



**Washington State Clean Energy  
Leadership Plan Report  
Executive Summary and Overview**

For the:



**Accelerating Washington  
Clean Energy Job Growth**

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This summary version of the Washington State Clean Energy Leadership Plan Report contains the executive summary and the Leadership Plan Overview. A full version of the report providing further detail on analyses, assumptions and plan element description can be found in the full report, which is also available at [www.washingtoncelc.org](http://www.washingtoncelc.org).

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## Executive Summary

This report is the culmination of over a year's effort by the State legislatively created Washington Clean Energy Leadership Council to develop a Clean Energy Leadership Plan targeted specifically to grow clean energy businesses and jobs in Washington. The goal of the Leadership Plan is to transform the market for clean energy solutions in Washington to create sustained clean energy job growth. The Council's Leadership Plan details an innovative approach with two major components to accelerate clean energy jobs in Washington State. One component is a targeted approach to leverage funding to improve the ability of Washington State businesses to demonstrate market-leading clean energy solutions that grow jobs *without the need for continued subsidy*. The other component focuses attention on those areas where regulation needs to be better aligned with policies and actions enabling job-creating clean energy solutions to move forward. Together, these efforts can transform the market for clean energy in Washington to greatly enhance in-state clean energy businesses and jobs. Absent an effort such as this Leadership Plan, Washington will continue to fall further behind other states in clean energy jobs per capita.

Many states in the country have programs and funding which target clean energy business and job growth. The key steps of this Plan are a fundamental shift from how Washington and other states have sought to create clean energy jobs. By design, this Plan uses a more efficient and cost-effective way to accelerate leading-edge clean energy solutions and associated jobs. This approach is particularly targeted to address the limited state government funding available in this post-recession period, while still advancing the creation of sustainable clean energy jobs.

### **Why Does Washington State Need a Clean Energy Leadership Plan?**

Despite its reputation as a state with a strong environmental ethic and its large reliance on hydroelectric energy sources rather than fossil-fuel resources, Washington's clean energy industry has grown slowly relative to competing states. In fact with only about 0.55% of total jobs in Washington in the clean energy sector, it ranks 14<sup>th</sup> in the nation and just barely above the average of all of the states. Our neighboring state of Oregon is the leading state in clean energy jobs with nearly twice the percentage of Washington. More importantly, other states are taking significant actions to increase their clean energy businesses and jobs. Absent a positive step forward with a cohesive plan and reasonable investment, Washington will not likely significantly increase its clean energy business and job standing and likely will cede ground to those states that are taking proactive steps.

Other states are meeting the clean energy job growth challenge with strong central clean energy policy adoption, alignment of clean energy job growth and regulatory policy, and funding from various sources to attract and build clean energy jobs. These other states are undertaking this job growth effort largely in a manner that supports clean energy economic growth without burdening the overall state economy to do so. If the status quo in Washington State continues, other states and other nations will outpace Washington's clean energy business

and the associated jobs. The Leadership Plan described herein outlines a plan to improve Washington’s clean energy businesses and jobs to achieve long-term, sustained job growth and retention and compete effectively on a national, if not global basis.

**What is Different About This Plan?**

Most existing Washington and other state clean energy job plans rely heavily on direct state funding to invest in clean energy infrastructure within a state’s borders to create jobs. During the period the state money is available to be spent, largely short-term jobs are created. When the funding is depleted, the jobs trail off as the funded projects wind up. Washington needs sustained clean energy jobs, and a growth trend in those jobs. Implementing this Plan will deliver sustained clean energy job growth.

Rather than “buying” clean energy jobs “dollar for dollar”, this plan brings the purchasers of clean energy solutions and the providers of those solutions together in Washington to demonstrate *today’s commercially viable* leading-edge solutions. Those solutions are identified and *partially* funded through a state-sponsored program that also brings in funding from the private sector and other non-state sources. In this manner, state funding is highly leveraged. Using “market driver initiatives”, new clean energy solutions are demonstrated by Washington companies and their employees. Once the new solutions are demonstrated, they become commercially viable to be replicated without subsidy. This process creates a commercial market transformation in clean energy solutions. This is not government funded, new laboratory research with the hope of new technologies deployed decades in the future. These market driver initiatives will be specifically selected to demonstrate *combinations* of commercially viable clean energy technology solutions. This is also a material difference from many traditional “R&D” efforts that will provide jobs only if new unproven technologies are implemented years from now. *This approach deploys combinations of existing clean energy solutions in new ways, rather than seeking to invent or deploy yet to be proven technology on a standalone basis.* Solutions will be demonstrated in a manner that can differentiate Washington companies and employees in the deployment of clean energy.

