

CHAPTER 8

8.0 LITERATURE CITED

- Alliance to Save Energy. 2010. About Green Schools.
<http://ase.org/section/program/greenschl/aboutgs>. Accessed June 1, 2010.
- America's Energy Future Panel on Electricity from Renewable Resources (AEFPERR). 2009. Electricity from Renewable Resources: Status, Prospects, and Impediments. National Academies Press, Washington, D.C.
- Armendariz, A. 2009. Emissions from Natural Gas Production in the Barnett Shale Area and Opportunities for Cost-Effective Improvements, Version 1.1. Available at [http://edf.org/documents/9235 Barnett Shale Report.pdf](http://edf.org/documents/9235_Barnett_Shale_Report.pdf).
- Arnett, E. B., D. B. Inkley, D. H. Johnson, R. P. Larkin, S. Manes, A. M. Manville, J. R. Mason, M. L. Morrison, M. D. Strickland, and R. Thresher. 2007. Impacts of Wind Energy Facilities on Wildlife and Wildlife Habitat. Technical Review 07-2. The Wildlife Society, Bethesda, MD.
- Augustine, C., and K. R. Young. 2010. Updated U.S. Geothermal Supply Curve. Conference Paper NREL/CP-6A2-47458, National Renewable Energy Laboratory, Golden, CO.
- Baerwald, E. F., G. H. D'Amours, G. J. Klug, and R. M. R. Barclay. 2008. Barotrauma Is a Significant Cause of Bat Fatalities at Wind Turbines. *Current Biology* 18:R695-R696, doi:10.1016/j.cub.2008.06.029.
- Baskin, J. M. and C. C. Baskin. 2003. The Vascular Flora of Cedar Glades of the Southeastern United States and Its Phytogeographical Relationships. *Journal of the Torrey Botanical Society* 130: 100-117.
- Bendat, J. S., and A. G. Piersol. 1986. Random Data –Analysis and Measurement Procedures, 2nd Edition, John Wiley & Sons, Inc., New York, NY, pp. 95-97.
- Bohac, C. E., and M. J. McCall. 2008. Water Use in the Tennessee Valley for 2005 and Projected Use in 2030. Tennessee Valley Authority, Chattanooga, TN.
- Bradley, M., and J. Robinson. 2009. Personal communication of 2005 groundwater withdrawal data for public-water supply in Tennessee, July 2.
- Bureau of Census. 1989. 1987 Census of Agriculture, Vol. 1, Geographic Area Series. U.S. Dept. Commerce, Bureau of Census, Washington, D.C.
- _____. 2000a. Census 2000 Summary File 1 (SF 1) 100-Percent Data, Detailed Tables. Retrieved from http://factfinder.census.gov/servlet/DTGeoSearchByListServlet?ds_name=DEC_2000_SF1_U&lang=en&ts=285869678994. Accessed May 5, 2010).

- _____. 2009. 2008 County Characteristics - Age, Sex, Race, and Hispanic Origin. Retrieved from <http://www.census.gov/popest/counties/asrh/>. Accessed April 21, 2010.
- _____. 2010. 2009 County Total Population Estimates. Retrieved from <http://www.census.gov/popest/estimates.html>. Accessed May 5, 2010.
- Bureau of Land Management. 2005. Final Programmatic Environmental Impact Statement on Wind Energy Development on Bureau of Land Management-Administered Lands in the Western United States. FES 05-11, U.S. Department of the Interior, Bureau of Land Management. Available online: <http://windeis.anl.gov/documents/fpeis/index.cfm>.
- Burt, D. 2009. Personal communication of 2004 groundwater withdrawal data for public-water supply in Mississippi, June 23.
- Center for Resource Solutions. 2010. Green-e Energy. http://www.green-e.org/getcert_re.shtml. Accessed June 1, 2010.
- Charlson, R. J., and H. Rodhe. 1982. Factors Controlling the Acidity of Natural Rainwater. *Nature* 295:683-685.
- Christensen, J. H., B. Hewitson, A. Busuioc, A. Chen, X. Gao, I. Held, R. Jones, R. K. Kolli, W. T. Kwon, R. Laprise, V. Magana Rueda, L. Mearns, C. G. Menendez, J. Raisanen, A. Rinke, A. Sarr, and P. Whetton. 2007. Regional Climate Projections. Pp.847-940 In *Climate Change 2007: The Physical Science Basis; Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*, Solomon, S.; D. Qin, M. Manning, Z. Chen, M. Marquis, K.B. Averyt, M. Tignor, and H.L. Miller, Eds. Cambridge University Press, Cambridge, United Kingdom and New York.
- Conner, A. M., J. E. Francfort, and B. N. Rinehart. 1998. U.S. Hydropower Resource Assessment Final Report. DOE/ID-10430.2, Idaho National Engineering and Environmental Laboratory, U.S. Department of Energy, Idaho Falls, ID. Available at <http://hydropower.id.doe.gov/resourceassessment/index.shtml>. Accessed July 13, 2010.
- Conner, R.C., and A. J. Hartsell. 2002. Forest Area and Conditions. Pp. 357-402 *In* Wear, D.N., and J.G. Greis (eds.). *Southern Forest Resource Assessment*. Gen. Tech. Rep. SRS-53, U.S. Forest Service, Southern Research Station, Asheville, NC.
- Cowardin, L. M., V. Carter, F. C. Golet, and E. T. LaRoe. 1979. *Classification of Wetland and Deepwater Habitats of the United States*. Washington, D.C.: U.S. Fish and Wildlife Publication FWS/OBS-79/31.
- Council of Environmental Quality (CEQ). 2010. Draft NEPA Guidance on Consideration of the Effects of Climate Change and Greenhouse Gas Emissions. http://ceq.hss.doe.gov/nepa/regs/Consideration_of_Effects_of_GHG_Draft_NEPA_Guidance_FINAL_02182010.pdf

