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ENERGY SUPPLY TECHNICAL WORK GROUP

**DRAFT "GROUP A" STRAW PROPOSALS
MARCH 28, 2006**

#	POLICY NAME	LONG LIST#	VOLUNTEER GROUP	EMAIL ADDRESSES
A. RENEWABLE ENERGY				
ES-1	Mandate(s) for Renewable Energy (RPS, etc.)	1.1	Burks, Griscom, Groenwold, Luce, Melton, O'Hare, [Sandia?]	jburks@pnm.com dgriscom@rdcnm.org kgroenwold@nmelectric.coop benluce@nmccae.org dmelton@sacredpowercorp.com craig.ohare@state.nm.us
ES-2	Financial Incentives for Distributed Renewables	1.2, ~1.4, 1.5, ~1.9, 5.2, ~5.3	Ely, Griscom, Hoodenpyle, Luce, Melton, Pilz, Ramakka, Singer (RCI), Smith	wpilz@pnm.com dgriscom@rdcnm.org agrienergy@hotmail.com benluce@nmccae.org dmelton@sacredpowercorp.com jim_ramakka@nm.blm.gov tsinger@nrdc.org smithgr1@bp.com
ES-3	Renewable energy transmission and storage	~1.9	Gregory, Ihle, Luce, Michel, O'Hare, [Sandia?]	sfgregory@spinn.net jack.ihle@xcelenergy.com benluce@nmccae.org stevensmichel@msn.com craig.ohare@state.nm.us
ES-4	Financial Incentives for Centralized Renewables	~(1.1, 1.2, 1.6)	Ely, Griscom, Hoodenpyle, Luce, Melton, Pilz, Ramakka, Singer (RCI), Smith	wpilz@pnm.com dgriscom@rdcnm.org agrienergy@hotmail.com benluce@nmccae.org dmelton@sacredpowercorp.com jim_ramakka@nm.blm.gov tsinger@nrdc.org smithgr1@bp.com
ES-5	R&D including Energy Storage	~(1.3, 1.9)	Guthrie, Michel, [Sandia?]	gguthrie@lanl.gov stevensmichel@msn.com

DRAFT "GROUP A" STRAW PROPOSALS, NM ENERGY SUPPLY TWG, 03/28/06

#	POLICY NAME	LONG LIST#	VOLUNTEER GROUP	EMAIL ADDRESSES
B. CENTRALIZED NON-RENEWABLE ELECTRICITY				
ES-6	Advanced Coal/Fossil Technologies (e.g., IGCC with carbon capture)	2.1, 2.2	Burks, Ely, Groenewold/[Sub?], Ihle, Luce, O'Hare, Potturi, [Sandia? (Dave Borns)], Singer (RCI)	jburks@pnm.com sandra.ely@state.nm.us kgroenewold@nmelectric.coop jack.ihle@xcelenergy.com benluce@nmccae.org craig.ohare@state.nm.us prasad.potturi@state.nm.us tsinger@nrdc.org
ES-7	Nuclear Relicensing & Upgrading	3.2	Groenewold, Kuswa, Michel, Miller	kgroenewold@nmelectric.coop gwkuswa@sandia.gov stevensmichel@msn.com amiller@pnm.com
C. GRID & DEMAND-SIDE POLICIES				
ES-8	Incentives and Barrier Reductions for Combined Heat & Power (CHP)	4.1, 5.2	Barnes, Brinker (RCI), Griscom Hoodenpyle,	rbarnes@americanqvpsum.com cbrinker@swenergy.org dgriscom@rdcnm.org aagrienergy@hotmail.com
ES-9	Demand-Side Management, Energy Efficiency, and Integrated Resource Planning (IRP) (Broad demand management of electricity and natural gas, focused on consumption, not peaks) <i>(Note: ES will leverage RCI's work on this option.)</i>	~(5.7, 5.9, 5.10) +	Burks, Gregory, Smith, Singer (RCI)	jburks@pnm.com sfgregory@spinn.net smithgr1@bp.com tsinger@nrdc.org
ES-10	Transmission capacity and corridors	~5.3	Ihle, Michel, Ramakka	jack.ihle@xcelenergy.com stevensmichel@msn.com jim_ramakka@nm.blm.gov