**What is a Clean Energy Market Driver Initiative?**

Today, the use of clean energy solutions is largely in response to government mandates to meet certain energy efficiency, renewable energy or greenhouse gas emission targets or standards. These mandates have increased the use of clean energy technology, but not necessarily in a manner that best produces sustained new in-state jobs.

The Leadership Plan would bring utilities, building owners/developers, government and providers of clean energy solutions together to plan and implement leading-edge clean energy projects in those areas where Washington can differentiate itself. Following a major review of the market for clean energy jobs by Navigant Consulting, the Council has focused on specific initial clean energy segments where Washington has competitive advantages over other states, and potentially over other global players. This approach goes beyond deploying “tried and true”, but lower efficiency clean energy solutions as is so often the norm today. Instead,

market driving, more efficient, clean energy solutions would be deployed in high-profile projects where purchasers of solutions, such as utilities and building owners/developers seek out the most promising new opportunities. By proving the validity of those new solutions in commercial scale demonstrations, Washington companies set new standards for clean energy solutions and become a part of a new wave of offerings that differentiates Washington companies.

Implementing the Leadership Plan will create demand for Washington clean energy companies and build jobs. By creating a framework where buyers of clean energy solutions *seek out* suppliers of leading-edge solutions, the market is transformed to have new commercially viable clean energy business growth, rather than relying 100% on government subsidy to create short-term jobs deploying yesterday’s less efficient solutions. The Leadership Plan explains this process in more detail in the Overview section of this report, and in Chapter 4.

### **Regulatory and Clean Energy Policy Alignment**

Several key regulatory structures in Washington constrain the advancement of clean energy job growth. Creating a “culture” of clean energy business and job growth requires a strong, continued awareness and commitment to removing barriers and enhancing opportunities. While State government alone cannot assure clean energy economy growth, it is in a strong position to influence that growth through aligned regulatory and clean energy policy in areas including:

1. Clean Energy Regulatory Oversight
2. Regulated Utility Incentive Alignment and Barrier Removal
3. Streamlining of Permitting and Standards

Uncertainty about timing and extent of new building energy efficiency standards dampen innovation in new energy efficiency and green building solutions. Limited term contracts to access State-owned lands for biomass harvest for biofuel or biomass power constrains the ability to use this renewable fuel source. The prospect of after-the-fact disallowance of utility expenditure or investment in renewable energy or energy efficiency projects or programs is a disincentive to deploying leading-edge solutions. The risk of disallowance of utility costs of demonstrating new energy storage to better integrate renewable energy into the grid puts a chill on market leading solutions in that clean energy segment. These are but a few of the regulatory issues that need resolution to help expand clean energy jobs in Washington.

If these issues have to be permanently resolved before efforts are taken to deploy market leading demonstration of clean energy solutions in Washington, new clean energy job growth will continue to be constrained, delayed or permanently thwarted. Positive actions can be taken to remove barriers and support new clean energy jobs. Establishing a senior energy advisor in the Governor’s office in Washington to address these issues and to interact with the clean energy industry as a single point of focus would be a positive step forward. These and other regulatory alignment efforts are described in more detail in the Overview section and in Chapter 5 of this report.

## Funding

This Leadership Plan will require funding. The report addresses a number of potential sources of funding to implement the plan. Of the many options theoretically available, two sources are most promising. For a quick start-up, a portion of existing economic development funding sources could temporarily be redeployed while a longer-term solution is implemented. One of the more promising long-term funding sources would be a so-called “system benefit charge.” This mechanism is a minor fee for each kilowatt hour (kWh) of retail electricity supplied in the State of Washington. This mechanism is used in several states as described in more detail in Chapter 7 and is proposed at a level that would not affect the competitive levels of Washington utilities retail rates.