- Cushman, R. M. 1985. Review of Ecological Effects of Rapidly Varying Flows Downstream from Hydroelectric Facilities. *N. Amer. J. Fisheries Management* 5:330–339.
- Dahl, T. E. 2000. Status and Trends of Wetlands in the Conterminous United States 1986 to 1997. U.S. Department of the Interior, Fish and Wildlife Service, Washington, D.C.
- _____. 2006. Status and Trends of Wetlands in the Conterminous United States 1998 to 2004. U.S. Department of the Interior; Fish and Wildlife Service, Washington, D.C.
- Dale, V. H., K. L. Kline, J. Wiens, and J. Fargione. 2010. Biofuels: Implications for Land Use and Biodiversity. *Biofuels and Sustainability Reports*, Ecological Society of America. Available at <http://www.esa.org/biofuelsreports>.
- Denholm, P., and G. L. Kulcinski. 2004. Life-cycle Energy Requirements and Greenhouse Gas Emissions from Large Scale Energy Storage Systems. *Energy Conversion and Management* 45:2153-2172.
- _____ and R. Margolis. 2007. The Regional Per-Capita Solar Electric Footprint for the United States. Technical Report NREL/TP-670-42463. National Renewable Energy Laboratory, U.S. Department of Energy, Golden, Colorado.
- _____ and R. Margolis. 2008. Land-use Requirements and the Per-capita Solar Footprint for Photovoltaic Generation in the United States. *Energy Policy* 36:3531-3543.
- _____, M. Hand, M. Jackson, and S. Ong. 2009. Land-use Requirements of Modern Wind Power Plants in the United States. National Renewable Energy Laboratory Tech. Rep. NRWL/TP-6A2-45834.
- Dyer, J. M. 2006. Revisiting the Deciduous Forests of Eastern North America. *Bioscience* 56: 341-352.
- Elliott, D. L., C.G. Holladay, W.R. Barchet, H.P. Foote, and W.F. Sandusky. 1986. Wind Energy Resource Atlas of the United States. Pacific Northwest Laboratory, Richland, Washington. Available at http://rredc.nrel.gov/wind/pubs/atlas/atlas_index.html.
- Electric Power Research Institute (EPRI). 2002. Water and Sustainability (Volume 2): An Assessment of Water Demand, Supply, and Quality in the U. S. – The Next Half Century, 1006785. Topical Report, Palo Alto, California.
- _____. 2009. Program on Technology Innovation: Utility Scale Use of Biomass. Report 1018661, EPRI, Palo Alto, California.
- _____. 2010. Renewable Energy Technology Guide-RETG: 2009. Report 1021379, EPRI, Palo Alto, California.
- _____ and Tennessee Valley Authority. 2009. Potential Impact of Climate Change on Natural Resources in the Tennessee Valley Authority Region. Report 1020420, EPRI, Palo Alto, California, and TVA, Knoxville, Tennessee.