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#	POLICY NAME	LONG LIST#	VOLUNTEER GROUP	EMAIL ADDRESSES
D. OIL & GAS POLICIES				
ES-11	CO2 Capture and Storage or Reuse (CCSR) in oil & gas and other operations; includes storage or reuse of power sector CO2 (see ES-6)	~(7.14, 2.2)	Ames, Ely, Epel, Fesmire, Gantner, Guthrie, Groenewold, Kuswa, Lee, Smith, Weaver, Zak	ames@westernlaw.org sandra.ely@state.nm.us jbepel@duke-energy.com mark.fesmire@state.nm.us bgantner@br-inc.com gguthrie@lanl.gov kgroenewold@nmelectric.coop gwkuswa@sandia.gov lee@nmt.edu smithgr1@bp.com lany.weaver@state.nm.us bdzak@sandia.gov
ES-12	Methane reduction in oil & gas operations – Best Management Practices (BMPs) & Partner Reduction Opportunities (PROs)	~(7.4, 7.5, & 7.9 - 7.14)	Ames, Epel, Fesmire, Gantner, Groenewold, Smith, Weaver	ames@westernlaw.org jbepel@duke-energy.com mark.fesmire@state.nm.us bgantner@br-inc.com kgroenewold@nmelectric.coop smithgr1@bp.com lany.weaver@state.nm.us
ES-13	CO2 reduction from fuel combustion in oil & gas operations	~(7.1, 7.2, 7.3)	Ames, Epel, Gantner, Ramakka, Smith, Weaver	ames@westernlaw.org jbepel@duke-energy.com bgantner@br-inc.com jim_ramakka@nm.blm.gov smithgr1@bp.com lany.weaver@state.nm.us
E. EMISSIONS POLICIES				
ES-14	GHG Cap & Trade (includes offsets policies)	(11.4, 11.2)	Burks, Green, Groenewold, Ihle, Luce, Michel, O'Hare, Singer (RCI), Tavaréz (RCI), Whaley (RCI)	jburks@pnm.com gsgwin@aol.com kgroenewold@nmelectric.coop jack.ihle@xcelenergy.com benluce@nmccae.org stevensmichel@msn.com craig.ohare@state.nm.us tsinger@nrdc.org itavarez@cabq.gov don@navajo-refining.com

ES-1: Renewable Portfolio Standard

1. Policy Description:

a. Lay description of proposed policy action:

A renewable portfolio standard (RPS) is a requirement that utilities must supply a certain percentage of electricity from renewable energy sources. For example, an RPS of 5% would mean that for every 100 kWh that a utility or a "load serving entity" (LSE) supplies to end users, 5 kWh must be generated from renewable resources. An RPS differs from an Environmental Portfolio Standard (EPS) in that an RPS is a requirement specifically for renewables, while an EPS can be broader, e.g., include energy efficiency. Utilities can meet their requirements by purchasing or generating renewable-based electricity or by purchasing renewable energy credits (RECs). RECs are tradable credits that are typically part of an RPS policy. RECs are created for every kWh of eligible and verified renewable electricity produced. Anyone can build an eligible renewable facility and earn RECs for the electricity that it generates. Anyone with RECs can sell them to a utility that needs to meet its RPS requirement. In this way, utilities themselves may not need to build and operate renewable generating facilities. By giving utilities the flexibility to purchase RECs, a market in these credits is created, which will provide an incentive to companies that are best able to generate renewable energy.

b. Policy Design Parameters:

i. Implementation level(s) beyond BAU:

Ramp up the existing RPS starting in 2011 (existing RPS level is 10%) according to the following three scenarios:

- 0.5 % per year to 2021
- 1% per year to 2021
- 2% per year to 2021

ii. Timing of implementation: See above.

iii. Implementing parties: Utilities

iv. Other

c. Implementation Mechanism(s): Indicate which mechanisms are to be used, and describe the specific approach that is proposed

- i. Information and education
- ii. Technical assistance

Deleted: For example,

Deleted: • ___% in 20___; ___% in 20___; increasing ___% each year to ___% in 20___.