The minimum level of annual funding deemed necessary to implement the Leadership Plan is approximately \$20 million. A system benefits charge of \$0.00025/kWh would provide this level of funding at a cost of less than 20 cents a month per average residential utility customer – less than 10 percent of the cost of a single gallon of gasoline per month. Certainly larger funding levels than this would enable more clean energy job growth to happen sooner. However, the advantage of the market driver initiative structure is that this program funding is highly leveraged by other sources. The monies from new funding structures like the system benefit charge are needed for only a *portion* of the market driver initiative projects. Building developers, electric utilities, and alternative transportation fuel developers and their customers have budgets today for certain levels of clean energy solutions. This process provides *an increment* of funding to push the efficiency and technological achievement of demonstration projects up further.

Once these market-leading projects are demonstrated, they become the new standard that the market seeks – the leading-edge solution goes “mainstream” without subsequent projects requiring a subsidy. More importantly, Washington companies are those that lead the way and the jobs follow that market leadership here, in state.

This modest level of funding is further expanded through gaining matching dollars from federal programs and non-profit foundations seeking to achieve these same goals, as described in Chapter 7.

## Creating a Central Organization Focus to Implement the Plan

Providing focus and implementing the market driver initiatives requires an entity with skills in the clean energy sector to address three key needs:

1. Provide the point of focus collectively for purchasers and suppliers of clean energy solutions in Washington;
2. Regularly seek non-state matching funds from the federal government, private enterprise and non-profit organizations to leverage the proposed state funding, as well as to administer the funding of the market driver initiatives projects; and

3. Provide timely and focused insight to regulatory and policy organizations regarding changes and alignment needed between regulation and clean energy policy to pave the way for accelerated clean energy business and job growth.

Chapter 6 describes a recommended scope and structure for such an organization. This organization cannot be a “government as usual” administrative organization. It needs to be a combination of (a) private enterprise professionals who are active in the clean energy sector in Washington and (b) a small set of government employees with energy industry experience and strong economic development skills dedicated to the successful transformation of Washington’s clean energy market and associated job growth.

### **Estimated Clean Energy Job Creation**

Properly structured, the Leadership plan could create an incremental over 50,000 direct and indirect clean energy jobs and \$2.3 billion in Washington annual personal income by 2020.



## Leadership Plan Overview

Washington's clean energy technology industry has grown slowly relative to competing states. Continuing this trend will result in Washington losing additional job opportunities to other states and nations. In 2009, the Washington State Legislature created the Clean Energy Leadership Council to develop a leadership plan of actions to accelerate business growth and associated increased jobs in Washington as the world transitions to a clean energy economy. The Council, with the assistance of Navigant Consulting, Inc., has prepared a recommended Clean Energy Leadership Plan to meet this objective. This Leadership Plan recommends a framework to grow clean energy businesses and jobs in Washington by promoting deployment of leading-edge clean energy solutions in state as a platform for exporting clean energy solutions nationally and globally. In parallel, actions to address in-state clean energy growth barriers are proposed.

### Status of Washington's Clean Energy Business Sector

The status of Washington's clean energy sector, "where we are", is a key factor in determining actions needed to accelerate clean energy job growth in Washington. With its robust hydroelectric system, Washington State is one of the cleanest economies in the nation with some of the lowest electric rates. Until the 2006 adoption of voter initiative I-937, under a policy practice that encouraged the lowest initial direct cost as the criteria for addition of new energy resources, the percentage of renewable energy in Washington's mix had been in decline. More recently, in-state policies<sup>1</sup> have driven the majority of the new renewable energy and energy efficiency investments and deployments in Washington. However, similar mandates and policies have been instituted in many other states in the nation, and internationally, often at a pace well ahead of Washington.

These policies, mandates, and trends have increased the use of clean energy in the state, but not necessarily created growth of businesses and jobs *here in Washington*.

Washington ranks fourteenth among states in overall economic activity<sup>2</sup>, making it a relatively small market in clean energy when seeking to compete with states like California, Texas, New York, and Massachusetts. For the size of its economy, the state's electric utility market is highly fragmented with over 60 utilities, and approximately 50 percent of total electric customers are served by self-regulated public power utilities; the other half are served by three investor-owned utilities regulated by the Washington Utilities and Transportation Commission (WUTC). This fragmented structure has made it difficult to implement policies which drive investment in renewable energy and changes in the use of energy in homes and businesses.