- Environmental Protection Agency (EPA). 1995. AP-42 Compilation of Air Pollutant Emission Factors, Vol. I, fifth ed. Available at <http://www.epa.gov/ttnchie1/ap42/>.
- _____. 2001. Visibility in Mandatory Federal Class I Areas (1994-1998), A Report to Congress. EPA-452/R-01-008, Research Triangle Park, North Carolina.
- _____. 2004. What You Need to Know about Mercury in Fish and Shellfish. Available at http://water.epa.gov/scitech/swguidance/fishshellfish/outreach/advice_index.cfm.
- _____. 2005. Mountaintop Mining/Valley Fills in Appalachia Final Programmatic Environmental Impact Statement. EPA 9-03-R-05002, Philadelphia. Available at <http://www.epa.gov/region3/mtntop/eis2005.htm>.
- _____. 2008a. SF6 Emission Reduction Partnership for Electric Power Systems: 2007 Annual Report. Available at <http://www.epa.gov/electricpower-sf6/resources/index.html>. Accessed October 31, 2009.
- _____. 2008b. Wetland types: Bottomland Hardwoods. Available at <http://www.epa.gov/owow/wetlands/types/bottomland.html>. Accessed June 8, 2009.
- _____. 2008c. Memorandum dated October 6, 2008 from Mark Schmidt to Lead NAAQS Review Docket. Available at <http://www.epa.gov/ttn/naaqs/standards/pb/data/20081006comparison.pdf>.
- _____. 2009a. Endangerment and Cause or Contribute Findings for Greenhouse Gases Under Section 202(a) of the Clean Air Act - Final Rule. Federal Register 74:66496-66546.
- _____. 2009b. Integrated Science Assessment for Particulate Matter (Second External Review Draft). EPA/600/R-08/139B Research Triangle Park, NC.
- _____. 2009c. 2007 Toxics Release Inventory (TRI) Public Data Release Report. EPA 260-R-09-001
http://www.epa.gov/TRI/tridata/tri07/brochure/EPA_TRI_Brochure_2007_mar.pdf
- Fannin, J. 2009. Personal communication of 2005 groundwater withdrawal data for public-water supply in Georgia, July 7.
- Federal Energy Regulatory Commission. 2008. Standards of Conduct for Transmission Providers. 18 CFR Part 358, Docket No. RM07-1-000; Order No. 717. Available at <http://www.ferc.gov/whats-new/comm-meet/2008/101608/M-1.pdf>.
- Fenneman, N. M. 1938. Physiography of the Eastern United States. McGraw-Hill, New York.
- Forster, P., V. Ramaswamy, P. Artaxo, T. Berntsen, R. Betts, D. W. Fahey, J. Haywood, J. Lean, D. C. Lowe, G. r Myhre, J. Nganga, R. Prinn, G. Raga, M. Schulz, and R. Van Dorland. 2007. Changes in Atmospheric Constituents and in Radiative Forcing. Pp. 129-234 In Climate Change 2007: The Physical Science Basis; Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change, Solomon, S.; D. Qin, M. Manning, Z. Chen, M. Marquis, K.B.

