square inch atmospheric pressure and 60 percent humidity.

(B) "Base load gas plant" means a generating facility that is fueled by natural gas, except for periods during which an alternative fuel may be used and when such alternative fuel use shall not exceed 10 percent of expected fuel use in Btu, higher heating value, on an average annual basis, and where the applicant requests and the council adopts no condition in the site certificate for the generating facility that would limit hours of operation other than restrictions on the use of alternative fuel. The council shall assume a 100 percent capacity factor for such plants and a 30-year life for the plants for purposes of determining gross carbon dioxide emissions.

(C) "Fossil-fueled power plant" means a generating facility that produces electric power from natural gas, petroleum, coal or any form of solid, liquid or gaseous fuel derived from such material.

(D) "Generating facility" means those energy facilities that are defined in ORS 469.300 (11) (a)(A), (B) and (D).

(E) "Gross carbon dioxide emissions" means the predicted carbon dioxide emissions of the proposed energy facility measured on a new and clean basis.

(F) "Net carbon dioxide emissions" means gross carbon dioxide emissions of the proposed energy facility, less carbon dioxide emissions avoided, displaced or sequestered by any combination of cogeneration or offsets.

(G) "New and clean basis" means the average carbon dioxide emissions rate per hour and net electric power output of the energy facility, without degradation, as determined by a 100-hour test at full power completed during the first 12 months of commercial operation of the energy facility, with the results adjusted for the average annual site condition for temperature, barometric pressure and rela- tive humidity and use of alternative fuels, and using a rate of 117 pounds of carbon dioxide per million Btu of natural gas fuel and a rate of 161 pounds of carbon dioxide per million Btu of distillate fuel, if such fuel use is proposed by the applicant. The council may by rule adjust the rate of pounds of carbon dioxide per million Btu for natural gas or distillate fuel. The council may by rule set carbon dioxide emissions rates for other fuels.

(H) "Nongenerating facility" means those energy facilities that are defined in ORS 469.300 (11) (a)(C) and (E) to (I).

(I) "Offset" means an action that will be implemented by the applicant, a third party or through the qualified organization to avoid, sequester or displace emissions of carbon dioxide.

(J) "Offset funds" means the amount of funds determined by the council to satisfy the applicable carbon dioxide emissions standard pursuant to paragraph (c)(C) of this subsection.

(K) "Qualified organization" means an entity that:

(i) Is exempt from federal taxation under section 501(c)(3) of the Internal Revenue Code as amended and in effect on December 31, 1996;

(ii) Either is incorporated in the State of Oregon or is a foreign corporation authorized to do business in the State of Oregon;

(iii) Has in effect articles of incorporation that require that offset funds received pursuant to this section are used for offsets that will result in the direct reduction, elimination, sequestration or avoidance of carbon dioxide emissions, that require that decisions on the use of such funds are made by a body composed of seven voting members of which three are appointed by the council, three are Oregon residents appointed by the Bullitt Foundation or an alternative environmental nonprofit organization named by the body, and one is appointed by the applicants for site certificates that are subject to paragraph (d) of this subsection and the holders of such site certificates, and that require nonvoting membership on the decision-making body for holders of site certificates that have provided funds not yet disbursed under paragraph (d)(A) of this subsection;

(iv) Has made available on an annual basis, beginning after the first year of operation, a signed opinion of an independent certified public accountant stating that the qualified organization's use of funds pursuant to this statute conforms with generally accepted accounting procedures except that the qualified organization shall have one year to conform with generally accepted accounting principles in the event of a nonconforming audit;

(v) Has to the extent applicable, except for good cause, entered into contracts obligating at least 60 percent of the offset funds to implement offsets within two years after the commencement of construction of the facility; and

(vi) Has to the extent applicable, except for good cause, complied with paragraph (d)(A)(i) of this subsection.

(3) Except as provided in ORS 469.504 for land use compliance and except for those statutes and rules for which the decision on compliance has been delegated by the federal government to a state agency other than the council, the facility complies with all other Oregon statutes and administrative rules identified in the project order, as amended, as applicable to the issuance of a site certificate for the proposed facility. If compliance with applicable Oregon statutes and administrative rules, other than those involving federally delegated programs, would result in conflicting conditions in the site certificate, the council may resolve the conflict consistent with the public interest. A resolution may not result in the waiver of any applicable state statute.