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- iii. Funding mechanisms and or incentives
 - iv. Voluntary and or negotiated agreements
 - v. Codes and standards
 - vi. Market based mechanisms
 - vii. Pilots and demos
 - viii. Research and development
 - ix. Reporting
 - x. Registry
 - xi. Other?
2. BAU Policies/Programs, if applicable:
- a. 5% renewables by 2006, 10% by 2011, wherein:
 - i. One kilowatt-hour of electricity generated by wind or hydroelectric technologies is worth one kilowatt-hour toward compliance with the RPS;
 - ii. One kilowatt-hour of biomass, geothermal, landfill gas, or fuel cell power is worth two kilowatt-hours toward the RPS; and
 - iii. One kilowatt-hour of solar power is worth three kilowatt-hours toward the RPS.
3. Types(s) of GHG Benefit(s):
- a. CO₂: By creating a substantial market in renewable generation, an EPS can reduce fossil fuel use in power generation and thus reduce CO₂ emissions.
 - b. CH₄
 - c. N₂O
 - d. HFC's, SFC's
 - e. Black Carbon: To the extent that generation from coal and oil is displaced by renewables, black carbon emissions will decrease.
4. Types of Ancillary Benefits and or Costs, if applicable:
- a. Reductions in overall energy consumption and the shift from fossil fuel generation as a result of an RPS will lead to reductions in criteria air pollutants and, consequently, health costs associated with those pollutants.

- b. While much of the RPS requirement will come from low-cost renewables such as wind and biomass, meeting the requirement will lead to a moderate increase in direct costs to utilities implementing the RPS policy and a small increase in overall electricity system cost for New Mexico. At the same time, though, investment in new technologies resulting from the RPS will spur economic development.
 - c. Etc.
5. Estimated GHG Savings and Costs Per MMTCO₂e:
- a. Summary Table of:
 - i. GHG potential in 2012, 2020, 2050
 - ii. Net Cost per MMTCO₂e in 2012, 2020, 2050
 - b. Insert Excel Worksheet showing summary GHG reduction potential and net cost
6. Data Sources, Methods and Assumptions:
- a. Data Sources
 - b. Quantification Methods
 - c. Key Assumptions
7. Key Uncertainties if applicable:
- a. Benefits
 - b. Costs
8. Description of Ancillary Benefits and Costs, if applicable:
- a. Description of issue #1
 - b. Description issue #2
 - c. Etc.
9. Description of Feasibility Issues, if applicable:
- a. Description of issue #1
 - b. Description of issue #2
 - c. Etc.

10. Status of Group Approval:

- a. Pending
- b. Completed

11. Level of Group Support:

- a. Unanimous Consent
- b. Supermajority
- c. Majority
- d. Minority

12. Barriers to consensus, if applicable (less than unanimous consent):

- a. Description of barrier #1
- b. Description of barrier #2
- c. Etc.

ES-2: Financial Incentives for Distributed Renewables

1. Policy Description:

a. Lay description of proposed policy action:

The purpose of this suite of policies is to encourage investment in distributed renewables now by providing direct financial incentives. Financial incentives for distributed renewables include: (1) direct subsidies for purchasing/selling distributed renewable technologies given to the buyer/seller; (2) tax credits or exemptions for purchasing/selling distributed renewable technologies given to the buyer/seller; (3) tax credits or exemptions for operating distributed renewable energy facilities; (4) feed-in tariffs, which provide direct payments to distributed renewable generators for each kWh of electricity generated from a qualifying renewable facility; (5) tax credits for each kWh generated from a qualifying renewable facility; (6) R&D funding to support development of distributed renewable technologies.

R&D funding can be targeted toward a particular technology or group of technologies as part of a state program with a mission to build an industry around that technology in the state and/or to set the stage for adoption of the technology for use in the state. R&D funding can also be made available to any renewable or other advanced technology through an open bidding procedure (i.e., driven by bids received rather than by a focused strategy to develop a particular technology). Funding can also be given for demonstration projects to help commercialize technologies that have already been developed but are not yet in widespread use.

b. New Mexico has been striving toward making capital buydown and production incentive totals such that there is full payback over 25 years to those who install distributed renewable options. Additionally, Albuquerque is considering tax incentives for distributed renewables. Policy Design Parameters:

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i. Implementation level(s) beyond BAU:

Production incentive: 13 cents per kwh for small solar systems (note: solar water heat will be forwarded to RCI); production incentives will be in addition to RECs generated for the RPS.

Deleted: Direct subsidies: Between 20__ and 20__, __% of capital cost for all solar and wind systems __ kW or less, and __% of capital cost for all biomass facilities __ kW or less. From 20__ to 20__, __% of capital cost for all solar and wind systems __ kW or less, and __% of capital cost for all biomass facilities __ kW or less.¶
R&D funding: ?¶

ii. Timing of implementation:

See above.

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iii. Implementing parties:

A state agency would administer the direct subsidies, and individuals, commercial enterprises, industrial enterprises would receive them. A state agency would administer R&D funding through a public-private partnership with companies and research institutions. Note that a source of funds to cover the subsidies or other incentives would need to be determined.

iv. Other

c. Implementation Mechanism(s): Indicate which mechanisms are to be used, and describe the specific approach that is proposed

- i. Funding mechanisms and or incentives
- ii. Pilots and demos
- iii. Research and development

2. BAU Policies/Programs, if applicable:

- a. Personal income tax credit for PV and solar thermal systems amounting to 30% of the cost of installation with a maximum of \$2,000.
- b. PNM is beginning a program in which it will purchase RECs from customers with solar PV systems at a rate of 13 cents per kWh.

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Deleted: <#>Sales tax exemption for up to \$5,000 of the cost of a renewable installation.¶

3. Types(s) of GHG Benefit(s):

- a. CO2: By providing a financial incentive for renewable generation, more renewable facilities will be installed and more electricity from renewables will be generated. This zero-carbon generation will displace generation from fossil fuels and thus lower carbon emissions. By funding R&D, new or improved renewable technologies will be developed or commercialized, leading to even more installation of renewables and further reducing carbon emissions in the long term.
- b. CH4
- c. N2O
- d. HFC's, SFC's
- e. Black Carbon: To the extent that generation from coal and oil is displaced by renewables, black carbon emissions will decrease.

4. Types of Ancillary Benefits and or Costs, if applicable:
 - a. Reductions in overall electricity consumption and the shift from fossil fuel generation as a result of new renewables will lead to reductions in criteria air pollutants and, consequently, health costs associated with those pollutants.
 - b. Renewable resources are less risky than fossil resources because they are not subject to unexpected changes in the price of fossil fuels due to market manipulation, disruptions in supply, and supply depletion.
 - c. The operating costs of renewable generation, primarily maintenance, are spent locally and provide a direct boost to local and state economies, whereas the primary cost of operating fossil fuel plants – fossil fuels – often goes out of state (or out of country) and does not contribute to the local or state economy.

5. Estimated GHG Savings and Costs Per MMTCO₂e:
 - a. Summary Table of:
 - i. GHG potential in 2010, 2020
 - ii. Net Cost per MMTCO₂e in 2010, 2020
 - b. Insert Excel Worksheet showing summary GHG reduction potential and net cost

6. Data Sources, Methods and Assumptions:
 - a. Data Sources
 - b. Quantification Methods
 - c. Key Assumptions

7. Key Uncertainties if applicable:
 - a. Benefits
 - b. Costs

8. Description of Ancillary Benefits and Costs, if applicable:
 - a. Description of issue #1
 - b. Description of issue #2
 - c. Etc.

9. Description of Feasibility Issues, if applicable:
 - a. Description of issue #1

- b. Description of issue #2
- c. Etc.

10. Status of Group Approval:

- a. Pending
- b. Completed

11. Level of Group Support:

- a. Unanimous Consent
- b. Supermajority
- c. Majority
- d. Minority

12. Barriers to consensus, if applicable (less than unanimous consent):

- a. Description of barrier #1
- b. Description of barrier #2
- c. Etc.

ES-3: Renewable Energy Transmission and Storage

1. Policy Description:

a. Lay description of proposed policy action:

Renewable energy from wind and solar is intermittent by nature, while fossil fuel technologies can be called upon to supply demand as needed. A maximum amount of intermittent renewable capacity can be added to an electricity system before reliability is compromised – unless energy storage technologies are developed and deployed that allow renewable energy to be dispatched as needed.

Also, the best renewable resources may not be near existing transmission lines. New transmission, as well as upgrades to existing transmission lines, may be needed to accommodate extensive deployment of renewable generation capacity. NREL estimates that wind resources in New Mexico would support between 4,000 and 8,000 MW of new wind capacity in the near future, provided that transmission lines were built to accommodate it.

A renewable energy transmission and storage authority could be created to assist in the development of energy storage technologies and to foster the development of transmission capacity necessary to take advantage of renewable resources. The authority could, for example, fund energy storage research and development and demonstration projects.

b. Policy Design Parameters:

i. Implementation level(s) beyond BAU:

The volunteer group suggested that this option not be quantified; however, the group was interested in contemplating what the benefit in terms of additional renewable generation that would occur if storage technologies did exist. Storage would allow baseload fossil to be replaced and suggest that the state engage in a concerted effort with the national labs toward this direction.

Transmission: Building on the Electricity Transmission Task Force, the Energy Transmission and Storage Authority (ETSA) will assess the need for transmission capacity for renewable energy. Based on the outcome of this assessment, the ETSA will require that new transmission lines or upgrades be made to accommodate new renewable resources. *[Insert suggested ways to quantify?]*

R&D funding: The ETSA will encourage the development and deployment of energy storage technologies through an RD&D program funded by a ___ mil per kWh charge to all electricity customers in the state.

ii. Timing of implementation:

The ETSA will be established by the end of 20____, and the transmission evaluation will be completed by the end of 20____. Any new transmission lines required by the ETSA must be in place by 20____.

iii. Implementing parties:

The ETSA will be created as an independent entity, and will work with utilities to build new transmission capacity and with private companies to develop and deploy storage technologies.

iv. Other

c. Implementation Mechanism(s): Indicate which mechanisms are to be used, and describe the specific approach that is proposed

- i. Funding mechanisms and or incentives
- ii. Pilots and demos
- iii. Research and development

2. BAU Policies/Programs, if applicable:

- a. Existing transmission lines can serve some new renewable energy capacity, but may not be sufficient for a full-scale deployment of renewable energy.
- b. No agency charged with energy storage development is currently in place in New Mexico.

3. Types(s) of GHG Benefit(s):

- a. CO₂: By providing transmission capacity and storage, renewable energy can be fully exploited in New Mexico, resulting in a displacement of fossil fuel resources and, therefore, a reduction in CO₂ emissions. In particular, energy storage would allow intermittent renewable resources to displace coal-fired generation, providing a significant reduction in CO₂ emissions than renewables would otherwise provide.
- b. CH₄
- c. N₂O
- d. HFC's, SFC's

- e. Black Carbon: To the extent that generation from coal and oil is displaced by renewables, black carbon emissions will decrease.
4. Types of Ancillary Benefits and or Costs, if applicable:
- a. Reductions in overall electricity consumption and the shift from fossil fuel generation as a result of new renewables will lead to reductions in criteria air pollutants and, consequently, reduce health costs associated with those pollutants.
 - b. Renewable resources are less risky than fossil resources because they are not subject to unexpected changes in the price of fossil fuels due to market manipulation, disruptions in supply, and supply depletion.
 - c. The operating costs of renewable generation, primarily maintenance, are spent locally and are a direct boost to local and state economies, whereas the primary cost of operating fossil fuel plants – fossil fuels – often goes out of state (or out of country) and does not contribute to the local or state economy.
5. Estimated GHG Savings and Costs Per MMTCO₂e:
- a. Summary Table of:
 - iii. GHG potential in 2010, 2020
 - iv. Net Cost per MMTCO₂e in 2010, 2020
 - b. Insert Excel Worksheet showing summary GHG reduction potential and net cost
6. Data Sources, Methods and Assumptions:
- a. Data Sources
 - b. Quantification Methods
 - c. Key Assumptions
7. Key Uncertainties if applicable:
- a. Benefits
 - b. Costs
8. Description of Ancillary Benefits and Costs, if applicable:
- a. Description of issue #1
 - b. Description of issue #2

c. Etc.

9. Description of Feasibility Issues, if applicable:

- a. Description of issue #1
- b. Description of issue #2
- c. Etc.

10. Status of Group Approval:

- a. Pending
- b. Completed

11. Level of Group Support:

- a. Unanimous Consent
- b. Supermajority
- c. Majority
- d. Minority

12. Barriers to consensus, if applicable (less than unanimous consent):

- a. Description of barrier #1
- b. Description of barrier #2
- c. Etc.

ES-4: Financial Incentives for Centralized Renewables

1. Policy Description:

a. Lay description of proposed policy action:

The purpose of this suite of policies is to encourage investment in centralized renewables now by providing direct financial incentives. Financial incentives for centralized renewables include: (1) direct subsidies for purchasing/selling centralized renewable technologies given to the buyer/seller; (2) tax credits or exemptions for purchasing/selling centralized renewable technologies given to the buyer/seller; (3) tax credits or exemptions for operating centralized renewable energy facilities; (4) feed-in tariff, which is a direct payment to centralized renewable generators for each kWh of electricity generated from a qualifying renewable facility; (5) tax credits for each kWh generated from a qualifying renewable facility; (6) R&D funding to support development of distributed renewable technologies.

R&D funding can be targeted toward a particular technology or group of technologies as part of a state program with a mission to build an industry around that technology in the state as well as to set the stage for adoption of the technology for use in the state. R&D funding can also be available to any renewable or other advanced technology through an open bidding procedure (i.e., driven by bids received rather than by a focused strategy to develop a particular technology). Funding can also be given for demonstration projects to help commercialize technologies that have already been developed but are not yet in widespread use.

b. Policy Design Parameters:

i. Implementation level(s) beyond BAU:

Production tax incentives: Solar (including PV and Concentrating Solar Power) = 4 cents per kwh. Biomass = 2 cents per kwh. Wind = 1 cent per kwh.

ii. Timing of implementation:

See above.

iii. Implementing parties:

Deleted: Feed-in tariffs: Starting in 20___, payment of ___ cents/kWh, in addition to the wholesale market price of generation, to all [new?] grid-connected solar (PV and thermal), wind, biomass, and geothermal systems greater than ___ kW. Generation from qualifying renewable facilities will be sold to local utilities that are required to pay the wholesale market price plus the feed-in tariff. The added cost to utilities can be recovered through utility rates. Utilities can limit the total renewable generation purchased to ___% of total sales on a first come first served basis for renewable generators. The payment of ___ cents/kWh will continue to 20___, when it will drop to ___ cents/kWh. Starting in 20___, the payment will drop to ___ cents/kWh. In 20___, the payment will drop again to ___ cent/kWh and will cease in 20___.
R&D funding: ?
 ¶

Utilities would administer the feed-in tariff under supervision of a state agency, and power producers operating qualifying renewable facilities would receive the payments.

A state agency would administer R&D funding through a public-private partnership with companies and research institutions. Note that a source of funds to cover subsidies or other support would need to be determined.

iv. Other

c. Implementation Mechanism(s): Indicate which mechanisms are to be used, and describe the specific approach that is proposed

- i. Funding mechanisms and or incentives
- ii. Pilots and demos
- iii. Research and development

2. BAU Policies/Programs, if applicable:

c. Corporate tax credit of 1 cent per kwh for wind, solar or biomass facilities larger than 10 MW; available for the first 400,000 MWHs of generation per year. Total generation from all participants must not exceed 2 million MWHs per year.

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3. Types(s) of GHG Benefit(s):

- a. CO2: By providing a financial incentive for renewable generation, more renewable facilities will be installed and more electricity from renewables will be generated. This zero-carbon generation will displace generation from fossil fuels and lower carbon emissions. By funding R&D, new or improved renewable technologies will be developed or commercialized, leading to even more installation of renewables and further reducing carbon emissions in the long term.
- b. CH4
- c. N2O
- d. HFC's, SFC's
- e. Black Carbon: To the extent that generation from coal and oil is displaced by renewables, black carbon emissions will decrease.

Deleted: <#>Personal income tax credit for renewables amounting to 25% of the cost of installation with a maximum of \$1,000. ¶
<#>Sales tax exemption for up to \$5,000 of the cost of a renewable installation. ¶

4. Types of Ancillary Benefits and or Costs, if applicable:

- a. Reductions in overall electricity consumption and the shift from fossil fuel generation as a result of new renewables will lead to reductions in criteria air pollutants and, consequently, health costs associated with those pollutants.

- b. Renewable resources are less risky than fossil resources because they are not subject to unexpected changes in the price of fossil fuels due to market manipulation, disruptions in supply, and supply depletion.
 - c. The operating costs of renewable generation, primarily maintenance, are spent locally and are a direct boost to local and state economies, whereas the primary cost of operating fossil fuel plants – fossil fuels – often goes out of state (or out of country) and does not contribute to the local or state economy.
5. Estimated GHG Savings and Costs Per MMTCO₂e:
- a. Summary Table of:
 - i. GHG potential in 2010, 2020
 - ii. Net Cost per MMTCO₂e in 2010, 2020
 - b. Insert Excel Worksheet showing summary GHG reduction potential and net cost
6. Data Sources, Methods and Assumptions:
- a. Data Sources
 - b. Quantification Methods
 - c. Key Assumptions
7. Key Uncertainties if applicable:
- a. Benefits
 - b. Costs
8. Description of Ancillary Benefits and Costs, if applicable:
- a. Description of issue #1
 - b. Description of issue #2
 - c. Etc.
9. Description of Feasibility Issues, if applicable:
- a. Description of issue #1
 - b. Description of issue #2
 - c. Etc.
10. Status of Group Approval:

- a. Pending
- b. Completed

11. Level of Group Support:

- a. Unanimous Consent
- b. Supermajority
- c. Majority
- d. Minority

12. Barriers to consensus, if applicable (less than unanimous consent):

- a. Description of barrier #1
- b. Description of barrier #2
- c. Etc.

ES-5: R&D Including Energy Storage

1. Policy Description:

a. Lay description of proposed policy action:

R&D funding can be targeted toward a particular technology or group of technologies as part of a state program with a mission to build an industry around that technology in the state and/or to set the stage for adoption of the technology for use in the state. For example, an agency can be established with a mission to help develop and deploy energy storage technologies. R&D funding can also be made available to any renewable or other advanced technology through an open bidding procedure (driven by bids received rather than by a focused strategy to develop a particular technology). Funding can also be given for demonstration projects to help commercialize technologies that have already been developed but are not yet in widespread use.

b. Policy Design Parameters:

i. Implementation level(s) beyond BAU:

The volunteer group suggested that this option not be quantified.

R&D funding: Establish an R&D program tasked with the development and deployment of concentrating solar energy technologies and hydrogen-based energy storage technologies, funded by a ___ mil per kWh charge to all electricity customers in the state.

ii. Timing of implementation:

The R&D program will be established by 20__.

iii. Implementing parties:

The State of New Mexico would implement the R&D program in conjunction with private companies in a public-private partnership model.

iv. Other

c. Implementation Mechanism(s): Indicate which mechanisms are to be used, and describe the specific approach that is proposed

i. Funding mechanisms and or incentives

ii. Pilots and demos

iii. Research and development

2. BAU Policies/Programs, if applicable:
 - a. No dedicated R&D program for developing solar energy and energy storage technologies is in place in New Mexico.

3. Types(s) of GHG Benefit(s):
 - a. CO₂: By funding R&D for renewables, more renewable energy would eventually come on-line and displace fossil fuel resources and, therefore, reduce CO₂ emissions.
 - b. CH₄
 - c. N₂O
 - d. HFC's, SFC's
 - e. Black Carbon: To the extent that generation from coal and oil is displaced by renewables, black carbon emissions will decrease.

4. Types of Ancillary Benefits and or Costs, if applicable:
 - a. Reductions in overall electricity consumption and the shift from fossil fuel generation as a result of new renewables will lead to reductions in criteria air pollutants and, consequently, reduce health costs associated with those pollutants.
 - b. Renewable resources are less risky than fossil resources because they are not subject to unexpected changes in the price of fossil fuels due to market manipulation, disruptions in supply, and supply depletion.
 - c. The operating costs of renewable generation, primarily maintenance, are spent locally and are a direct boost to local and state economies, whereas the primary cost of operating fossil fuel plants – fossil fuels – often goes out of state (or out of country) and does not contribute to the local or state economy.

5. Estimated GHG Savings and Costs Per MMTCO₂e:
 - a. Summary Table of:
 - i. GHG potential in 2010, 2020
 - ii. Net Cost per MMTCO₂e in 2010, 2020
 - b. Insert Excel Worksheet showing summary GHG reduction potential and net cost

6. Data Sources, Methods and Assumptions:
 - a. Data Sources
 - b. Quantification Methods

- c. Key Assumptions
- 7. Key Uncertainties if applicable:
 - a. Benefits
 - b. Costs
- 8. Description of Ancillary Benefits and Costs, if applicable:
 - a. Description of issue #1
 - b. Description of issue #2
 - c. Etc.
- 9. Description of Feasibility Issues, if applicable:
 - a. Description of issue #1
 - b. Description of issue #2
 - c. Etc.
- 10. Status of Group Approval:
 - a. Pending
 - b. Completed
- 11. Level of Group Support:
 - a. Unanimous Consent
 - b. Supermajority
 - c. Majority
 - d. Minority
- 12. Barriers to consensus, if applicable (less than unanimous consent):
 - a. Description of barrier #1
 - b. Description of barrier #2
 - c. Etc.