- Averyt, M. Tignor, and H.L. Miller, Eds. Cambridge University Press, Cambridge, United Kingdom and New York.
- Fthenakis, V., and H. C. Kim. 2007. Greenhouse-Gas Emissions from Solar Electric- and Nuclear Power: A Life-Cycle Study. *Energy Policy* 35:2549-2557.
- _____, H. C. Kim, and E. Alsema. 2008. Emissions from Photovoltaic Life-cycles. *Environ. Sci. Technol.* 42:2168-2174.
- _____ and H. C. Kim. 2009. Land Use and Electricity Generation: A Life-Cycle Analysis. *Renewable & Sustainable Energy Reviews* 13:1465-1474.
- Griffith, G.E., J. M. Omernik and S. Azevedo. 1998. Ecoregions of Tennessee (color poster with map, descriptive text, summary tables, and photographs). Reston, Virginia. US Geological Survey (map scale 1:250,000). Available at http://www.epa.gov/wed/pages/ecoregions/tn_eco.htm. Accessed May 15, 2009.
- Guthe, C. E. 1952. Twenty Five Years of Archeology in the Eastern United States. Pp. 1-2 *In* J. B. Griffin, ed., *Archeology of Eastern United States*. University of Chicago Press.
- Hall, D. G., K. S. Reeves, J. Brizzee, R. D. Lee, G. R. Carroll, and G. L. Sommers. 2006. Feasibility Assessment of the Water Energy Resources of the United States for New Low Power and Small Hydro Classes of Hydroelectric Plants. DOE-ID-11263, Office of Energy Efficiency and Renewable Energy, U.S. Department of Energy. Available at <http://hydropower.id.doe.gov/resourceassessment/index.shtml>. Accessed July 13, 2010.
- Hefner, J. M., B. O. Wilen, T. E. Dahl, and W. E. Frayer. 1994. Southeast Wetlands, Status and Trends. Cooperative Publication by United States Department of the Interior, Fish and Wildlife Service, and the U.S. Environmental Protection Agency.
- Hoerling, M., G. Hegerl, D. Karoly, A. Kumar, and D. Rind. 2008. Attribution of the Causes of Climate Variations and Trends over North America during the Modern Reanalysis Period. Pp. 47-92 *In* Reanalysis of Historical Climate Data for Key Atmospheric Features: Implications for Attribution of Causes of Observed Change; Dole, R.; Hoerling, M.; Schubert, S., Eds. A Report by the U.S. Climate Change Science Program and the Subcommittee on Global Change Research, National Oceanic and Atmospheric Administration, National Climatic Data Center, Asheville, NC.
- Hondo. H. 2005. Life-cycle GHG Emission Analysis of Power Generation Systems: Japanese Case. *Energy* 30:2042-2056.
- Hopping, P. N. 2010. Watts Bar Nuclear Plant, Unit 2 Response to RAI. H-14, Letter from Joel S. Wiebe, U.S. NRC Office of Nuclear Reactor Regulation, to Ashok S. Bhatnagar, U.S. TVA Office of Nuclear Generation Development and Construction; Subject—Watts Bar Nuclear Plant, Unit 2, Request for Additional Information Regarding Environmental Review (TAC No. MD8203); Docket No. 50-391. Tennessee Valley Authority, Knoxville, Tennessee.

- Huber, D., Z. Taylor, and S. Knudson. 2011. Environmental Impacts of Smart Grid. DOE/NETL-201-1428, National Energy Technology Laboratory, U.S. Department of Energy. Available at http://www.netl.doe.gov/energy-analyses/pubs/EnvImpact_SmartGrid.pdf. Accessed January 20, 2011.
- Interagency Monitoring of Protected Visual Environments (IMPROVE). 2007 Monitoring Results. Available at <http://vista.cira.colostate.edu/improve/>.
- James, R.J., T. J. Skone, L. C. Dauker, and R. Bromiley. 2010. Life Cycle Analysis: Natural Gas Combined Cycle (NGCC) Power Plant. DOE/NETL-403-110509. U.S. Department of Energy, National Energy Technology Laboratory. <http://www.netl.doe.gov/energy-analyses/refshelf/PubDetails.aspx?Action=View&PubId=353>. Accessed January 21, 2011.
- Jaramillo, P., W. M. Griffin, and H. S. Matthews. 2007. Comparative Life-Cycle Air Emissions of Coal, Domestic Natural Gas, LNG, and SNG for Electricity Generation. *Environ. Sci. Technol.* 41:6290-6296.
- Kargbo, D. M., R. G. Wilhelm, and D. J. Campbell. 2010. Natural Gas Plays in the Marcellus Shale: Challenges and Potential Opportunities. *Environ. Sci. Technol.* 44:5679-5684.
- Karl, T. R., J. M. Melillo, and T. C. Peterson, eds. 2009. *Global Climate Change Impacts in the United States*. Cambridge University Press, New York. Available at <http://www.globalchange.gov/publications/reports/scientific-assessments/us-impacts>. Accessed April 2, 2010.
- Kenny, J. F., N. L. Barber, S. S. Hutson, K. S. Linsey, J. K. Lovelace, and M. A. Maupin. 2009. Estimated Use of Water in the United States in 2005. U.S. Geological Survey Circular 1344. Available at <http://pubs.usgs.gov/circ/1344/>.
- Kim, S., and B. E. Dale. 2005. Life-cycle Inventory Information of the United States Electricity System. *Int. J. Life-cycle Assessment* 10:294-304.
- King, C. W. and Webber, M. E., 2008. The Water Intensity of the Plugged-In Automotive Economy, *Environmental Science and Technology* 42(12):4305–4311.
- Lanzante, J.R., T.C. Peterson, F.J. Wentz, and K.Y. Vinnikov. 2006. What Do Observations Indicate about the Change of Temperatures in the Atmosphere and at the Surface since the Advent of Measuring Temperatures Vertically? In *Temperature Trends in the Lower Atmosphere: Steps for Understanding and Reconciling Differences*; Karl, T.R.; Hassol, S.J.; Miller, C.D.; Murray, W.L., Eds. A Report by the U.S. Climate Change Science Program and the Subcommittee on Global Change Research, Washington, DC.
- Liepert, B. and I. Tegen. 2002. Multidecadal Solar Radiation Trends in the United States and Germany and Direct Tropospheric Aerosol Forcing. *J. Geophys. Res.* 107, D12,4153, doi:10.1029/2001JD000760.