(4) The facility complies with the statewide planning goals adopted by the Land Conservation and Development Commission. [1993 c.569 §23 (469.501, 469.503, 469.505 and 469.507 enacted in lieu of 469.500 and 469.510); 1995 c.505 §21; 1997 c.428 §4; 1999 c.365 §11; 2001 c.134 §10; 2003 c.186 §78]

Appendix 3

The Climate Trust Board of Directors

Laura Beane, *Board Chair and Treasurer*
(Regulated Power Generator Appointee)
Director Regional Market Structure & Policy, Iberdrola Renewables
Laura is the Manager for the Policy and Regulatory Group at Iberdrola Renewables, one of North America's leading developers and marketers of renewable energy. Iberdrola Renewables' primary businesses include wind power, natural gas-fired power, and natural gas storage. Iberdrola Renewables owns or controls more than 5,000 MW of gas-fired and renewable generation in the U.S., with more wind projects under development and construction.

Laura is responsible for following and participating in the public process for implementation of key policy initiatives (i.e., Renewable Portfolio Standards, Renewable Energy Zone designation, Emission Performance Standards, etc.) at the various regulatory bodies across Iberdrola Renewables' key markets in the western U.S. Ms. Beane is also responsible for understanding the impact to Iberdrola Renewables from changes in the western U.S. electricity and gas markets driven by new policies, structures and rules intended to increase the efficiency and reliability of the electricity grid and integrate new renewable resources. She is Iberdrola Renewables' lead on implementation of California's new comprehensive market redesign initiative (MRTU) and is active in assessing the impact of FERC's new orders on transmission market structure and integration of wind projects.

Laura joined Iberdrola Renewables in March 2007 at its Portland, Oregon headquarters after a 10-year career at Iberdrola Renewables' former affiliate, PacifiCorp, where she held various positions including Regulatory Manager over the Oregon service territory, Project Manager for numerous high profile corporate initiatives, and Business Analyst working in strategy and long-term planning on key financing issues with PacifiCorp's parent company, Scottish Power. Ms. Beane also worked as the Senior Marketing Officer for First Security Van Kasper, an investment bank in San Francisco, California after completing her Masters of Business Administration from the University of Utah.

Stephen Hall, *Vice Chair*
(NW Energy Coalition Appointee)
Partner, Troutman Sanders LLP
Steve Hall is a partner of Troutman Sanders law firm. Previously he was a partner at Stoel Rives where he specialized in assisting clients with the development and finance of energy and renewable energy projects. He advised clients on the structuring of energy projects and the operating contracts, power sales contracts, and transmission contracts that such projects require. Steve has acted as counsel to independent power producers, renewable energy developers, major utilities, investment banks, power marketers, and large industrial and commercial users of electricity and natural gas.

Steve is a frequent speaker on subjects of renewable energy finance and development, power purchase agreements, renewable energy credits and carbon offsets, transmission and regulatory issues, and the integration of wind and solar resources. He also serves on the Executive Committee of the Oregon State Bar's Telecom and Utility Section.

Arya Behbehani, *Board Secretary*
(Energy Facility Siting Council Appointee)
Manager of Environmental Services, Portland General Electric
Arya's role at PGE ensures that operations comply with all environmental regulations and that the company demonstrates outstanding environmental stewardship. Arya first worked at PGE from 1985 to 1988 as a Trojan Nuclear Plant engineer and rejoined PGE in 1997 as an engineer in the Power Supply Engineering Department. She has served as a project manager for the Biglow Canyon Wind Farm, Port Westward project development and Willamette Falls Hydro facility project engineering management, among others. She graduated from Roger Williams University in Bristol, Rhode Island, and began her career as an engineer with ITT Grinnell Corporation.

John Audley, *Board Member*
(NW Energy Coalition Appointee)
Executive Director, Sustainable Northwest
John has a long professional history working within the environmental sector; for both nonprofit and government agencies. His experience centers on building consensus among diverse constituencies to develop and implement social, environmental, and economic development policy. Specific trade and environmental policies developed by Audley are now part of U.S. and international trade policy. Additionally, he has successfully defended state renewable energy policies simultaneously in four states, and passed major energy policy legislation in MT, WA and OR. Audley is a frequent speaker on national and international news outlets, with published opinion editorials in The Wall Street Journal, International Herald Tribune, and newspapers throughout the Northwest. He has also provided expert testimony before Congress, European Parliament, The World Trade Organization, and four state legislatures.

