

**Resource-specific Detail: Expected Tax Losses Resulting from S. 2095
Section 45(c) , "Credits for Electricity Produces from Certain Renewable Resources"
(as defined by S. 2095, version dated Feb. 12, 2004)**

1. Geothermal

| | Total | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
|--------------------------------------------------------------------------------------------|--------------|--------------------------|--------|--------|-------------------------------|--------|--------|----------------|--------|--------|--------|--------|------|------|------|
| <u>Estimated Power Production (billions of kWh)</u> | | | | | | | | | | | | | | | |
| Electric Power | | 13.816 | 13.659 | 14.226 | 15.948 | 17.227 | 19.144 | 21.208 | 23.245 | 25.380 | 27.209 | 29.206 | | | |
| Other end-use generation | | - | - | - | - | - | - | - | - | - | - | - | | | |
| Total | | 13.816 | 13.659 | 14.226 | 15.948 | 17.227 | 19.144 | 21.208 | 23.245 | 25.380 | 27.209 | 29.206 | | | |
| <u>Tax Credit Parameters</u> | | | | | | | | | | | | | | | |
| Existing Capacity (Note 1) | Not eligible | Rate- Rev. Loss (\$/kWh) | | - | Rate - Outlay Equiv. (\$/kWh) | | - | Duration (yrs) | 5.000 | | | | | | |
| New Capacity | | Rate- Rev. Loss (\$/kWh) | | 0.018 | Rate - Outlay Equiv. (\$/kWh) | | 0.028 | Duration (yrs) | - | | | | | | |
| Tax credits in present law? | | | No | | | | | | | | | | | | |
| <u>Eligible generation for tax credit (billions of kWh) - ASSUMING ELECTRIC POWER ONLY</u> | | | | | | | | | | | | | | | |
| Existing Capacity (bils kWh) | | 13.816 | 13.659 | 13.659 | 13.659 | 13.659 | 13.659 | - | | | | | | | |
| New Capacity (bils kWh) | | | - | 0.567 | 2.288 | 2.288 | 2.288 | 2.288 | 1.721 | - | | | | | |
| Total - Rev. Loss Est. (\$mils) | 206 | | - | 10 | 41 | 41 | 41 | 41 | 31 | | | | | | |
| Total - Outlay equiv. est. (\$mils) | 320 | | - | 16 | 64 | 64 | 64 | 64 | 48 | | | | | | |

2. Municipal Solid Waste

| | Total | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
|-----------------------------------------------------------------------------------------------|--------------|--------------------------|------------------------------|--------|----------------------|--------|--------|----------|--------|-------------------------|--------|--------|------|------|------|
| <u>Estimated power production (bils of kWh)</u> | | | | | | | | | | | | | | | |
| Electric Power | | 25.580 | 25.969 | 26.118 | 26.297 | 27.365 | 27.814 | 27.903 | 28.107 | 28.119 | 28.132 | 28.143 | | | |
| Combined heat and power | | 2.101 | 2.101 | 2.101 | 2.101 | 2.101 | 2.101 | 2.101 | 2.101 | 2.101 | 2.101 | 2.101 | | | |
| <u>Tax Credit Parameters</u> | | | | | | | | | | | | | | | |
| Existing Capacity (Note 1) | not eligible | Rate- Rev. Loss (\$/kWh) | | - | Rate - Outlay Equiv. | | - | Duration | 5.000 | | | | | | |
| New Capacity | | Rate- Rev. Loss (\$/kWh) | | 0.018 | Rate - Outlay Equiv. | | 0.028 | Duration | - | Higher rate than in HR6 | | | | | |
| Tax credits in present law? | | | No | | | | | | | | | | | | |
| Eligibility window | | | Oct. 1, 2004 - Dec. 31, 2006 | | | | | | | | | | | | |
| <u>A. Eligible generation for tax credit (billions of kWh) - ASSUMING ELECTRIC POWER ONLY</u> | | | | | | | | | | | | | | | |
| Existing Capacity (bils kWh) | | 25.580 | 25.580 | 25.580 | 25.580 | 25.580 | 25.580 | - | | | | | | | |
| New Capacity (bils kWh) | | | 0.388 | 0.538 | 0.716 | 0.716 | 0.716 | 0.328 | 0.179 | - | | | | | |
| Total - Rev. Loss Est. (\$mils) | 64 | | 7 | 10 | 13 | 13 | 13 | 6 | 3 | | | | | | |
| Total - Outlay equiv. est. (\$mils) | 100 | | 11 | 15 | 20 | 20 | 20 | 9 | 5 | | | | | | |

Landfills are not directly eligible for the tax credit under S. 2095. The definition of "solid waste" adopted by the bill would allow credits for "contained gaseous material" from an industrial or commercial process. Landfill gas might qualify, but probably would need a favorable IRS tax ruling first.

3. Wood and Other Biomass

| Total | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
|----------------------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|------|------|------|
| <u>Estimated Power Production (bils kWh)</u> | | | | | | | | | | | | | | |
| Electric power | | | | | | | | | | | | | | |
| Dedicated plants | 10.750 | 10.856 | 11.161 | 11.725 | 12.151 | 12.561 | 12.896 | 13.263 | 13.481 | 13.617 | 13.661 | | | |
| Co-firing | 4.994 | 5.045 | 7.977 | 8.285 | 8.897 | 9.074 | 9.417 | 10.262 | 10.286 | 10.367 | 10.515 | | | |
| Combined heat and power | 28.558 | 30.230 | 31.845 | 32.961 | 33.724 | 34.448 | 35.400 | 36.629 | 37.896 | 39.255 | 40.685 | | | |
| Total, all sources | 44.302 | 46.131 | 50.984 | 52.971 | 54.772 | 56.083 | 57.713 | 60.154 | 61.663 | 63.239 | 64.861 | | | |
| Total, dedicated plants only | 10.750 | 10.856 | 11.161 | 11.725 | 12.151 | 12.561 | 12.896 | 13.263 | 13.481 | 13.617 | 13.661 | | | |

A. Open Loop Biomass - Dedicated Electric Power

Tax Credit Parameters, open-loop biomass other than poultry waste

| | | | | | | |
|-----------------------------|--------------------------|--------|----------------------|-------|----------|--------|
| Existing Capacity (Note 1) | Rate- Rev. Loss (\$/kWh) | 0.0120 | Rate - Outlay Equiv. | 0.019 | Duration | 5.000 |
| New Capacity | Rate- Rev. Loss (\$/kWh) | 0.018 | Rate - Outlay Equiv. | 0.028 | Duration | 10.000 |
| Tax credits in present law? | No | | | | | |
| Eligibility window | Prior to Jan. 1, 2005. | | | | | |

Dedicated electric power eligible for tax credits

| | | | | | | | | | | | | | | |
|--------------------------------------------|----------|--------|--------|--------|--------|--------|--------|-------|-------|-------|-------|-------|-------|--|
| Existing Capacity (bils kWh) | Eligible | 10.750 | 10.750 | 10.750 | 10.750 | 10.750 | 10.750 | - | | | | | | |
| New Capacity (bils kWh) | | | 0.105 | 0.105 | 0.105 | 0.105 | 0.105 | 0.105 | 0.105 | 0.105 | 0.105 | 0.105 | 0.105 | |
| Total - Rev. Loss Est. (\$mils) | 664 | 131 | 131 | 131 | 131 | 131 | 131 | 2 | 2 | 2 | 2 | 2 | 2 | |
| Total - Outlay equiv. est. (\$mils) | 1,033 | 204 | 204 | 204 | 204 | 204 | 204 | 3 | 3 | 3 | 3 | 3 | 3 | |

B. Closed-loop biomass

Since new tax credits would apply to most open-loop sources and closed-loop tends to be more expensive, we estimate that the tax losses from closed-loop plants will be negligible.