- Littlepage, T. .2009. Personal communication of 2005 groundwater use data for Alabama, July 6.
- Mann, M. K., and P. L. Spath. 2001. A Life-cycle Assessment of Biomass Cofiring in a Coal-Fired Power Plant. *Clean Prod. Processes* 3:81-91.
- Martinez, E., F. Sanz, S. Pellegrini, E. Jimenez, and J. Blanco. 2009. Life-cycle Assessment of a 2-MW Rated Power Wind Turbine: CML Method. *Int. J. Life-cycle Assess.* 14:52-63.
- McDonald, R. I., J. Fargione, J. Kiesecker, W. M. Miller, and J. Powell. 2009. Energy Sprawl or Energy Efficiency: Climate Policy Impacts on Natural habitat for the United States of America. *PLoS ONE* 4:(8): e6802. Doi:10.1371/journal.pone.0006802.
- Meier, P. J. 2002. Life-Cycle Assessment of Electricity Generation Systems and Applications for Climate Change Policy Analysis. Fusion Technology Institute of University of Wisconsin, Madison.
- _____, and G. I. Kulcinski. 2000. Life-Cycle Energy Cost and Greenhouse Gas Emissions for Gas Turbine Power. Research Report 202-1, Energy Center of Wisconsin, Madison.
- Milbrandt, A. 2005. A Geographic Perspective on the Current Biomass Resource Availability in the United States. Tech. Report NREL/TP-550-39181, National Renewable Energy Laboratory, U.S. Department of Energy, Golden, CO.
- Miller, B. A., V. Alavian, M. D. Bender, D. J. Benton, L. L. Cole, L. K. Ewing, P. Ostrowski, et al. 1993. Sensitivity of the TVA Reservoir and Power Supply Systems to Extreme Meteorology. Tennessee Valley Authority, Engineering Laboratory, Report No. WR28-1-680-111.
- Miller, R. A. 1974. The Geologic History of Tennessee. Tennessee Div. Geology Bull. 74, Nashville.
- National Climatic Data Center (NCDC). 2008. U.S. Climate Normals, 1971-2000. U.S. Department of Commerce, National Climatic Data Center. <http://lwf.ncdc.noaa.gov/oa/climate/normal/usnormals.html>. Accessed November 18, 2009.
- National Energy Technology Laboratory (NETL). 2008. 2008 Carbon Sequestration Atlas of the United States and Canada, 2nd Edition. U.S. Department of Energy, Office of Fossil Energy, National Energy Technology Laboratory. http://www.netl.doe.gov/technologies/carbon_seq/refshelf/atlasII/. Accessed July 8, 2009.
- _____. 2010. Life Cycle Analysis: Power Studies Compilation Report. DOE/NETL-2010/1419, U.S. Department of Energy, National Energy Technology Laboratory. http://www.netl.doe.gov/energy-analyses/pubs/PowerLCA_Comp_Rep.pdf. Accessed January 21, 2011.