Peter Fisher, *Board Member*
(NW Energy Coalition Appointee)
Managing Partner, Human Investing
Peter has an 18 year career in the financial services industry originally starting as a trainee in one of Wall Street's top programs with Merrill Lynch. Prior to leaving Merrill and founding AndersonFisher, LLC. (dba Human Investing) Peter was one of the youngest Directors in the country and oversaw the #1 branch office in a region ranging from Alaska to Guam. He currently serves as the firm's managing partner, Chief Compliance Officer, and is a voting member of their Investment Committee.

Peter is also a Professor at Linfield College in the Finance Department. His focus area is on the fundamentals of investing; specifically on valuation and management of investments.

Patrick Proctor, *Board Member*
(Energy Facility Siting Council Appointee)
VP Operations & Human Resources, Stash Tea
Patrick specializes in human resources management, organizational development, and high-end strategic planning for organizations both large and small. Prior to his time at Stash Tea Company, he served as an Organizational Development & Human Resources consultant for both Paychex Corporation and The HR Tree; Interim Executive Director of Intensive Family Services; Lead Coordinator/Specialist for Oregon Health & Science University; and as the On-site H.R. Manager for ManpowerGroup.

Renee Dowlin, *Board Member*
(Energy Facility Siting Council Appointee)
Senior Environmental Consultant, Jviation Inc.
Renee is an experienced project manager, with 20 plus years of environmental, land use and aviation planning experience, who now runs her own environmental consulting business. Prior to working for the Port of Portland, she developed some of the earliest airport alternative fuels and recycling programs, in addition to serving as an air quality manager and overseeing emissions inventories that included greenhouse gases.

Non-Voting Site Certificate Holder Appointee:

Tom Dempsey
Manager Generation Joint Projects, Avista Corp.

Appendix 4

What The Climate Trust considers when evaluating offset projects

The Climate Trust takes the following offset quality design elements and risks into account when evaluating offset projects:

- Project design quality—additionality, quantifiability, ownership, permanence, leakage, methodologies, and monitoring and verification; and
- Risks—financial, project team, technology, operations, and ownership.

Project design quality

Additionality

Additionality is the most fundamental criterion for determining a project's climate mitigation benefit. Additionality is the requirement that an offset project's emission reductions are "in addition to" a business-as-usual scenario. An offset project is considered additional if offset funding allows the project to overcome barriers to implementation.

The Climate Trust's Oregon Program only funds new projects that have not been implemented at the time a contract is signed. By evaluating a project before it has been implemented, we can ensure that The Climate Trust's offset funding is necessary to overcome barriers to the project. We require projects to pass all three of the following tests to prove additionality:

- Regulatory surplus test. A project passes this test if regulations do not require the mitigation measure to be undertaken.
- Implementation barriers test. A project passes this test if it faces a financial, technological, or institutional barrier that can only be overcome by the inclusion of carbon finance.
- Common practice test. A project passes this test if the mitigation measure is not a common occurrence in the sector in which the project is taking place.

Our additionality test is highly regarded. The Voluntary Carbon Program, an independent international certification system, adopted our additionality testing procedures. The Voluntary Carbon Program is a well-respected standard for the global voluntary offset market.

Quantifiability

Offsets are measured as the difference between the emissions that would have occurred without the project (baseline emissions) and the emissions that occur after a project is implemented (project emissions), as in the following equation:

Baseline emissions — Project emissions = Offsets

Credible baselines are conservative and take into account anticipated future changes in the business-as-usual scenario. Offset projects are only as credible as their baseline. The Climate Trust relies on third party project certification standards to ensure future offset volume projections are conservative and take into account future changes in the business-as-usual scenario. Each project is assessed for its ability to quantify baseline emissions and project emissions. The methodology for quantifying emissions is detailed in a monitoring and verification plan, along with requirements for monitoring project emissions and verification by an independent third party.

Ownership

Ownership is also critical to offset integrity. Credible offsets represent a unique reduction in emissions.

This is demonstrated by proving that the project developer is undertaking an activity that results in emission reductions within the physical boundaries of the project site. Such clear title prevents multiple entities from claiming the same reductions, or double-counting. Projects that result in emission reductions at a location owned by another entity may achieve the desired reductions, but they are at higher risk of double-counting. The issue of double-counting is especially common in the electricity sector, because multiple energy facilities are connected to the same electrical grid, which could lead to competing claims for the same emission reductions.

