Energy Supply Technical Work Group

Draft "Group C" 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 kgroenewold@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

#	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 & Uprating	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@americangypsum.com cbrinker@swenergy.org dgriscom@rdcnm.org agrienergy@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) ***(Note: ES will leverage RCI's work on this option.)***	~(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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		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), Tavarez (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-8: Incentives and Barrier Reductions for Combined Heat and Power

1. Policy Description:

   a. Lay description of proposed policy action:

      Financial incentives for combined heat & power (CHP) include: (1) direct subsidies for purchasing/selling CHP systems given to the buyer/seller; (2) tax credits or exemptions for purchasing/selling CHP systems given to the buyer/seller; (3) tax credits or exemptions for operating CHP systems; (4) feed-in tariff, which is a direct payment to CHP owners for each kWh of electricity or BTU of heat generated from a qualifying CHP system; and (5) tax credits for each kWh or BTU generated from a qualifying CHP system.

      There are many barriers to combined heat and power (CHP), including inadequate information, institutional barriers, high transaction costs because of small projects, high financing costs because of lender unfamiliarity and perceived risk, "split incentives" between building owners and tenants, and utility-related policies like interconnection requirement, high standby rates, exit fees, etc. Standard offer or long-term contracts, payments at avoided costs and lack of carbon value also create obstacles.

      Policies to remove these barriers include:

      - Improved interconnection policies
      - Improved rates and fees policies
      - Streamlined permitting
      - Procurement policies
      - Education/outreach
      - Etc.

   b. Policy Design Parameters:

      i. Implementation level(s) beyond BAU:

         The volunteer group suggested that we look at several scenarios for CHP penetration as a result of removing barriers. We will ramp up CHP penetration from 2008 to 2020 to equal 3% of total fossil generation. Note: the assumed penetration rate of CHP is just that, an assumption. Empirically relating barrier removal and penetration of CHP is beyond the scope of this analysis. The analysis of this option is a "what if" exercise; **if** we get penetration of 3% with barrier removal, we would see a level of emission reductions at a cost (likely negative cost or, in other words, a positive benefit).

ii. Timing of implementation:

Depends on specific policy to remove barriers.

iii. Implementing parties:

[Depends on specific policy to remove barriers.]

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

iii. Financial incentives

2. BAU Policies/Programs, if applicable:

a.

b.

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

a. CO2: By removing barriers to CHP, more clean generation can come into the energy supply mix and displace less efficient fossil fuels, thereby reducing CO2 emissions.

b. CH4

c. N2O

d. HFC's, SFC's

e. Black Carbon: To the extent that removing barriers to CHP will lead to displacement of generation from coal and oil, black carbon emissions will decrease.

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

a. CHP reduces or eliminates the need to burn fuel to meet separate power and steam loads, which significantly lowers associated criteria air pollutant emissions. Accordingly, this policy will lead to reductions in criteria air pollutants and consequently reduce health costs associated with these pollutants.

b.

5. Estimated GHG Savings and Costs Per MMTCO2e:
   a. Summary Table of:
      i. GHG potential in 2012, 2020, 2050
      ii. Net Cost per MMTCO_2e in 2012, 2020, 2050
   b. Insert Excel Worksheet showing summary GHG reduction potential and net cost
6. Data Sources, Methods and Assumptions:
   i. Data Sources
   ii. Quantification Methods
   iii. Key Assumptions
7. Key Uncertainties if applicable:
   i. Benefits
   ii. Costs
8. Description of Ancillary Benefits and Costs, if applicable:
   i. Description of issue #1
   ii. Description of issue #2
   iii. Etc.
9. Description of Feasibility Issues, if applicable:
   i. Description of issue #1
   ii. Description of issue #2
   iii. Etc.
10. Status of Group Approval:
    i. Pending
    ii. Completed
11. Level of Group Support:
    i. Unanimous Consent
    ii. Supermajority
    iii. Majority
    iv. Minority

12. Barriers to consensus, if applicable (less than unanimous consent):
    i. Description of barrier #1
    ii. Description of barrier #2
    iii. Etc.

ES-9: Demand-Side Management, Energy Efficiency, and Integrated Resource Planning

1. Policy Description:

   a. Lay description of proposed policy action:

      This policy option echoes almost completely the RCI TWG's DSM/EE option RCI-1.

      This policy option involves increasing the efficiency of electricity use in New Mexico through programs, funds, and/or requirements. This option focuses on what are typically termed DSM activities, and is designed to work in tandem with other strategies under consideration by the RCI and ES TWGs that can also encourage efficiency gains.

      The WGA CDEAC Energy Efficiency Task Force report provides several examples of "best practice" efficiency policies and programs across Western states,[1] along with a number of specific policy recommendations:

      - "Encourage or require that utilities integrate energy efficiency options into resource planning and procurement decisions and pursue energy efficiency whenever it is the least cost resource option. At a minimum, electricity distribution companies in western states should dedicate at least 2% of revenues for ratepayer-funded energy efficiency programs, as long as doing so is cost effective.
      - Establish minimum energy savings requirements or targets. In particular, we recommend setting a goal of saving 3-5% of projected electricity sales in 2010 through DSM programs. By 2020, we recommend setting a goal of 10-15% savings from DSM programs, as long as doing so is cost effective.
      - Decouple electricity sales and revenues so that reduced electricity sales do not adversely affect utility revenues, in combination with the creation of performance incentives that reward utilities for implementing effective DSM programs." (p.x)

[1] "Leading utilities such as California's investor-owned utilities, Austin Energy, Puget Sound Energy, and Seattle City Light are spending at least 2% of their revenues on energy efficiency and load management programs. These programs are cutting electricity use by 0.8-1.0% per year, from efficiency measures installed each year (i.e., the programs would reduce electricity use by 8-10% from cumulative efforts over ten years). California and Texas have set energy savings targets for their electric utilities. In addition, utilities in Hawaii and Nevada may use energy savings from efficiency measures to meet at least a portion of their clean energy requirements. … Funding for these programs is typically provided through utility rates and/or tariff riders. Some states, including California, Montana, and Oregon, have created a funding mechanism via a separate surcharge known as a public benefits fund. Most of the programs are saving electricity at a total cost of 2-3 cents per kWh saved."

Many different policy configurations are possible[2], including various combinations of energy savings targets, utility spending targets, public benefit charges[3], tariff riders or enabling legislation (recently enacted in NM), and incorporation of energy efficiency in integrated resource planning (IRP) processes, among others.

Integrated Resource Planning (IRP) is a process that diverges from traditional utility least-cost planning. Rather than simply focusing on supply-side options to meet a forecasted growth in emissions, IRP integrates technology and policy options on the demand side with supply side options to satisfy the anticipated demand for energy services. Demand-side measures include energy efficiency, distributed generation, and peak-shaving measures. IRP typically also takes into account a broader array of costs, including environmental and social costs. An IRP policy might mandate that utilities develop an Integrated Resource Plan using an approved methodology and implement it.

b. Policy Design Parameters:

In fleshing out the policy design parameters, there are two key and linked dimensions:

Achievable/desirable energy savings (total MW, MWh, % of load, etc. by specific years), which can be informed by analysis of energy efficiency potential and feasibility/desirability considerations, and

Policy and administrative mechanisms to achieve these savings (e.g., IRP, savings targets, public benefit charges, portfolio standards, "energy trusts", etc., per above).

The RCI TWG agreed to focus (initially) on the first dimension. To do so, the following scenarios will be developed and analyzed:[4]

- Medium: Under this scenario, spending on electricity efficiency programs rises to the level of 1.5% of utility revenues (i.e. customer bills), as allowed under the recent Efficient Use of Energy Act (see below).

[2] For an overview of activity in other states, see USDOE/DSIRE summary tables http://www.dsireusa.org/summarytables/

[3] Public benefit charge funds are in place in about 15 states, typically adopted as part of electricity restructuring policy/legislation. These funds are collected as surcharge on utility bills, and are typically directed to a mix of energy efficiency, renewable energy, and low-income programs.

[4] In addition to these two scenarios, we will also estimate the current, more modest levels of efficiency program spending that are implicitly reflected in the reference scenario. The policy option will thus reflect the *increase* in efficiency activity over and above reference case levels.

- High: Under this scenario, spending on electricity efficiency programs increases to a level that that reflects the full, achievable cost-effective energy efficiency potential in New Mexico.

The RCI TWG plans to discuss the second dimension (policy and administrative mechanisms) once these scenarios have been fleshed out.

The ES TWG volunteer group suggested that EE/DSM policies go beyond what is cost-effective to include measures that have a positive cost and would lead to, presumably, larger GHG emission reductions.

i. Implementation level(s) beyond BAU:

TDB

ii. Timing of implementation:

TDB

iii. Implementing parties:

Utilities and others, possibly non-utility energy providers and municipal/co-op utilities. TBD

iv. Other

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

TDB

2. <u>BAU Policies/Programs, if applicable:</u>

a. Efficient Use of Energy Act (SB 644), signed into law in 2005, directs public electric and gas utilities to develop, fund and implement comprehensive, cost-effective energy efficiency programs to reduce utility-related expenditures for citizens and businesses; declares that utility expenditures on cost-effective energy efficiency measures are an acceptable use of ratepayer monies; requires a utility to obtain prior approval for its energy efficiency programs and expenditures; provides for a tariff rider (not to exceed the lesser of 1.5% of a customer's bill or $75,000/year) for a utility to recover its energy efficiency expenditures; provides for monitoring, verification, and periodic reporting by the utility on its energy efficiency expenditures and overall program effectiveness.

3. <u>Types(s) of GHG Benefit(s):</u>

a. CO2: Principally, the reduction in GHG emissions (largely CO_2) from avoided electricity production and avoided on-site fuel combustion.

b. CH4: Less significant are the reduction in CH_4 emissions from avoided fuel combustion and avoided pipeline leakage.

c. N2O: Reductions are conceivable, but are likely to be small and/or very difficult to estimate (materials use, life cycle, market leakage, etc.)

d. HFC's, SFC's

e. Black Carbon: Reductions are conceivable, but are likely to be small and/or very difficult to estimate (materials use, life cycle, market leakage, etc.)

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

a. The WGA CDEAC EE report cites the following (p.2):
   i. Saving consumers and businesses money on their energy bills;
   ii. Reducing dependence on imported fuel sources;
   iii. Reducing vulnerability to energy price spikes;
   iv. Reducing peak demand and improving the utilization of the electricity system;
   v. Reducing the risk of power shortages;
   vi. supporting local businesses and stimulating economic development;
   vii. enabling avoidance of the most controversial energy supply projects;
   viii. reducing water consumption by power plants; and
   ix. Reducing pollutant emissions by power plants and improving public health.

5. Estimated GHG Savings and Costs Per MMTCO2e:

Given the current unavailability of New Mexico-specific electricity efficiency potential studies,[5] estimates of efficiency savings and costs will be based on regional studies and analyses/experience in other states. These studies will be used to derive an estimate of efficiency savings per dollar spent on programs, which in turn, will be used to translate between energy savings and program savings targets.

For this and other options, coordination between the ES and RCI TWGs will be important for common assumptions/analysis on fuel prices, avoided electricity costs and emissions.

Utility sectoral/end-use data on electricity consumption patterns (current and projected) and on current and historical DSM programs would improve estimates of efficiency potential.

a. Summary Table of:

   i. GHG potential in 2012, 2020, 2050

   ii. Net Cost per $MMTCO_2e$ in 2012, 2020, 2050

b. Insert Excel Worksheet showing summary GHG reduction potential and net cost

[5] PNM has recently commissioned an appliance energy efficiency study. Results are expected in fall 2006.

6. Data Sources, Methods and Assumptions:

   For this and other options as appropriate, coordinate with RCI TWG for common assumptions/analysis on fuel prices, avoided electricity costs and emissions.

   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-10: Transmission Capacity and Corridors

1. Policy Description:

   a. Lay description of proposed policy action:

      Satisfying the long-term demand for electricity requires not only new generating capacity, along with demand-side measures, but measures to improve transmission to reduce line losses and bottlenecks and enhance throughput. Entirely new transmission capacity may also be necessary. Siting new transmission lines can be a difficult process given their cost and the fact that residents near planned transmission line corridors often object for a number of reasons, including aesthetics, property values, and health concerns.

      Policies to enhance throughput over existing transmission lines could include ___. Policies to encourage new transmission lines could include ____.

   b. Policy Design Parameters:

      i. Implementation level(s) beyond BAU:

         The volunteer group suggested that we look at advanced composite conductor technologies that can increase line carrying capacity threefold. The group suggested a simple analysis accounting for the cost of new lines with this technology and calculating resulting lower line losses and reductions in GHG emissions.

         The volunteer group also suggested developing policies that would provide incentives to build new capacity near existing transmission lines. Other technologies may also become available to increase transmission capacity including capacitance technologies and grid management software.

      ii. Timing of implementation:

         See above.

      iii. Implementing parties:

      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.
    b.

3. Types(s) of GHG Benefit(s):
    a. CO2: To the extent that generation from coal and oil is reduced by avoiding line losses, CO2 emissions will decrease.
    b. CH4
    c. N2O
    d. HFC's, SFC's
    e. Black Carbon: To the extent that generation from coal and oil is reduced by avoiding line losses, black carbon emissions will decrease.

4. Types of Ancillary Benefits and or Costs, if applicable:
    a. Reductions in overall electricity through avoided line losses will lead to reductions in criteria air pollutants and, consequently, reduce health costs associated with those pollutants.
    b. Water use will also be lowered as a result of lower line losses.

5. Estimated GHG Savings and Costs Per MMTCO2e:
    a. Summary Table of:
        i. GHG potential in 2010, 2020, 2050
        ii. Net Cost per $MMTCO_2e$ in 2010, 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 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.