- National Renewable Energy Laboratory (NREL). 2009a. Dynamic Maps, GIS Data, and Analysis Tools - U.S. Solar Resource Maps. <http://www.nrel.gov/gis/solar.html>. Accessed December 22, 2009.
- _____. 2009b. Dynamic Maps, GIS Data, and Analysis Tools - Wind Maps. <http://www.nrel.gov/gis/wind.html>. Accessed January 20, 2010.
- _____. 2009c. Dynamic Maps, GIS Data, and Analysis Tools - Biomass Maps. <http://www.nrel.gov/gis/biomass.html>. Accessed January 20, 2010.
- _____. 2010a. New Wind Energy Resource Potential Estimates for the United States. http://www.windpoweringamerica.gov/wind_maps.asp. Accessed February 19, 2010.
- _____. 2010b. Eastern Wind Integration and Transmission Study. NREL, Golden, CO. Available at <http://www.nrel.gov/wind/systemsintegration/ewits.html>. Accessed July 29, 2010.
- National Invasive Species Council (NISC). 2008. 2008-2012 National Invasive Species Management Plan. U.S. Department of Interior, Washington, D.C. http://www.invasivespecies.gov/main_nav/mn_NISC_ManagementPlan.html. Accessed September 28, 2009.
- Natural Resources Conservation Service (NRCS). 2009a. National Soil Survey Handbook, Title 430-VI. U.S. Department of Agriculture, Natural Resources Conservation Service. Available at: <http://soils.usda.gov/technical/handbook/>. Accessed October 26, 2009.
- _____. 2009b. Web Soil Survey. Available at <http://soils.usda.gov/survey/>. Accessed October 26, 2009.
- NatureServe. 2009. NatureServe Explorer: An online encyclopedia of life [web application]. Version 7.1. NatureServe, Arlington, Virginia. Available at <http://www.natureserve.org/explorer>. Accessed 4 June 2009.
- North American Bird Conservation Initiative, U.S. Committee (NABCI). 2009. The State of the Birds, United States of America, 2009. U.S. Department of Interior: Washington, DC. 36pp. Available at http://www.stateofthebirds.org/pdf_files/State_of_the_Birds_2009.pdf. Accessed July 14, 2009.
- Nuclear Regulatory Commission. 2010. Advanced Reactors. <http://www.nrc.gov/reactors/advanced.html>. Accessed August 7, 2010.
- Oak Ridge National Laboratory. 1996. Potential Supply and Cost of Biomass from Energy Crops in the TVA Region. Publication No. 4306, Environmental Sciences Division, Oak Ridge National Laboratory, Oak Ridge, TN.
- Odeh, N. A., and T. T. Cockerill. 2008. Life-cycle GHG Assessment of Fossil Fuel Power Plants with Carbon Capture and Storage. Energy Policy 36:367-380.

- Olinger, D. E. and A. E. Howard. 2009. In the Beginning... Pp. 17-37 *In* E.E. Pritchard, ed., *TVA Archaeology: 75 Years of Prehistoric Site Research*. University of Tennessee Press, Knoxville.
- Omernik, J.M. 1987. Ecoregions of the Conterminous United States. Map (scale 1:7,500,000). *Annals of the Association of American Geographers* 77(1):118-125. Available at http://www.epa.gov/wed/pages/ecoregions/level_iii.htm#Ecoregions. Accessed: May 15, 2009.
- Paidipati, J., Frantzis, L., Sawyer H., Kurrasch, A., and Navigant Consulting, Inc. 2008. Rooftop Photovoltaics Market Penetration Scenarios. Subcontract Report NREL/SR-581-42306. National Renewable Energy Laboratory, U.S. Department of Energy, Golden, CO.
- Palmer, M. A., E. S. Bernhardt, W. H. Schlesinger, K. N. Eshleman, E. Foufoula-Georgiou, M. S. Hendryx, A. D. Lemly, G. E. Likens, O. L. Loucks, M. E. Power, P. S. White, and P. R. Wilcock. 2010. Mountaintop Mining Consequences. *Science* 327:148-149.
- Peel, M. C., B. L. Finlayson, B. L. and T. A. McMahon. 2007. Updated World Map of the Koppen-Geiger Climate Classification. *Hydrol. Earth Syst. Sci.* 11: 1633–1644.
- Pope, J. 2009. Personal communication of 2005 groundwater use data for Virginia, July 10.
- Pryor, S.C., R.J. Barthelmie, D.T. Young, E.S. Takle, R.W. Arritt, D. Flory, W.J. Gutowski Jr., A. Nunes, and J. Roads. 2009. Wind Speed Trends over the Contiguous United States. *J. Geophys. Res.*, 114, D14105, doi:10.1029/2008JD011416.
- Raichle, B. W., and W. R. Carson. 2008. Wind Resource Assessment of the Southern Appalachian Ridges in the Southeastern United States. *Renewable & Sustainable Energy Reviews* 13:1104-1110.
- Railroad Commission of Texas (RRC). 2010. Newark East (Barnett Shale) Statistics. <http://www.rrc.state.tx.us/data/fielddata/barnettshale.pdf>. Accessed February 18, 2011.
- Ricketts, T. H., E. Dinerstein, D. M. Olson, C. J. Loucks, W. Eichbaum, D. DellaSala, K. Kavanagh, P. Hedao, P. T. Hurley, K. M. Carney, R. Abell, and S. Walters. 1999. *Terrestrial Ecoregions of North America: A Conservation Assessment*. Island Press, Washington, D.C.
- Roosevelt, F. D. 1933. Message to Congress Suggesting the Tennessee Valley Authority, April 10, 1933. Available at <http://docs.fdrlibrary.marist.edu/odtvacon.html>. Accessed October 6, 2009.
- Smyth, R. C., S. D. Hovorka, T. Meckel, C. Breton, J. G. Paine, and G. R. Hill. 2007. Potential Sinks for Geologic Storage of Carbon Dioxide Generated in the Carolinas. Gulf Coast Carbon Center, University of Texas at Austin.

- Soeder, D. J., and W. M. Kappel. 2009. Water Resources and Natural Gas Production from the Marcellus Shale. USGS Fact Sheet 2009-3032, U.S. Geological Survey.
- Southern Appalachian Man and the Biosphere (SAMAB). 1996. The Southern Appalachian Assessment Terrestrial Technical Report. Report 5 of 5. Atlanta: U. S. Department of Agriculture, Forest Service, Southern Region 286pp.
- Sovacool, B. K. 2008. Valuing the greenhouse gas emissions from nuclear power: A critical survey. *Energy Policy* 36:2950-2963.
- Spath, P. L., M. K. Mann, and D. R. Kerr. 1999. Life-cycle Assessment of Coal-fired Power Production. Tech. Report NREL/TP-570-25119, National Renewable Energy Laboratory, U.S. Department of Energy, Golden, CO.
- _____, and M. K. Mann. 2000. Life-cycle Assessment of a Natural Gas Combined-Cycle Power Generation System. Tech. Report NREL/TP-570-27715, National Renewable Energy Laboratory, U.S. Department of Energy, Golden, CO.
- _____ and M. K. Mann. 2004. Biomass Power and Conventional Fossil Systems with and without CO₂ Sequestration - Comparing the Energy Balance, Greenhouse Gas Emissions and Economics. Tech. Report NREL/TP-510-32575, National Renewable Energy Laboratory, U.S. Department of Energy, Golden, CO.
- Spitzley, D. V., and D.A.Tolle. 2004. Evaluating Land-Use Impacts: Selection of Surface Area Metrics for Life-Cycle Assessment of Mining. *J. Industrial Ecology* 8:11-21.
- _____ and G. A. Keoleian. 2005. Life-cycle Environmental and Economic Assessment of Willow Biomass Electricity: A Comparison with Other Renewable and Non-Renewable Sources. Report No. CSS04-05R, Center for Sustainable Systems, Univ. Michigan, Ann Arbor, MI.
- Stanhill, G. and S. Cohen. 2005. Solar radiation changes in the United States during the twentieth century: evidence from sunshine duration measurements. *J. Climate* 18:1503-1512.
- Stein, B. A. 2002. Status of the Union: Ranking America's Biodiversity. NatureServe, Arlington, Virginia.
- _____, L. S. Kutner, G. A. Hammerson, L. L. Master, and L. E. Morse. 2000. State of the States: Geographic Patterns of Diversity, Rarity, and Endemism. In B. A. Stein, L. S. Kutner, and J. S. Adams, eds. *Precious Heritage: The Status of Biodiversity in the United States*. Oxford University Press, New York, New York.
- Tennessee Department of Environment and Conservation (TDEC). 2008. Final Year 2008 303(d) List. Division of Water Pollution Control, Tennessee Department of Environment and Conservation, Nashville.

- Tennessee Exotic Pest Plant Council (TEPPC). 2001. Invasive Exotic Pest Plants in Tennessee. Tennessee Exotic Pest Plant Council, Nashville. Available at http://www.tneppc.org/Invasive_Exotic_Plant_List/Invasive%20List%20Introduction.htm. Accessed December 18, 2009.
- Tennessee Ornithological Society (TOS). 2007. The Official List of the Birds of Tennessee. Available at http://www.tnbirds.org/TBRC/TBRC_checklist.html. Accessed 14 July, 2009.
- Tennessee Valley Authority. 1974. Final Environmental Statement, