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Energy Supply Technical Work Group

List of Priorities for Analysis as of November 30, 2005

#	Policy Name	# From Policy Matrix Long List
	Electricity, Renewable Energy & Low Emitting Energy	
1ER	Renewable Portfolio Standard	1.1
2ER	Tax Credits & Incentives for Renewables	1.2
3ER	Biomass/Waste	1.5
4ER	Green Power Purchases & Marketing	1.7
5ER	Renewable Energy Transmission & Storage Authority	1.9
6ER	Renewables-linked Hydrogen Technology Incentives	1.10
	Electricity, Advanced Fossil Fuel Strategy	
1EA	Advanced Fossil (including IGCC)	2.1
2EA	Carbon Capture and Sequestration (CCS)	2.2
	Electricity, CHP and Waste Energy Capture	
1EC	Combined Heat & Power Incentive Policies and Barrier Reduction	4.1

Draft Policy Option: 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 an 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 is broader and includes 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 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 is generated. Anyone with RECs can sell them to a utility that needs to meet its RPS requirement. In this way, utilities themselves do not need to build and operate renewable generating facilities. By giving utilities the flexibility to purchase RECs, the market in these credits will provide an incentive to companies that are best able to generate renewable energy.

    b. Policy Design Parameters:
        i. Implementation level(s) beyond BAU: For example,
        • 5% in 2006, 10% in 2011, increasing 1% each year to 24% in 2025
        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
        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

   • One kilowatt-hour of electricity generated by wind or hydroelectric technologies is worth one kilowatt-hour toward compliance with the RPS;

   • One kilowatt-hour of biomass, geothermal, landfill gas, or fuel cell power is worth two kilowatt-hours toward the RPS; and

   • 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 EPS will lead to reductions in criteria air pollutants and, consequently, health costs associated with those pollutants.
   b. While much of the EPS 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 EPS policy and a small increase in overall electricity system cost for Arizona. At the same time, though, investment in new technologies resulting from the EPS will spur economic development.
   c. Etc.

5. Estimated GHG Savings and Costs Per $MMTCO_2e$:
    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:
    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.

Draft Policy Option: Tax Credits and Incentives for Renewables

1. Policy Description:
    a. Lay description of proposed policy action:
    b. Policy Design Parameters:
        i. Implementation level(s) beyond BAU
        ii. Timing of implementation
        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. Information and education
        ii. Technical assistance
        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. Description of policy/program #1
    b. Description of policy/program #2
    c. Etc.

3. Types(s) of GHG Benefit(s):
    a. CO2

b. CH4
c. N2O
d. HFC's, SFC's
e. Black Carbon

4. Types of Ancillary Benefits and or Costs, if applicable:
   a. Example #1
   b. Example #2
   c. Etc.

5. Estimated GHG Savings and Costs Per $MMTCO_2e$:
   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:
   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.

Draft Policy Option: Biomass/Waste

13. Policy Description:
    a. Lay description of proposed policy action:
    b. Policy Design Parameters:
        i. Implementation level(s) beyond BAU
        ii. Timing of implementation
        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. Information and education
        ii. Technical assistance
        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?

14. BAU Policies/Programs, if applicable:
    a. Description of policy/program #1
    b. Description of policy/program #2
    c. Etc.

15. Types(s) of GHG Benefit(s):
    a. CO2

b. CH4
c. N2O
d. HFC's, SFC's
e. Black Carbon

16. Types of Ancillary Benefits and or Costs, if applicable:
    a. Example #1
    b. Example #2
    c. Etc.

17. Estimated GHG Savings and Costs Per $MMTCO_2e$:
    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

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

19. Key Uncertainties if applicable:
    a. Benefits
    b. Costs

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

21. Description of Feasibility Issues, if applicable:
    a. Description of issue #1
    b. Description of issue #2
    c. Etc.

22. Status of Group Approval:
    a. Pending
    b. Completed

23. Level of Group Support:
    a. Unanimous Consent
    b. Supermajority
    c. Majority
    d. Minority

24. Barriers to consensus, if applicable (less than unanimous consent):
    a. Description of barrier #1
    b. Description of barrier #2
    c. Etc.

Draft Policy Option: Green Power Purchases and Marketing

25. Policy Description:
    a. Lay description of proposed policy action:
    b. Policy Design Parameters:
        i. Implementation level(s) beyond BAU
        ii. Timing of implementation
        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. Information and education
        ii. Technical assistance
        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?

26. BAU Policies/Programs, if applicable:
    a. Description of policy/program #1
    b. Description of policy/program #2
    c. Etc.

27. Types(s) of GHG Benefit(s):
    a. CO2

b. CH4
c. N2O
d. HFC's, SFC's
e. Black Carbon

28. Types of Ancillary Benefits and or Costs, if applicable:
    a. Example #1
    b. Example #2
    c. Etc.

29. Estimated GHG Savings and Costs Per $MMTCO_2e$:
    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

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

31. Key Uncertainties if applicable:
    a. Benefits
    b. Costs

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

33. Description of Feasibility Issues, if applicable:
    a. Description of issue #1
    b. Description of issue #2
    c. Etc.

34. Status of Group Approval:
    a. Pending
    b. Completed

35. Level of Group Support:
    a. Unanimous Consent
    b. Supermajority
    c. Majority
    d. Minority

36. Barriers to consensus, if applicable (less than unanimous consent):
    a. Description of barrier #1
    b. Description of barrier #2
    c. Etc.

Draft Policy Option: Renewable Energy Transmission and Storage Authority

37. Policy Description:
    a. Lay description of proposed policy action:
    b. Policy Design Parameters:
        i. Implementation level(s) beyond BAU
        ii. Timing of implementation
        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. Information and education
        ii. Technical assistance
        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?

38. BAU Policies/Programs, if applicable:
    a. Description of policy/program #1
    b. Description of policy/program #2
    c. Etc.

39. Types(s) of GHG Benefit(s):
    a. CO2

b. CH4
c. N2O
d. HFC's, SFC's
e. Black Carbon

40. Types of Ancillary Benefits and or Costs, if applicable:
    a. Example #1
    b. Example #2
    c. Etc.

41. Estimated GHG Savings and Costs Per $MMTCO_2e$:
    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

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

43. Key Uncertainties if applicable:
    a. Benefits
    b. Costs

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

45. Description of Feasibility Issues, if applicable:
    a. Description of issue #1
    b. Description of issue #2
    c. Etc.

46. Status of Group Approval:
    a. Pending
    b. Completed

47. Level of Group Support:
    a. Unanimous Consent
    b. Supermajority
    c. Majority
    d. Minority

48. Barriers to consensus, if applicable (less than unanimous consent):
    a. Description of barrier #1
    b. Description of barrier #2
    c. Etc.

Draft Policy Option: Renewables-linked Hydrogen Technology Incentives

49. Policy Description:
    a. Lay description of proposed policy action:
    b. Policy Design Parameters:
        i. Implementation level(s) beyond BAU
        ii. Timing of implementation
        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. Information and education
        ii. Technical assistance
        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?

50. BAU Policies/Programs, if applicable:
    a. Description of policy/program #1
    b. Description of policy/program #2
    c. Etc.

51. Types(s) of GHG Benefit(s):
    a. CO2

b. CH4
c. N2O
d. HFC's, SFC's
e. Black Carbon

52. Types of Ancillary Benefits and or Costs, if applicable:
    a. Example #1
    b. Example #2
    c. Etc.

53. Estimated GHG Savings and Costs Per $MMTCO_2e$:
    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

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

55. Key Uncertainties if applicable:
    a. Benefits
    b. Costs

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

57. Description of Feasibility Issues, if applicable:
    a. Description of issue #1
    b. Description of issue #2
    c. Etc.

58. Status of Group Approval:
    a. Pending
    b. Completed

59. Level of Group Support:
    a. Unanimous Consent
    b. Supermajority
    c. Majority
    d. Minority

60. Barriers to consensus, if applicable (less than unanimous consent):
    a. Description of barrier #1
    b. Description of barrier #2
    c. Etc.

Draft Policy Option: Advanced Fossil (including IGCC)

61. Policy Description:
    a. Lay description of proposed policy action:
    b. Policy Design Parameters:
        i. Implementation level(s) beyond BAU
        ii. Timing of implementation
        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. Information and education
        ii. Technical assistance
        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?

62. BAU Policies/Programs, if applicable:
    a. Description of policy/program #1
    b. Description of policy/program #2
    c. Etc.

63. Types(s) of GHG Benefit(s):
    a. CO2

b. CH4
c. N2O
d. HFC's, SFC's
e. Black Carbon

64. Types of Ancillary Benefits and or Costs, if applicable:
    a. Example #1
    b. Example #2
    c. Etc.

65. Estimated GHG Savings and Costs Per $MMTCO_2e$:
    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

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

67. Key Uncertainties if applicable:
    a. Benefits
    b. Costs

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

69. Description of Feasibility Issues, if applicable:
    a. Description of issue #1
    b. Description of issue #2
    c. Etc.

70. Status of Group Approval:
    a. Pending
    b. Completed

71. Level of Group Support:
    a. Unanimous Consent
    b. Supermajority
    c. Majority
    d. Minority

72. Barriers to consensus, if applicable (less than unanimous consent):
    a. Description of barrier #1
    b. Description of barrier #2
    c. Etc.

Draft Policy Option: Carbon Capture and Sequestration (CCS)

73. Policy Description:
    a. Lay description of proposed policy action:
    b. Policy Design Parameters:
        i. Implementation level(s) beyond BAU
        ii. Timing of implementation
        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. Information and education
        ii. Technical assistance
        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?

74. BAU Policies/Programs, if applicable:
    a. Description of policy/program #1
    b. Description of policy/program #2
    c. Etc.

75. Types(s) of GHG Benefit(s):
    a. CO2

b. CH4
c. N2O
d. HFC's, SFC's
e. Black Carbon

76. Types of Ancillary Benefits and or Costs, if applicable:
    a. Example #1
    b. Example #2
    c. Etc.

77. Estimated GHG Savings and Costs Per $MMTCO_2e$:
    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

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

79. Key Uncertainties if applicable:
    a. Benefits
    b. Costs

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

81. Description of Feasibility Issues, if applicable:
    a. Description of issue #1
    b. Description of issue #2
    c. Etc.

82. Status of Group Approval:
    a. Pending
    b. Completed

83. Level of Group Support:
    a. Unanimous Consent
    b. Supermajority
    c. Majority
    d. Minority

84. Barriers to consensus, if applicable (less than unanimous consent):
    a. Description of barrier #1
    b. Description of barrier #2
    c. Etc.

Draft Policy Option: Combined Heat & Power Incentive Policies and Barrier Reduction

85. Policy Description:

- a. Lay description of proposed policy action:
- b. Policy Design Parameters:
  - i. Implementation level(s) beyond BAU
  - ii. Timing of implementation
  - 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. Information and education
  - ii. Technical assistance
  - 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?

86. BAU Policies/Programs, if applicable:

- a. Description of policy/program #1
- b. Description of policy/program #2
- c. Etc.

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

- a. CO2

b. CH4
c. N2O
d. HFC's, SFC's
e. Black Carbon

88. Types of Ancillary Benefits and or Costs, if applicable:
    a. Example #1
    b. Example #2
    c. Etc.

89. Estimated GHG Savings and Costs Per $MMTCO_2e$:
    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

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

91. Key Uncertainties if applicable:
    a. Benefits
    b. Costs

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

93. Description of Feasibility Issues, if applicable:
    a. Description of issue #1
    b. Description of issue #2
    c. Etc.

94. Status of Group Approval:
    a. Pending
    b. Completed

95. Level of Group Support:
    a. Unanimous Consent
    b. Supermajority
    c. Majority
    d. Minority

96. Barriers to consensus, if applicable (less than unanimous consent):
    a. Description of barrier #1
    b. Description of barrier #2
    c. Etc.