Biomass, continued

C. Power production as facilities using biomass as one of multiple feedstocks for generating power

| | REVENUE LOSS ESTIMATES | | | OUTLAY EQUIVALENT ESTIMATES | | | Percent of Total (100% eligible) | Percent of total total (50% cut-off) | Percent of total total (75% cut-off) |
|----------------------------------------------------------------|------------------------------------|---------------------------------------------------------|---------------------------------------------------|------------------------------------|---------------------------------------------------------|---------------------------------------------------|----------------------------------|--------------------------------------|--------------------------------------|
| | 100% biomass eligible (\$Millions) | Biomass feedstock > 50% input (heat basis) (\$Millions) | Biomass feedstock > 75% (heat basis) (\$Millions) | 100% biomass eligible (\$Millions) | Biomass feedstock > 50% input (heat basis) (\$Millions) | Biomass feedstock > 75% (heat basis) (\$Millions) | | | |
| <u>(i). Aggregate Tax Credits</u> | | | | | | | | | |
| Total | 876 | 754 | 233 | 1,362 | 1,173 | 362 | | | |
| <u>(ii). Tax Credits, by Industry</u> | | | | | | | | | |
| Energy | 123.9 | 79.1 | 40.2 | 192.7 | 123.0 | 62.5 | 14.2% | 10.5% | 17.2% |
| Food processing | 9.7 | 8.5 | 1.1 | 15.1 | 13.2 | 1.8 | 1.1% | 1.1% | 0.5% |
| Paper/Lumber | 741.8 | 666.4 | 191.4 | 1,153.9 | 1,036.6 | 297.7 | 84.7% | 88.4% | 82.2% |
| Wood products/furniture | 0.2 | 0.2 | 0.2 | 0.3 | 0.3 | 0.3 | 0.0% | 0.0% | 0.1% |
| Total | 875.6 | 754.2 | 232.9 | 1,362.1 | 1,173.1 | 362.3 | 100.0% | 100.0% | 100.0% |
| <u>(iii). Breakout by Corporation (partial listing)</u> | | | | | | | | | |
| Bowater | 30.0 | 23.3 | 23.3 | 46.7 | 36.3 | 36.3 | 3.4% | 3.1% | 10.0% |
| Domtar | 29.0 | 29.0 | 29.0 | 45.1 | 45.1 | 45.1 | 3.3% | 3.8% | 12.4% |
| Georgia Pacific | 53.9 | 52.4 | - | 83.8 | 81.5 | - | 6.2% | 7.0% | 0.0% |
| International Paper | 277.9 | 260.0 | 69.2 | 432.2 | 404.4 | 107.7 | 31.7% | 34.5% | 29.7% |
| Jefferson Smurfit/Smurfit-Stone | 116.9 | 110.1 | 35.9 | 181.8 | 171.2 | 55.9 | 13.4% | 14.6% | 15.4% |
| Mead Paper | 24.7 | 24.7 | - | 38.4 | 38.4 | - | 2.8% | 3.3% | 0.0% |
| Packaging Corp. of America | 22.8 | 22.8 | 6.8 | 35.4 | 35.4 | 10.6 | 2.6% | 3.0% | 2.9% |
| PH Glatfelter | 16.5 | - | - | 25.7 | - | - | 1.9% | 0.0% | 0.0% |
| SD Warren | 15.3 | 14.1 | - | 23.9 | 22.0 | - | 1.8% | 1.9% | 0.0% |
| Stora Enso | 17.7 | 17.9 | 17.9 | 27.6 | 27.8 | 27.8 | 2.0% | 2.4% | 7.7% |
| Weyerhaeuser | 54.4 | 44.0 | - | 84.6 | 68.4 | - | 6.2% | 5.8% | 0.0% |
| Wilamette Industries | 14.4 | 14.4 | 6.7 | 22.3 | 22.3 | 10.5 | 1.6% | 1.9% | 2.9% |
| | 673.5 | 612.6 | 188.9 | 1,047.6 | 952.9 | 293.8 | 76.9% | 81.2% | 81.1% |
| <u>(iv). Breakout By State (partial listing)</u> | | | | | | | | | |
| AL | 117.1 | 86.9 | 19.5 | 182.1 | 135.1 | 30.3 | 13.4% | 11.5% | 8.4% |
| AR | 29.0 | 29.0 | 29.0 | 45.1 | 45.1 | 45.1 | 3.3% | 3.8% | 12.4% |
| GA | 111.1 | 107.4 | - | 172.9 | 167.0 | - | 12.7% | 14.2% | 0.0% |
| LA | 55.8 | 55.8 | 33.8 | 86.9 | 86.9 | 52.5 | 6.4% | 7.4% | 14.5% |
| ME | 53.8 | 42.9 | - | 83.7 | 66.7 | - | 6.1% | 5.7% | 0.0% |
| MI | 39.5 | 36.2 | 11.4 | 61.4 | 56.2 | 17.8 | 4.5% | 4.8% | 4.9% |
| NC | 68.9 | 59.8 | 1.1 | 107.2 | 93.0 | 1.8 | 7.9% | 7.9% | 0.5% |
| SC | 49.9 | 49.9 | 24.0 | 77.6 | 77.6 | 37.4 | 5.7% | 6.6% | 10.3% |
| TN | 46.0 | 46.0 | 30.1 | 71.6 | 71.6 | 46.8 | 5.3% | 6.1% | 12.9% |
| WI | 51.4 | 33.0 | 24.7 | 80.0 | 51.3 | 38.5 | 5.9% | 4.4% | 10.6% |
| VA | 79.4 | 77.9 | 27.1 | 123.5 | 121.2 | 42.2 | 9.1% | 10.3% | 11.7% |
| | 701.9 | 624.7 | 200.7 | 1,091.8 | 971.7 | 312.3 | 80.2% | 82.8% | 86.2% |

4. Solar Thermal

| | Total | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
|-------------------------------------------------------------|--------------|-------------------------------|-------|-------|----------------------|-------|-------|----------|-------|-------|-------|-------|------|------|------|
| <u>Estimated Power Production</u> | | | | | | | | | | | | | | | |
| Electric Power (bils of kWh) | | 0.518 | 0.521 | 0.724 | 0.798 | 0.806 | 0.818 | 0.827 | 0.836 | 0.903 | 0.932 | 0.945 | | | |
| <u>Tax Credit Parameters</u> | | | | | | | | | | | | | | | |
| Existing Capacity (Note 1) | not eligible | Rate- Rev. Loss (\$/kWh) | | - | Rate - Outlay Equiv. | | - | Duration | 5.000 | | | | | | |
| New Capacity | | Rate- Rev. Loss (\$/kWh) | | 0.018 | Rate - Outlay Equiv. | | 0.028 | Duration | - | | | | | | |
| Tax credits in present law? | | No | | | | | | | | | | | | | |
| Eligibility window | | Oct. 1, 2004 to Dec. 31, 2006 | | | | | | | | | | | | | |
| <u>Eligible generation for tax credit (billions of kWh)</u> | | | | | | | | | | | | | | | |
| Existing Capacity (bils kWh) | | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | - | | | | | | | |
| New Capacity (bils kWh) | | | | 0.2 | 0.3 | 0.3 | 0.3 | 0.3 | 0.1 | | | | | | |
| Total - Rev. Loss Est. (\$mils) | 25.2 | | - | 3.7 | 5.0 | 5.0 | 5.0 | 5.0 | 1.3 | | | | | | |
| Total - Outlay equiv. est. (\$mils) | 39.2 | | - | 5.8 | 7.8 | 7.8 | 7.8 | 7.8 | 2.1 | | | | | | |

5. Solar Photovoltaic

| | Total | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
|---------------------------------------------------------------------------------------------|--------------|------------------------------|-------|-------|----------------------|-------|-------|----------|-------|-------|-------|-------|------|------|------|
| <u>Estimated Power Production (bils kWh)</u> | | | | | | | | | | | | | | | |
| Electric power | | 0.079 | 0.114 | 0.147 | 0.190 | 0.234 | 0.280 | 0.321 | 0.359 | 0.401 | 0.443 | 0.485 | | | |
| Other end-use generation | | 0.121 | 0.162 | 0.217 | 0.302 | 0.406 | 0.520 | 0.658 | 0.824 | 0.840 | 0.856 | 0.873 | | | |
| <u>Tax Credit Parameters</u> | | | | | | | | | | | | | | | |
| Existing Capacity (Note 1) | not eligible | Rate- Rev. Loss (\$/kWh) | | - | Rate - Outlay Equiv. | | - | Duration | - | | | | | | |
| New Capacity | | Rate- Rev. Loss (\$/kWh) | | 0.018 | Rate - Outlay Equiv. | | 0.028 | Duration | 5.000 | | | | | | |
| Tax credits in present law? | No | | | | | | | | | | | | | | |
| Eligibility window | | Oct. 1, 2004 - Dec. 31, 2006 | | | | | | | | | | | | | |
| <u>Eligible generation for tax credit (billions of kWh) -- ASSUMING ELECTRIC POWER ONLY</u> | | | | | | | | | | | | | | | |
| Existing Capacity (bils kWh) | | 0.079 | 0.079 | 0.079 | 0.079 | 0.079 | 0.079 | - | | | | | | | |
| New Capacity (bils kWh) | | | 0.035 | 0.068 | 0.111 | 0.155 | 0.201 | 0.166 | 0.132 | | | | | | |
| Total - Rev. Loss Est. (\$mils) | 15.615 | | 0.623 | 1.228 | 1.995 | 2.784 | 3.612 | 2.989 | 2.384 | | | | | | |
| Total - Outlay equiv. est. (\$mils) | 24.290 | | 0.969 | 1.910 | 3.104 | 4.330 | 5.619 | 4.649 | 3.709 | | | | | | |

6. Wind

| | Total | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
|----------------------------------------------|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|------|------|------|
| <u>Estimated Power Production (bils kWh)</u> | | 17.377 | 19.082 | 19.403 | 20.067 | 21.564 | 22.463 | 22.941 | 24.068 | 25.783 | 26.588 | 29.046 | | | |

Tax Credit Parameters

| | | | | | | | |
|-----------------------------|-----------------------------------------------------------|--------------------------|-------|-------------------------------|-------|----------------|--------|
| Existing Capacity (Note 1) | <i>Not eligible</i> | Rate- Rev. Loss (\$/kWh) | - | Rate - Outlay Equiv. (\$/kWh) | - | Duration (yrs) | - |
| New Capacity | | Rate- Rev. Loss (\$/kWh) | 0.018 | Rate - Outlay Equiv. (\$/kWh) | 0.028 | Duration (yrs) | 10.000 |
| Tax credits in present law? | Yes; 10 year eligibility for plants in service by 1/1/04. | | | | | | |
| Eligibility window | 12.31.99 to 01.01.07 | | | | | | |

Eligible generation for tax credit (billions of kWh)

| | | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
|--------------------------------------------|-----|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|----------|----------|------|
| Existing Capacity (bils kWh) | | 17.377 | 17.377 | 17.377 | 17.377 | 17.377 | 17.377 | 17.377 | 17.377 | 17.377 | 17.377 | 17.377 | | | |
| New Capacity (bils kWh) | | | 1.706 | 2.026 | 2.691 | 2.691 | 2.691 | 2.691 | 2.691 | 2.691 | 2.691 | 2.691 | 0.984873 | 0.664335 | 0 |
| Total - Rev. Loss Est. (\$mils) | 484 | | 31 | 36 | 48 | 48 | 48 | 48 | 48 | 48 | 48 | 48 | 18 | 12 | |
| Total - Outlay equiv. est. (\$mils) | 753 | | 48 | 57 | 75 | 75 | 75 | 75 | 75 | 75 | 75 | 75 | 28 | 19 | |

7. Small scale irrigation power

No data available with which to make an estimate. Do not expect tax losses to be particularly large for this power source though.

Notes to Estimates for All Energy Sources:

- (1) Existing biomass (closed- or open-loop) and wind facilities may get the tax credit. For all other categories, only new facilities are eligible.
- (2) Tax credits are exempt from alternative minimum tax considerations for the first 4 years of eligibility. In year 5, or years 5-10 (depending on the eligibility period), realized tax benefits may decline somewhat, although estimating the size of impact was not possible.
- (3) Prior reductions in tax credits for facilities using government grant or loan subsidies have been greatly reduced.
- (4) Because tax credits can flow to the facility operator or lessee, ownership of generating plant by tax-exempt entities would not preclude receipt of tax credits.

Sources to Estimates for All Energy Sources:

- (1) Estimated power production data from U.S. Energy Information Administration, *Annual Energy Outlook 2004*, preliminary release, December 16, 2003. Table 17: "Renewable Energy Generating Capacity and Generation," Reference Case.
- (2) Historical data on wind power from "Table B1: Historical Renewable Energy Consumption by Energy Use Sector and Energy Source, 1989-2002," in U.S. EIA, *Renewable Energy Annual 2002*, November 2003.
- (3) Detailed data used to estimate subsidies to facilities relying in part on biomass fuels from "Table B5: Net Generation and Fuel Consumption at Power Plants Consuming Coal and Biomass by State and Plant Name, 2001," in U.S. EIA, *Renewable Energy Annual 2002*, November 2003.
- (4) Data on tax credit eligibility, rates, and duration from S. 2095 as published Feb. 12, 2004.