For clean energy-related business and jobs to grow in Washington, companies need to be active in Washington. To compete in national and global markets, Washington companies need to be

<sup>1</sup> Renewable portfolio standards, sustainability initiatives, and building standards modifications

<sup>2</sup> As measured by state Gross Domestic Product, 2008 US Bureau of Economic Analysis

providing leading clean energy solutions. Most renewable energy sources and many of the energy efficiency solutions have initial costs that are higher than Washington’s low-cost existing supplies. This cost pressure can cause regulated utilities to face disallowance by the WUTC of costs expended for clean energy resources. Public power utilities governed by their own boards don’t face a regulator’s disallowance of their incurred costs, but like their investor-owned utility counterparts, they are highly mindful of initial increases in costs from addition of clean energy resources to their portfolio. As a result, some form of initial cost assistance is typically required to overcome inertia and spur the adoption of new, market-leading clean energy solutions.

Other states face similar challenges and are meeting these challenges with various forms of assistance and strong alignment of clean energy and regulatory policy. California has a “public benefits charge” applied to all electric sales of regulated utilities in the state, providing over \$150 million annually to be used for clean energy research, pilot programs and new technology commercialization. California also has a central clean energy research and demonstration funding entity for leading clean energy solutions. It provides for certain levels of pre-approval of expenditure for renewable energy and energy efficiency programs and incentives to regulated utilities for achieving target levels of energy efficiency. Similarly, Massachusetts provides \$20 to \$25 million annually for clean energy research and commercialization from a systems benefit charge, and like California, has an organization dedicated to advancing clean

energy business. The state also funded a one-time \$20 million effort to initiate this program.

**Washington clean energy businesses have expanded out of state. For example, Seattle-based Blue Marble opted to build its bioenergy production facility in Montana due to favorable governmental action there. SolarWorld closed its Vancouver facility and moved, losing 100 jobs in WA and adding 1,000 at its new location in Hillsboro, OR due to favorable tax incentives.**

Washington’s neighboring state of Oregon has adopted a Business Energy Tax Credit system to incent clean energy technology. Oregon also offers residential clean energy tax credits and provides annual clean energy research funding through the Oregon Energy Trust. States previously not known for clean energy business have accelerated efforts as well. As an example, Iowa is midstream in implementing an adopted four-year, \$25 million per year, state general fund-sourced power fund to accelerate clean energy business development. Actions by these and other states have attracted clean energy companies who started in Washington, but have later expanded or even relocated their businesses out of state. These contrasts to Washington’s efforts are stark, and the implications for clean energy job

growth important.

If the status quo continues, Washington will be outpaced by other states as well as other nations in clean energy technology market presence and the jobs that follow. Herein, we propose how the state can accelerate clean energy business and job growth to be among the leading states in this sector.

## Applying a Different Model to Accelerate Clean Energy Business and Job Growth

Washington needs concerted action to achieve critical mass in clean energy business development. For over 20 years, governments have adopted clean energy application mandates or “strong policy goals” to advance the implementation of renewable energy and energy efficiency. Bonneville Power Administration, as an example, has been a leader in energy efficiency programs. This model has served well to accelerate many clean energy technology applications, but not always with corresponding local economic growth. A better model is to intentionally align both public and private efforts, to develop market-leading clean energy solutions that can be replicated not only in Washington, but beyond its borders. The important difference here is that proving up these clean energy solutions in a commercial market allows them to be repeated on a commercial basis where buyer and seller recognize their value *without subsequent subsidy*. This method creates *sustained* clean energy business and job growth without returning back to government to seek the next funding contribution. Growth is then driven by deployment of leading-edge clean energy technology in Washington and then in interstate and international export markets.

Undertaking large-scale pilot or demonstration applications of clean energy solutions applied in new ways will reveal how best to solve current challenges in existing markets and pathways to meet performance, environmental and economic/financial goals. Such leading-edge demonstrations provide Washington-based companies with “reference” projects that can attract global attention and opportunities beyond state boundaries. Accelerated deployment using this systems approach can *inform* policy makers, end-users of the technologies, and the supply chain of equipment, software, and services for these solutions of their validity and value. This is a subtle, but profoundly important shift in the role of policy, mandates, and technology application to achieve market development, business growth, and job creation.

