

## ***Montana Vision 2020***

### Montana's Portfolio for the Future

*"Positioning Montana for the rest of the 21<sup>st</sup> Century"*

*Montana Vision 2020 was started by the 2003 Montana Legislature when it resolved "to take all necessary steps to move Montana into a hydrogen-based economy". That step set the direction, *Montana Vision 2020* starts a plan.*

## Preface

The 2003 Montana Legislature, in House Joint Resolution No. 26, recognized the need for Montana to move forward with a new vision, setting its sites on the a hydrogen-based economy. Based on national energy security needs, technological advances, federal support of hydrogen initiative, Montana's unique natural and renewable resources, the State's hydrogen production potential and the need for a state-wide economic driver, the Senate and the House of Representatives resolved to support all necessary steps to move Montana into a hydrogen-based economy by:

1. Educating Montanans about the benefits of a hydrogen economy;
2. Establishing the Montana Hydrogen Futures Project as a key economic development focus of the state;
3. Instituting necessary state policies and legislation to promote Montana Hydrogen Futures Project development and statewide involvement;
4. Supporting the establishment of a focal point of the hydrogen economy at the Montana Hydrogen Futures Park at the University of Montana-Missoula
5. Supporting and encouraging federal commitment and necessary matching funds to construct the Montana Hydrogen Futures Park and provide for development of the Montana Energy Products Network to attract hydrogen-based business and industries to Montana:
6. Establishing alliances with energy producers and promote resource identification by Montana communities by identifying all existing and potential federal, state, tribal, and community resources for inclusion in the Montana Energy Products Network;
7. Develop a first-class education and training system that attracts and prepares high-quality hydrogen professionals for all levels of the hydrogen economy and replicate this system throughout the state;
8. Expanding the Montana Energy Products network by creating the statewide Micro Enterprise System that establishes business opportunities, incentives, and state business development marketing;
9. Pursuing national prominence with other states and agencies in the supply of hydrogen to the national hydrogen distribution system.

### Introduction

Energy is the all-pervasive common denominator of human and economic development to which we are inextricably linked. Yet Montana has not, to this point, taken advantage of its extensive natural and renewable resource base to build a future. In most cases, planning has been left undone and resource management relegated to others. However, the time is perfect for Montana to take advantage of what may be its last best chance to reverse its fortunes and play a controlling role in its own human and economic development. *Montana Vision 2020* is an initiative that seeks to meet future energy needs and environmental challenges by developing and implementing solutions from informed creativity. It is an outline that illustrates the great magnitude and scope of complete energy management and begins the process of setting a state-wide focus through goals, objectives and outcomes. Quite simply, *Montana Vision 2020* looks at the year 2020 and asks: Where do we want to be in 2020? This visioning step is intended to establish a target from which we can extrapolate what significant actions, timeline, we have to take between now and then to meet MV2020 goals.

### **Plan Outline Organization**

Step A. *Montana Vision 2020* (MV2020) is a strategic initiative to set in motion a plan that will establish Montana as an energy leader by setting target goals for the year 2020. The goals are intended to be comprehensive in scope. Goal areas include: (1) energy management and production; (2) air, water, land, and waste management; (3) transportation and vehicle development; and (4) energy-related economic development.

Step B. Each goal area is followed by a series of objectives and sub-objectives stated as desired 2020 energy-related outcomes. These objectives will enable Montana to accomplish the *Vision 2020* goals.

Step C. Each objective needs a series of sequential steps that fulfill the objectives. These steps may include action plans, policies, directives or laws---- all of which demand extensive work and state-wide dedication.

### **From Draft to Reality**

*Montana Vision 2020*, like any initial draft, is intended to be a work in progress that begs the attention of many minds, proposes paradigm-shifting changes, and suggests areas where Montana can implement modifications to achieve a united, state-wide focus and direction.

### **Moving Forward**

*Montana Vision 2020* has its basis on what is happening right now and where alternative energy and hydrogen are or will be. Some states have already achieved much of what is included in MV2020 therefore much of this plan must be considered as short-term (3-5yrs) if it is hoped that Montana desires to catch up and assume leadership. Key questions are: **Does Montana really want to control its destiny? Are Montanans willing to cooperatively work together to wisely use its resources for a new tomorrow?** Extensive discussion and work will be needed on each facet of this outline to reconcile the massive implications that each goal and objective suggests. Regulatory direction, legislative leadership, governmental cooperation, and agency interaction must walk hand-in-hand with regional and national groups to make MV2020 a reality. Realizing that there will never be a plan that meets everyone's perspective, *Vision 2020* hopes to move to the will of the majority forward. Extensive knowledge, work and education will need to be incorporated into this planning effort.

### **Legacy**

It is the intent that in the end, prosperity will be enhanced, a legacy will be created and benefits will grow for generations to come.

### **Plan Basis**

The outlined *Montana Vision 2020* was drafted from existing energy initiatives in other states, Federal directions, and perceived state-wide needs.

## *Montana Vision 2020*

### **1. TO HAVE, IN PLACE BY 2020, A COMPREHENSIVE STATEWIDE ENERGY PRODUCTION AND MANAGEMENT SYSTEM.**

- 1.1 To have a comprehensive **vertical and horizontal management** system for all energy-related natural and renewable resources.
  - 1.1.1 To have an overarching Montana Energy Coordination **Council**.
  - 1.1.2 To have a **federal** energy project coordination office.
  - 1.1.3 To have an all-encompassing, natural and renewable energy **resource inventory**, assessing Montana' strengths and weaknesses.
  - 1.1.4 To have all **private, Native American, Public, and Federal resources** included in assessment and planning.
  - 1.1.5 To have an **integrated**, comprehensive, responsible and long-range energy and state fiscal plan.
  - 1.1.6 To have a **solid link** among alternative energy developers, businesses, energy leaders, government, and infrastructure providers.
  - 1.1.7 To have a complete inventory of alternative energy and hydrogen **best practices**.
- 1.2 To have the best **energy incentive** system in the United States.
  - 1.2.1 To have a six month **energy permit** process.
  - 1.2.2 To have the most **energy friendly** development incentive in the U.S.
- 1.3 To be a major contributor to the **energy security** of the United States of America.
  - 1.3.1 To **produce** 50% of all electricity through alternative/clean means.
  - 1.3.2 To have a renewable portfolio and produce at least 25% of the state's power needs from **renewable** (wind, solar, geothermal, and biomass) sources.
  - 1.3.3 To **gasify** 400 million tons of coal a year into hydrogen and synthetic fuel.
  - 1.3.4 To have instituted **micro-cogeneration** energy technology state-wide.
  - 1.3.5 To have an energy **facilities** construction bonding program.
  - 1.3.6 To have cellulosic biomass and waste-derived methane and ethanol **conversion** to hydrogen processes.
- 1.4 To have 'below prime' **electricity rates** and **distributive energy** opportunities for all Montanans.
  - 1.4.1 To have **electricity portfolio** options for all Montanans.
  - 1.4.2 To have Montana **blackout-proof**.
  - 1.4.3 To have an **off-peak power** hydrogen production facilities at all electricity facilities.
  - 1.4.4 To have six integrated **clean coal/renewable energy centers** of excellence producing synthetic fuel and hydrogen.
  - 1.4.5 To have two petroleum **coke gasification** to hydrogen production centers.
  - 1.4.6 To have an **electron scrubbing** center in operation.
- 1.5 To be a national **leader** in alternative energy production.
  - 1.5.1 To produce 1000 MW in **solar voltaic** power generation.
  - 1.5.2 To produce 2000 MW in **wind power** generation.
  - 1.5.3 To have regionalized **forest biomass** biooil, products, and energy production.
  - 1.5.4 To have program to promote stranded and other natural gas **reforming** to hydrogen.

- 1.5.5 To have a **coal bed methane** ecosystem recovery production program.
- 1.5.6 To have an **ethanol** production incentive program.
- 1.6 To have an aggressive state-wide energy **conservation** program.
  - 1.6.1 To provide illustrative **examples** and **data** on energy saving techniques.
  - 1.6.2 To have building **insulation** standards consistent with energy savings goals.
  - 1.6.3 To have advanced building efficiency **testbed** program in all Montana communities.
  - 1.6.4 To have a model low income energy **assistance/work/education** program.
  - 1.6.5 To have a residential and business **energy efficient** property incentive program.
- 1.7 To have a symbiotic relationship between **environmental policy and judiciary statutes** that is consistent with the energy management system.
- 1.8 To have state-wide coordination of all energy production **infrastructure**.
  - 1.8.1 To have for seamless **grid interface** for all energy production
  - 1.8.2 To have **net/smart metering and reciprocating power** for all energy production sources.
- 1.9 To power all **public buildings** with alternative fuels.
- 1.10 To supply department of **defense** alternative fuel goals and needs.
- 1.11 To provide leadership in the adoption of the **Kyoto** Agreement.
- 1.12 To produce 200 MW of power from **public lands**.
  - 1.12.1 To have forward-thinking **lease/sale/production** public lands incentive programs.
  - 1.12.2 To have increased, easy **access** across public lands for resource development.
  - 1.12.3 To have **multiple-use** of public lands.
- 1.13 To have state-of-the-art **petroleum** refining exploration, and hydrogen **reforming**.
- 1.14 To have in place state of the art rail, truck, pipeline and line energy **distribution system**.
  - 1.14.1 To have present and future **rights** of way corridors for energy distribution
  - 1.14.2 To have a **regional** energy distribution operating plan.
  - 1.14.3 To have **hybrid power** and advance transmission distribution systems.
  - 1.14.4 To have a **third-party** finance system.
  - 1.14.5 To have a **15-year property** rule for distribution systems
- 1.15 To have the largest energy production output from **Native American Lands** in the U.S.

**2. TO HAVE, IN PLACE BY 2020, A COMPREHENSIVE, COORDINATED, STATEWIDE AIR, WATER, LAND AND WASTE MANAGEMENT SYSTEM.**

- 2.1 To have reduced **greenhouse gases** in Montana by 50%.
- 2.2 To have instituted an all-encompassing **water use** and energy production program.
  - 2.2.1 To have **hydro-electric** management plan
  - 2.2.2 To have a comprehensive stream, river, ground water energy **plan**
  - 2.2.3 To have a **drought** management energy plan.
- 2.3 To have regenerated 50% of **waste** into energy and value added products.
  - 2.3.1 To recycle 50% of all Montana cardboard, aluminum, newspaper, magazines, plastic, paper and scrap metal in the Comprehensive Waste Management Plan.
- 2.4 To lead the nation in water **electrolysis** as part of the water management plan.
- 2.5 To have an orchestrated **land** and value-added **agricultural** development.

- 2.5.1 To support **family farm** stabilization
- 2.5.2 To have a **straw and switchgrass** energy production program in place.
- 2.5.3 To have facilitated rural, small **wind** energy development.
- 2.6 To have coordinated local, regional, national and world **pollution and health** standards.
  - 2.6.1 To have coordinated **standards** with Canada.
- 2.7 To have waste, municipal, household, agricultural, transportation, commuting, commercial, institutional, and industrial **pollution standards** with implementation assistance strategies.
- 2.8 To have required and measured effectiveness **energy star** rated equipment requirements in place.
- 2.9 To have **energy and water savings** measures in government buildings.
- 2.10 To have contract precedent to companies and organizations achieving **energy savings** performance.
- 2.11 To have a complimentary **wildlife-energy** program in place.
- 2.12 To have **waste regeneration** systems in all major cities.
- 2.13 To have zero emission **recreational vehicle and marine** state-wide.
- 2.14 To have a speedy **permitting** process.
- 2.15 To have **codes and standards** that are current, relevant, logical, consistent, and supportive of new alternative energy and hydrogen use.

### **3. TO HAVE, IN PLACE BY 2020, A 21<sup>ST</sup> CENTURY VEHICLE AND TRANSPORTATION SYSTEM.**

- 3.1 To have 50% of all vehicles and equipment in Montana **powered** by alternative fuels.
  - 3.1.1 To furnish all hydrogen fueled vehicles in Montana with hydrogen at **low or no cost**.
  - 3.1.2 To have all **intercity** bus systems running on hydrogen.
- 3.2 To have 100% of all **state-run vehicles** powered by alternative fuels.
- 3.3 To have an alternative energy advanced **transportation** research, conversion and promotion **center**.
  - 3.3.1 To provide distribution of **synthetic fuels** and hydrogen in Montana for the trucking industry.
- 3.4 To have an operational state-wide alternative energy refueling **distribution** system.
  - 3.4.1 To provide for the design, permitting and development of **hydrogen fueling** stations.
- 3.5 To demonstrate the use of hydrogen-powered **personal rapid transit**.
- 3.6 To have incentives for **conversion** of internal combustion engines to hydrogen.
- 3.7 To have a state-wide **railroad** energy efficiency program.
- 3.8 To have a **farm equipment** alternative energy use program.
- 3.9 To have a **school bus** retrofit and hydrogen power program.

### **4. TO HAVE, IN PLACE BY 2020, A COMPREHENSIVE STATEWIDE ENERGY ECONOMIC DEVELOPMENT PLAN.**

- 4.1 To have the best **workforce** in America for energy workers.
  - 4.1.1 To have a seamless K-18 **energy education** opportunities to all Montanans.

- 4.1.2 To have an incentive program from Montanans to secure **energy education and employment**.
- 4.1.3 To have an alternative energy resource and research **knowledge** information center.
- 4.1.4 To have a state of the art national **hydrogen safety** training center.
- 4.2 To have the most **technologically advanced** energy facilities and equipment.
  - 4.2.1 To have a technology **infrastructure** program.
  - 4.2.2 To have an aggressive business technology R&D program.
  - 4.2.3 To have a energy small business advocacy, assistance and development center
- 4.3 To have financing mechanisms promoting **alternative energy** use and development.
  - 4.3.1 To have a leading tax **incentive** program for energy development.
  - 4.3.2 To have a **capital formation** and **public-private partnership** programs to business and industry.
  - 4.3.3 To have cost sharing programs for energy production.
- 4.4 To provide **hydrogen**, at low/no cost, to all Montanans.
- 4.5 To be a leader in fuel cell and alternative energy **value-added product development** and production.
  - 4.5.1 To have mobilized Montana resources to incentivize **energy company development**.
  - 4.5.2 To involve every community in Montana in the **Energy Products Network**.
  - 4.5.3 To have established markets for gasification **slag**.
- 4.6 To have \$5 BB in the state's **Revolving Energy Investment Pool**.
  - 4.6.1 To have a workable and useable energy development **enterprise support system**.
  - 4.6.2 To have both small and large, established and new energy business interests.
  - 4.6.3 To generate \$.01 per energy unit of measurement for revolving investment pool.
- 4.7 To have an empowered the **Office of Energy Development** to represent Montana in energy business and industry development.
  - 4.7.1 To **market** \$5 BB in Montana green energy products annually.
  - 4.7.2 To have the **Montana Energy Coordination Council** incorporating all energy producers.
- 4.8 To have increased rural and **agricultural energy** development by 200%.
- 4.9 To have a federal **government relations**, research and contracts oversight liaison.
- 4.10 To have established **value-added markets** for energy by-products.
- 4.11 To have a **Fischer-Tropsch** process loan guarantee program.
- 4.12 To have equitable and stable **tax and royalty** policies.
- 4.13 To have a systematic **transfer** of R&D to the marketplace.
- 4.14 To have identification of hydrogen technology **concentration** in Montana
- 4.15 To have **niche markets** for Montana business, industry and academia to support.
- 4.16 To have **tax-free zones** for alternative energy development.
- 4.17 To have strategies that deal with and eliminate **disincentives** to progress.

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**Montana Vision 2020  
OUTCOMES WORKSHEET**

Objective Number: \_\_\_\_\_

Objective/Outcome: \_\_\_\_\_

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