Permanence

Another key criterion of offset quality is ensuring that verified emission reductions are permanent and cannot be reversed. Offset projects involving biological sequestration such as forestry and soils projects are subject to permanence risks.

Carbon dioxide remains sequestered in biological matter such as wood, grasses, and crops, only until the matter decomposes or is combusted. Forestry offset projects face intentional permanence risks such as land conversion and harvesting, as well as unintentional permanence risks such as wildfire and disease. For example, a wildfire would cause some of the carbon dioxide sequestered in the forest to be released into the atmosphere, which would negate at least a portion of the offset credits. If a project is subject to permanence risks, The Climate Trust seeks out contractual mechanisms such as easements and binding agreements with land-owners, which can adequately safeguard against potential losses of sequestered carbon dioxide.

Leakage

The Climate Trust requires projects to account for possible leakage, which is an increase in greenhouse gas emissions outside the boundary of an offset project that occurs as a result of implementing an offset project. For example, if an avoided deforestation project prevented a parcel of forest from being clear-cut for use in a paper mill, the mill might harvest wood elsewhere. If an alternate forest was cut down to meet the mill's demand, it would cancel out the carbon benefit from saving the forest. Projects with a high risk of leakage do not meet our standard for high quality.

In the rare cases where leakage occurs because of a project, we account for such leakage by subtracting lost carbon from the offset credits delivered.

Project methodologies

Project methodologies play a crucial role in the offset market. They evaluate a project's additionality, establish a conservative emissions baseline, and outline how emission reductions will be quantified. The formula for determining the quantity of offset credits involves factoring in the many variables inside and outside of a project boundary to calculate baseline emissions, project emissions, and possible leakage that might result from the project.

Many of The Climate Trust's offset acquisitions on behalf of the Oregon Program have pre-dated the development of recognized third-party methodologies. In these cases, we worked with the project developer and external experts to develop a credible methodology. When available and applicable, we employ project methodologies from such well-respected organizations as the Climate Action Reserve, the Verified Carbon Standard, and the American Carbon Registry.

Monitoring and verification

Offset projects must use a monitoring and verification (M&V) plan that defines how, when, and by whom emission reductions will be calculated. The Climate Trust works to develop M&V plans in the early stages of project acquisition, because the costs and potential complications of M&V activities can be key factors in deciding whether to fund a project.

We require most projects to undergo monitoring on an annual basis (the exception is biological sequestration projects, which require monitoring and verification less frequently because the emission reductions occur over a much longer period of time). Monitoring reports are verified by third-party experts, who serve a role similar to an auditor reviewing a company's accounting procedures and financial reports. This third-party verification is essential to ensuring the high quality of the offsets The Climate Trust buys.

Risk assessment

Financial risk

We want to ensure that we are committing money to projects that use credible and conservative assumptions to forecast financial performance. We evaluate a project's pro forma, a financial spreadsheet that details the project developer's set of assumptions that predict a project's bottom line, to determine the likelihood that a developer will be in operation and that the project will be economically viable through-out the project term.

Project team risk

The track records of the project development and implementation company and its suppliers, consultants, and funders are an essential indicator of whether a project will operate successfully throughout its life. To assess the likelihood that a project developer will deliver the proposed amount of offset credits, we consider the following criteria:

- **Reputation.** Is the project developer a credible entity with a good reputation?
- **Experience.** How have the developer's previous projects performed (including related and unrelated projects)?
- **Knowledge.** Does the developer have a working knowledge of the type of project proposed?

Technology risk

If an offset project utilizes a new technology, we extensively examine the proposed technology. This assessment involves learning the basic engineering of the technology, reviewing pilot studies, evaluating the extent to which the technology is applied commercially, and analyzing the conditions necessary for the successful ongoing operation of the technology. Third-party experts are often hired to ensure the selected technology is appropriate.

Operations risk

There are a number of operational factors that can impact project performance, such as uncertainties about access to reliable supplies and resources required for the project. When evaluating a project, The Climate Trust takes into account such risks, as well as the steps developers have taken to mitigate them, as indicators of future performance.

Ownership risk

The greatest legal issue facing offset transactions is establishing clear and uncontested title to the emissions reductions resulting from a project. Otherwise, there is a risk that the offset is not unique and subject to competing claims on the ownership of the emission reductions. Ownership became an issue with the emergence of cap and trade legislation.

The Climate Trust examines a project's boundaries to determine where and how an emission reduction is generated and whether the project developer would own and could sell the offset credits. We negotiate a legally enforceable contract for offset projects that meet all of our quality requirements. In addition to the emission reduction purchase agreement, we request bills of sale to establish a clear claim to ownership of offsets. Once offsets are verified and delivered, we record the offsets in our registry and retire them so they cannot be traded, sold, or claimed by another entity.

Co-benefits risk

Many offset projects result in additional environmental, economic, and social benefits beyond reductions in emissions. Such benefits include reducing air pollution, restoring degraded lands, creating jobs, saving money on energy bills, providing energy security, and demonstrating the feasibility of a new technology.

However, some offset projects can have negative social and/or environmental consequences. Examples are a forestry project that displaces an indigenous population that lives in the forest or a biomass energy project that results in greater emissions of nitrogen oxides, which are air pollutants. The Climate Trust does not invest in offset projects that cause or contribute to adverse effects on human or environmental health. We place a high priority on projects with exceptionally strong environmental, economic, and social co-benefits.

Appendix 5

How The Climate Trust manages offset projects

Once an emissions reduction purchase agreement (ERPA) is signed, The Climate Trust remains actively involved in tracking the project's performance to ensure implementation and performance milestones are met and offsets are delivered and retired.

Contract compliance

The Climate Trust's ERPAs contain milestones that project developers need to meet in order to start receiving offset funds. We maintain regular communications with project developers to track a project's progress and to safeguard against disbursing funds to underperforming projects. Milestones vary depending on the nature of the project. They typically involve proving that the required equipment has been ordered, properly installed, and is operational, with completion of a certificate of commercial operation by an independent professional engineer. Another example would be verification that a certain number of acres have been planted for a reforestation project.

Offset registration and retirement

Registries are taking an increasingly important role in the offset market. They provide the infrastructure necessary to track the origin of an offset, ensure that it is unique through the assignment of a serial number, track and record whether it is traded or retired, and determine whether it meets various jurisdictional standards.

Appendix 6

Defining offsets

Offset means "neutralize," "balance," or "cancel out." Therefore, carbon offsets "cancel out" greenhouse gas emissions from activities, such as power generation and shipping goods, by financing specific projects at another location that reduce, remove, avoid, or sequester the release of greenhouse gases that contribute to climate change. One offset credit represents one metric ton of carbon dioxide (CO_2) equivalent ($mtCO_2e$) that has been reduced, removed, avoided, or sequestered.

Funding flows from the original emitter to the offset project in exchange for ownership of the emission reductions, or offsets. Greenhouse gases disperse throughout the atmosphere regardless of where they are emitted, so the physical location of emission reductions is immaterial as long as real and permanent reductions in atmospheric greenhouse gas levels are made. An offset is equivalent, from a climate perspective, to the original emitter making the emission reductions.

Regulatory offsets

Regulations can cap certain entities, meaning that they are allowed only a certain quantity of greenhouse gas emissions, which are called allowances. Regulated entities are required to meet or fall below their emissions targets through on-site emission reductions, trading emission allowances, purchasing offsets, or a combination thereof.

Regulatory offsets are those purchased by a regulated entity in order to comply with the cap. The purchasing entity is allowed to use offset credits to meet its compliance obligation as though the regulated entity had made the reduction itself.

Voluntary offsets

Voluntary offsets are those purchased by corporations and individuals for personal or corporate climate change goals, instead of a need to comply with regulation. Such parties are interested in mitigating the climate impact from activities such as air travel or commuting to work.

How offsets differ from other environmental commodities

The green marketplace is getting increasingly crowded with a number of different environmental commodities such as Renewable Energy Certificates (RECs) and White Tags. A REC is a certificate that is used to represent one megawatt-hour (MWh) of electricity generated and delivered to the grid from a qualifying renewable energy source, such as wind, solar, or biomass. A White Tag represents one MWh of electricity savings through efficiency measures. RECs, White Tags, and offsets all represent important contributions to combating climate change. However, they are not equivalent. What sets offsets apart are two important properties: additionality and ownership. Offset projects must prove that emissions reductions are "in addition" to those that would have occurred without offset funding. This concept is called additionality, and RECs have no additionality requirement. Also, quality offset projects have clear and uncontested ownership of direct emission reductions to prevent more than one entity from taking credit for the reductions, which is called double-counting. While renewable energy and energy efficiency projects cause energy facilities to reduce their emissions, RECs and White Tags cannot claim clear and uncontested title to those emission reductions.

What additionality is and why it matters

Additionality is one of the most important criteria in assessing offset project quality and integrity.

Additionality is an assessment of whether carbon funding resulted in emission reductions that would not have otherwise occurred. A quality offset project can prove that the economic incentives provided by offset funding helped overcome barriers to project implementation. Such barriers can be institutional, political, technological, or financial.

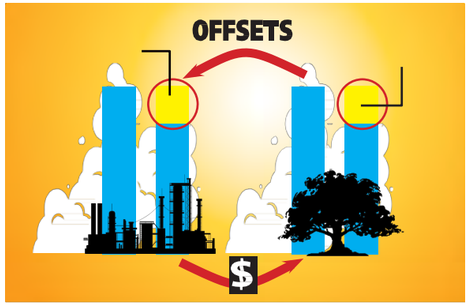
Additionality is a high standard that is not required of RECs, White Tags, and other environmental commodities.

What double-counting is and why it matters

Emission reductions that result from any activity associated with reduced use of electricity, such as energy efficiency or renewable energy, actually occur at fossil fuel-fired energy facilities. For example, a wind farm that provides energy to the electrical grid may lead to emission reductions at a coal-fired energy facility that lowers its output commensurate with the wind energy produced. For this reason, energy efficiency and renewable energy projects are said to result in "indirect" emission reductions because the reductions take place at sources owned or controlled by other entities.

In the case of the wind energy project, both the wind farm and the coal-fired plant would be claiming the same emission reductions. If allowed to exist, offsets would be double-counted, putting the integrity and efficacy of the environmental markets at risk.

Figure A.1. illustration of how offset funding works



Appendix 7

The role of offsets in mitigating climate change

As the United States transitions to a low-carbon economy, every emissions reduction tool available will be needed to achieve the significant cuts necessary to stabilize our climate. The Climate Trust believes in reducing greenhouse gas emissions by saving energy when possible, developing renewable energy sources, and offsetting the balance.

High quality offsets are a critical climate mitigation tool for three primary reasons. Offsets provide:

- A cost-effective, market-based solution to real and permanent reductions of the greenhouse gases that cause climate change
- Funding for new low- and zero-carbon technologies
- A host of additional environmental, economic, and social benefits, such as conservation of habitats, saving money on energy costs, and job creation

Offsets are a vital climate mitigation strategy that can be used to complement both regulatory and voluntary emission reduction efforts. Offsets give emitters the flexibility to find the lowest-cost emission reductions available, instead of limiting them only to on-site emission reduction projects. This flexibility allows both regulated and voluntary offset buyers to lower the cost of attaining emission reductions. By leveraging the power of markets, offsets are helping transform Oregon and the United States to a low-carbon and sustainable future.

Additionality is the foundation of offset quality

The second criticism that most offset projects would have occurred without carbon finance can be overcome by employing a standardized methodology for evaluating offset quality. Industry standards, such as the American Carbon Registry, California Air Resources Board, Climate Action Reserve, and Verified Carbon Standard, have rigorous requirements for additionality, requiring the offset project to prove that it could not have been implemented without carbon funding.

Standards, transparency, and accountability are critical to carbon market integrity

As the U.S. carbon market matures, the third criticism that it is susceptible to gaming loses substance. The carbon market, like other financial markets, needs transparency, rules, and oversight to ensure fairness and the value of the commodity.

In the absence of national climate regulation, many state standards such as the California Air Resources Board voluntary standards such as the American Carbon Registry, Climate Action Reserve, and Verified Carbon Standard provide quality assurances for investors. Such standards require transparency and establish protocols for the development, quantification, and verification of offsets, in order to insure that the emissions reductions are real, additional, verified, permanent, and unique. The rigor of these standards has earned them excellent reputations and premium prices in the marketplace.

Appendix 8

Policy trends: Momentum at the state scale

State emission regulations

Oregon was the first state in the nation to enact legislation to reduce carbon dioxide emissions with passage of its Carbon Dioxide Program in 1997. Due primarily to the success of the Oregon Program and the associated management of funds by The Climate Trust, other states have since adopted the system in full or in part. These states include Washington, Montana, and Massachusetts.

In 2006, California passed AB32, the Global Warming Solutions Act, requiring the development of regulations that will reduce greenhouse gas emissions to 1990 levels by 2020. The components of AB32 work in tandem to reduce emissions, including a Low Carbon Fuel Standard and a comprehensive cap and trade program which, as of January 2015, will cover 85% of emissions sources within the state. This system also recently joined with a similar system in the Canadian province of Quebec to provide a proof of concept for internationally linked carbon markets.

The California cap and trade structure has now been in place for a year, and early results seem to indicate a smoothly functioning system with stable prices. The state auctions a significant portion of its allowances, and demand in these auctions has been consistently strong despite the lack of a post-2020 commitment to continue the program. The system has also linked to a similar cap and trade structure in the Canadian province of Quebec, with the two jurisdictions' first joint auction to be held in November of 2014.

Offsets are also allowed under the California system. The California Air Resources Board, which oversees the program, has approved four categories of projects that may be used to satisfy compliance obligations, with additional categories under consideration for the future.

Regional climate policy

Though little progress was made on regional initiatives like the Western Climate Initiative and the Midwestern Greenhouse Gas Reduction Accord following the economic recession, and there was failure to pass national cap and trade legislation in 2009, regional initiatives continue to hold the potential to jumpstart a national carbon price.

To date, The Regional Greenhouse Gas Initiative (RGGI)—a greenhouse gas reduction initiative by a group of Northeastern states in the U.S. and regions of Eastern Canada—has been generally regarded as a success, contributing a combined $1.6 billion to the Northeast region's economic growth in its first three years of operation. Though allowance prices within RGGI have been historically low due to an initial misjudgment of the level of the cap, recent auctions have been oversubscribed, indicating a growing market in the region.

In October of 2013, the leaders of Washington, Oregon, California and British Columbia joined together to sign the Pacific Coast Action Plan on Climate and Energy. Though legally nonbinding, the agreement commits the signatories to collaborative action on carbon pricing, clean fuels and other carbon mitigation strategies. British Columbia, like California, has successfully implemented carbon pricing in the form of a revenue-neutral tax.

Both Oregon and Washington are moving forward on climate policies. A February 2014 executive order by Oregon Governor John Kitzhaber requires the state Department of Environmental Quality to draft rules for a continuation of the state's Clean Fuels program, due to take effect in January of 2015. A carbon tax has also been under discussion for the state, but its likelihood of passage remains unclear.

In Washington, Governor Jay Inslee has assembled the Carbon Emission Reduction Taskforce (CERT), designed to carry out an executive order by Gov. Inslee to research and make recommendations on policies that will aid the state in meeting its emission reduction targets. The task force is examining carbon taxation, cap and trade and hybrid approaches, and will make a recommendation to the state in November 2014.

Federal climate policy

Since the failure of the Waxman-Markey bill in 2009, President Obama has shifted focus from the passage of national cap and trade legislation to a patchwork of actions known as the President's Climate Action Plan. The Plan is a combination of legislative actions and targeted investments designed to increase energy efficiency, speed up the deployment of renewable energy technologies, and lower greenhouse gas emissions. The centerpiece of the plan is regulation that limits greenhouse gas emissions from power plants, administered by the US Environmental Protection Agency (EPA).

On April 17, 2009, the EPA was given authority to regulate using Section 111 of the Clean Air Act, and proposed the regulation of greenhouse gases from power plants. Section 111 (b) regulates new or reconstructed facilities, while Section 111 (d) regulates existing plants. Draft rules to meet the standards of Section 111 (d) were released during the summer of 2014, and public comments will be accepted until December 1, 2014. These rules represent the largest action the United States has taken on climate change to date, and will be closely followed by experts in the energy and carbon markets as it makes its way through the approval process.

Appendix 9

Carbon market trends

The U.S. carbon market has continued to evolve since The Climate Trust's last report in 2009. Both traded volumes and prices have declined significantly over the course of the last year, with the overall market worth $379 million in 2013. Experts attribute the decline to two primary factors. The first is continuing shifts in regulation. The newly formed California compliance market has attracted funds that used to belong to the voluntary market, while the repeal of Australia's carbon tax meant a sudden sizable gap in demand. The second factor is buyer motivation. The majority of voluntary offset buyers in 2013 were repeat customers; often, these were companies with significant carbon reduction goals and/or internal carbon prices.

The following four themes have characterized the carbon market:

1. Barriers to supply
2. Shifting regulation
3. Sectoral focus shifts
4. Low demand

This section will explore these phenomena in more depth.

Barriers to supply

In the absence of federal climate regulation, demand from the US regulatory market is driven solely by activity in California and the RGGI states, which allow the use of offsets for 8% and 3% of the compliance obligation, respectively. These systems are the first-of-their-kind and have been vocal about their desire for others to join them; RGGI, in fact, may offer one route to state compliance with the 111(d) standard.

In California, this "first-mover" scrutiny has led to a cautious approach to offsetting. Protocols must be thoroughly vetted for scientific validity and user friendliness before they are allowed to be used for offset generation by the Air Resources Board. This means a limited pool of offset project types to purchase from. In addition, many ARB-compliant offsets have yet to be issued to these project types due to a backlog in the project approvals pipeline. Despite the uncertainty, California-compliant offsets currently sell in the $8-10 range, higher than the $4.90 average of the voluntary market. RGGI's offset program is rarely used, because allowance prices within the system are still low.

The majority of offset activity is in the voluntary market continues to be driven by social responsibility buyers, who cite, "combating climate change," as their primary motivation for involvement in the offset market. Prices in this market fluctuate based upon project type, standard, perceived offset quality and a variety of other factors. Notably, co-benefits have emerged as a key distinction between projects for many voluntary buyers, and projects that can demonstrate these supplemental benefits, such as forestry and high-efficiency cookstove projects, have been rewarded a larger share of the voluntary market.

With average prices in the voluntary market low, carbon funding is often a minority share of a project's overall financing, and this presents challenges in terms of creating offset supply, as many projects struggle to cobble together the necessary financial support. It is becoming clear that for most sectors a high, stable carbon price created by legislation could create this support, as could the ability to create economies of scale through project aggregation. However, the voluntary market continues to thrive as a testing ground for offset protocols that may one day be adopted into regulatory frameworks.

Shifting Regulation

In 2015, California will bring transportation fuels under the regulation of its cap. The state is also considering legislation to limit greenhouse gases with high global warming potential, such as methane. While both of these policy changes are positives overall for the environment, they also both have implications for the offset market.

Offset projects, by definition, can only occur in sectors of the economy that are not regulated under the cap. Any sector that is capped is no longer eligible to sell offsets from emission reduction projects. As a result, there is a constantly changing set of potential offset sectors, which The Climate Trust needs to be aware of in order to minimize risks to its business model.

The ever-shifting climate policy landscape including the addition of several new national carbon pricing schemes since 2009, has also meant that governments and government-funded agencies have emerged as a major buyer of carbon offsets globally in the past year—purchasing about 19% of offsets sold during 2013.

2015 promises to be a big year for climate policy, with the next UN Climate Summit scheduled to be held in Paris. This, many policy experts believe, is the last real chance to reach a binding international agreement on lowering greenhouse gas emissions. However, even if no such agreement were reached, many countries will likely continue with their carbon targets unilaterally, leading to a growing, albeit fragmented, carbon market.

Sectoral focus shifts

Not surprisingly, the first carbon projects to be developed at the outset of the market were considered "low-hanging fruit," meaning low-risk, low-cost projects that were close to implementation.

In addition, early project development focused on projects that reduce the use of gases with a higher global warming potential than carbon dioxide. Many current offset projects are those that reduce methane emissions from dairy manure lagoons and landfills. These sectors have received the most attention from buyers, regulators, and the developers of methodologies and standards.

However, as these markets mature, compliance regulators have begun to look for the next, most promising offset protocols to incorporate into their markets. For California, protocols for mine methane and agricultural rice production are in the queue to be approved by the Air Resources Board, with agricultural nutrient management, REDD forestry and other sectors under future consideration.

In the voluntary market, it is clear that buyers will continue to narrow their focus, targeting projects with significant co-benefits in biodiversity, human health, beautification, air and water quality, and other outcomes.

Low Demand

At the end of 2013, many voluntary offset buyers reported having unsold offset inventory. There are two factors leading to this oversupply. Prices are low, which means that many entities would prefer to hold credits until there is a wider profit margin; and regulation is uncertain, meaning that some bodies are holding out for a compliance market which creates the higher prices desired for the credits in their possession. The voluntary market and the regulated California market are projected to reach $1 billion and $2 billion respectively by 2020.

Even with low current demand, the increased concern of companies and governments about the impact of climate change on their operations may help to ensure the continued growth of both the regulatory and voluntary markets in the coming years.

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