To compete with other states, Washington needs a focused effort to enable clean energy business to thrive and grow in state. Washington can make a difference by:

- » Bringing in-state providers of clean energy solutions to the buyers of those solutions;
- » Better aligning regulatory policies and practices with clean energy and job growth policy;
- » Providing targeted funding to reduce the initial risk of demonstrating market-leading clean energy solutions that create new jobs; and

Absent implementing a Washington State leadership plan to improve the State’s clean energy business climate, there are few compelling reasons to expect significant growth in clean energy business and jobs in the state.

- » Working with existing economic development organizations (government and non-profit) to develop clusters of economic activity throughout the supply chain to create a continuum of business and job development in the clean energy sector.

The Council and Navigant evaluated a wide range of potential clean energy sector opportunities to pursue to build jobs in Washington. The proposed Leadership Plan would accelerate the funding and deployment of so-called “market driver initiatives” in clean energy areas where Washington has inherent competitive advantages. As is explained in more detail later in this report, these areas of advantage include:

- » **Energy Efficiency** – Implementation of leading-edge, large scale combined energy efficiency, green building and smart grid solutions that leverage Washington’s strong green building and software sectors with upgrades to the electrical grid;
- » **Renewable Energy Integration** – Integration of renewable energy resources into the electric grid and utility portfolios to better demonstrate combinations of renewable energy, energy storage and smart grid solutions to move cost-effectively deploy the rising percentage of wind energy and later, the expected future development of solar energy in ways that can applied to other regional utility systems; and
- » **Bioenergy** – Demonstration of market-leading deployment of biomass power generation and development of transportation biofuels using Washington’s extensive forest- and agriculture-based resources and in-state capabilities.

**Key Action Areas for the Clean Energy Leadership Plan** - The proposed Leadership Plan addresses each of the above advantage areas with the following parallel action plans:

- » **Action Plan 1: Align Clean Energy Policy and Regulation** - Align regulatory practice with clean energy policies that support, rather than constrain, clean energy business and job growth in Washington;
- » **Action Plan 2: Accelerate High Profile Clean Energy Development** - Organize and partially fund large-scale or smaller high profile clean energy pilot projects to demonstrate new paths forward that showcase Washington innovation, resources, and skills as a platform to serve out-of-state markets; and
- » **Action Plan 3: Create a Focal Point for Clean Energy Economic Development** - Form and operate an entity dedicated to the creation and ongoing success of economic “clusters” that will build and sustain long-term growth and competitiveness of Washington’s clean energy industry.

These three proposed three action plans are summarized below and are described in more detail in the full Report.

**Action Plan 1: Align Clean Energy Policy and Regulation** -- Alignment of regulatory requirements and clean energy policy is key to growing clean energy jobs in Washington. First, Washington needs to establish a clear and durable public policy supporting clean energy business growth to provide the foundation for regulation that supports demonstration of clean

energy solutions that will feed that growth. A single point of clean energy policy and regulatory oversight in State government would greatly improve the prospects of getting and retaining attention to this key lever to create a clean energy economy in Washington. Specific areas of regulatory change that would enhance clean energy economic growth in Washington include, but are not limited to:

- » *Provide greatly increased assurance* of utilities' recovery of investment in or expenditures for clean energy measures and programs that support the State's clean energy policy ;
- » *Amend utility rate structures to avoid disincentives* to utilities for successfully implementing energy efficiency programs (so-called "decoupling");
- » *Create incentives* to meet or exceed renewable energy and cost-effective energy efficiency targets;
- » *Encourage and enable the regulated, investor-owned utilities to partner with public power utilities* and similarly incent the public power utilities to collaborate and share in renewable energy, energy efficiency, and smart grid pilot projects to pool investment risk. Sharing the informative results of such pilot projects will benefit all retail customers in Washington as well as enhance Washington's in-state economic platform to more quickly access out-of-state markets; and
- » *Reduce siting and permitting barriers* to the development of renewable energy facilities that align with clean energy policy goals.

Examples of key actions needed to address the above regulatory issues and the types of clean energy growth benefits that would be achieved are described in the market driver initiatives section of this report, Appendix A.

***Action Plan 2: Accelerate High Profile Clean Energy Development*** -- Efforts by other states and other nations to be leaders in this new sector of the economy means that Washington must move quickly if it is to catch up, let alone be among the leaders in clean energy sector business and job growth. This requires pursuing leading-edge clean energy technology applications that can be deployed quickly. Rapid deployment *within* Washington will lead to opportunities for Washington-based companies to create "reference" examples that can be used to win customers and businesses out-of-state. This action plan "pulls" demand for clean energy jobs. Properly implemented, near-term opportunities are proven and developed in state, leading to the expansion of businesses in state to serve a global market. Specific areas of change to enhance in-state clean energy economic growth include, but are not limited to efforts which:

- » Pursue development of new combinations of clean energy technology applications which can be deployed in the short-term – the next three to five years - by providing incentives and risk-reducing economic support to leading-edge pilot projects;
- » Select clean energy solutions for economic support and target solutions and business segments that can leverage the circumstances, resources, skills, and capabilities in

Washington critical to creating job and business growth in Washington instead of importing out-of-state solutions; and

- » Facilitate purchasers of the clean energy solutions and the in-state providers of those solutions initially in sufficiently narrow areas to avoid diluting available in-state leadership and financial resources, but broadly enough to avoid picking winners and losers in technologies or solutions. The recommended Action Plan largely targets clean energy business solutions that are part of *integration* of existing clean energy technology into more rapid and expanded use in the economy. The emphasis on *integrating* existing clean energy technology with other technologies to *deploy clean energy solutions in new ways rather than seeking to invent or deploy not yet proven technology in a stand-alone fashion* is an important distinction as part of the Leadership Plan. It will result in more immediate job growth.

***Action Plan 3 – Create a Focal Point for Clean Energy Economic Development – Clean Energy Growth Partnership Organization Formation*** -- Creating a sustained clean energy competitive advantage requires continuous focus to reduce market fragmentation, reduce regulatory friction and increase the odds for success in creating clean energy jobs in Washington. To this end, the State should form an organization dedicated to building clean energy economic “clusters” in ways that augment existing economic development organizations.

A small, focused joint industry and governmental “Clean Energy Growth Partnership” organization can accelerate the implementation of clean energy technology in a manner that brings buyers and providers of clean energy solutions together. Unlike a widely divergent and large stakeholder group, this “Partnership” organization would be directed by representatives actively involved in accelerating clean energy solutions – those who have “skin in the game” and a direct interest in successful outcomes. This can best be achieved by implementing market driver initiatives that unite technology solution buyers and providers, and government organizations involved in policy, economic development and regulation. By focusing on the clean energy growth needs of the State, the Partnership can more readily identify the priority needs in economic cluster development to inform the Washington Department of Commerce of those needs. In turn, the Department of Commerce can help guide participants in the clean energy economy in Washington to other resources to leverage. More importantly, the needs for economic development assistance that arise from the efforts to implement the market driver initiatives will be more clearly revealed. This focused attention better enables mobilizing the existing resources of the Department of Commerce and other economic development organizations within the State.

***Focusing Clean Energy Job Growth Through Market Driver Initiatives*** -- Following a detailed review of a wide-range of technologies and segments of the clean energy-related economy in Washington and beyond, three major areas were selected for initial attention in this Action Plan.

- » *Combined energy efficiency, green building and smart grid projects* - Demonstrate the potential deeper levels of energy savings of high profile, leading-edge combination

energy efficiency, green building and smart grid applications. This initiative will inform utilities, regulators, and electric consumers of the types of savings that can be achieved using leading-edge solutions rather than deploying less effective known measures and programs.

- » *Renewable energy optimization and smart grid deployment* – This clean energy area is rich in opportunity and scope. This Market Driver Initiative will demonstrate combinations of renewable energy, energy storage and smart grid applications in ways that demonstrate paths to more cost-effectively integrate renewable energy resources into the mainstream of customer and utility use. Proving these combinations of solutions in Washington will enable Washington companies to provide those solutions outside the state borders. Types of Market Driver Initiative projects that would be undertaken include, but are not limited to, combinations of:
  - Energy storage to better time delivery of renewable energy supplies like wind and solar energy to meet the daily pattern of customer loads; and
  - Improved forecasting of renewable energy time-of-day and seasonal production to better plan and integrate its production into the utility grid and improve utilization of existing electric transmission system. This initiative will improve delivery of energy in state and for using smart grid technologies to optimize the use of existing and new transmission facilities.
  - Use of smart grid applications to improve the efficiency of the existing transmission system to deliver renewable and conventional energy to in-region and out-of-region markets.
- » *Accelerated use of biomass energy resources* – This Market Driver Initiative includes both renewable power production and alternative transportation fuels. Types of projects that would be undertaken include, but are not limited to those which:
  - Deploy high-efficiency biomass power generation applications using Washington’s forest and agricultural biomass resources to demonstrate the ability to use these resources in environmentally favored ways; and
  - Advance the use of biobased aviation fuels; and
  - Accelerate research in creating high value, non-energy products from “biorefineries” to support the reduction in cost of biofuel production to accelerate market use of such fuels

There are significant opportunities in each of these areas for near-term applications to deploy proven or near-proven clean energy technology. In addition, these areas share the challenge of a highly fragmented market: many buyers of different needs, sizes and buying patterns; and many suppliers of different parts of the clean energy supply chain. The Leadership Plan will organize and implement *market driver initiatives* in these clean energy solution areas to overcome the fragmented nature of the market and friction in regulatory practice for these clean energy solutions. In turn, the Leadership Plan will help demonstrate how best to deploy

combinations of clean energy technologies as a means to rapidly develop and expand businesses and jobs. Upon demonstrating the commercial viability of these clean energy solutions, they can be replicated in Washington and elsewhere without subsidy. The business and job growth this creates then benefits Washington without a continued obligation for funding of those initiatives.

These market driving initiative, large-scale pilot/demonstration projects can be structured to be large enough, or high profile enough, to provide validity of performance and cost without being so large that if they do not perform as expected that it results in an undue cost burden to rate payers. If the projects perform as expected, they will reveal the pathway to cost-effectively, deploy such applications to be undertaken more broadly, on a sustainable foundation.

Equally importantly, the leading-edge solutions and applications are demonstrated *in Washington, by Washington businesses and employees*. Success begets success, and marketing of the success within and outside of Washington creates demand for similar leading-edge solutions and services, rather than yesterday's sub-optimal solutions.

### **Funding Washington's Clean Energy Economy Development**

Convening buyers and solution providers along with government representatives to pilot leading-edge solutions in targeted clean energy sectors will require clear intent, prioritized effort, and durable funding support. Gaining the attention and tapping the knowledge and interest of active participants in the clean energy technology segments in Washington will require some commitment to funding the market driver initiatives such as those described in this Report.

As described in more detail in the full report, funding levels for individual Market Driver Initiative projects could be from \$1 million to perhaps \$25 million. Only a *portion* of these funds would come from the Clean Energy Growth Partnership. The balance would be funded on a commercial basis by actual project sponsors, such as utilities, commercial building developers, biofuel production companies, or biomass power generation developers and other non-state sources. The federal government has funded, and in the near-term is likely to continue some level of funding for, well-designed clean energy technology projects that can be shown to enhance job and business growth. Various non-government foundations (e.g., the Pew Charitable Trusts, the Energy Foundation, the Paul G. Allen Family Foundation Science & Technology Innovations Program, the Bullet Foundation, the Doris Duke Charitable Foundation, the William and Flora Hewlett Foundation, the ClimateWorks Foundation, the Rockefeller Foundation, among many others) share similar interests.

If Washington State provided annual funds contingent upon a match basis of, for example, one to two times to leverage the smaller share of State contribution, an annual contribution of \$20 million from state sources could become \$40 to \$60 million annually. As many as three to ten Market Driver Initiative projects could be implemented each year once the program was fully operational, depending upon the amount of non-state funding that could be leveraged



and the mix of projects. That level of funding, particularly on a consistent multi-year basis, will attract attention of buyers and sellers in the clean energy technology sector. Most importantly, *it will match the lower range of efforts of other states to create clean energy jobs and provide a reason for clean energy solution companies to seriously consider investment and expansion in Washington rather than elsewhere.*

Identifying and adopting one or more methods for providing this funding is crucial. The State could choose to reprioritize general funds from lesser priority work to this Leadership Plan. Or, the State could dedicate new revenue accruing from the expiration of past tax exemptions. Another equitable approach used by some states is a “system benefits charge” approach, applying a small fraction of a penny for every kilowatt-hour of energy sold within a state as a means to create a funding pool for clean energy programs rather than relying upon State general funds. If applied to all electric utility customers in the state uniformly, regardless of type of ownership, an annual fund of approximately \$20 million to provide shared clean energy solutions and economic development would cost no more than \$0.00025 per kilowatt-hour, or an average of less than 20 cents per month for a typical household. Such a funding approach provides at a minimal cost for citizens of the entire state to benefit from the clean energy jobs created under this Leadership Plan. This and other options for sources of funds provided for the Clean Energy Partnership are discussed in more detail in Chapter 7 of the Report.

### **Expanding the Partnership’s Long-Term Benefit**

The example market driver initiatives described herein are only part of the recommended Leadership Plan. The convening of stakeholders in the clean energy technology sector in Washington also includes bringing together parties with a long-term interest in improving in-state opportunities for research/innovation, work force training, financing/funding and marketing of clean energy technology solutions (and businesses/jobs) to markets outside the State’s boundaries. Chapter 4 of the full Report provides additional explanation of an important feedback loop between these accelerated clean energy technology projects and the better formation of an economic cluster that provides a foundation for future long-term growth.

### **Creating Clean Energy Jobs**

The Clean Energy Partnership could be formed by the end of 2011. By the end of 2012, the Partnership could be responsible for successful initiation of leading-edge clean energy projects that form the platform for Washington’s clean energy job growth.

These outcomes will produce clean energy jobs. Total *clean economy* jobs in Washington have been estimated at around 1.6 percent of total in-state employment or about 45,000 jobs<sup>3</sup>. Independent research by Navigant indicates that approximately 35 percent to 45 percent of those *clean economy* jobs are actually in *clean energy*-related fields, resulting in approximately

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<sup>3</sup> 2008 Green Energy Jobs in Washington, Washington State Employment Security Department.

16,000 to 20,000 jobs<sup>4</sup>. Based on a study by the Pew Charitable Trusts, as shown in Figure 1, *clean energy* jobs in Washington are estimated to be about 0.55 percent of total jobs. This is consistent with the Navigant estimate referenced above and results in a national ranking in clean energy jobs for Washington of roughly 10<sup>th</sup> place, tied with several other states<sup>5</sup>.

Based on the recommended Leadership Plan, with implementation starting in 2012, Washington could increase clean energy jobs by 2.5 times by 2020. Ignoring the multiplier effect of indirect jobs created by new primary jobs, this could conservatively add \$1.2 billion annually in clean energy base wages in Washington<sup>6</sup>. Including a conservative estimate for indirect jobs created from these clean energy base level jobs, implementation of this Leadership Plan could result in an incremental over 50,000 jobs and approximately \$2.3 billion (in 2010 dollars) in annual employment income to Washington by 2020, with an increased growth rate from that level for many years to come. Increases of in-state income in clean energy will come not only from the numbers of jobs created, but also from the typically higher than average incomes associated with clean energy employment.

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<sup>4</sup> Phase I: Washington State Clean Energy Technology Landscape, April 2010, Presented to the Washington Clean Energy Leadership Council.

<sup>5</sup> The Clean Energy Economy: Repowering Jobs, Businesses and Investments Across America, June 2009. The Pew Charitable Trusts.

<sup>6</sup> Average annual salary based on U.S. Department of Commerce, Bureau of Economic Analysis, Regional Economic Accounts, State Annual Personal Income, Table SA05N - Personal income by major source and earnings by NAICS industry (line 50 - Wage and salary disbursements) and Table SA27N - Full-time and part-time wage and salary employment by NAICS industry (line 20 - Wage and salary employment by place of work), Washington, 2008. <http://www.bea.gov/regional/spi/>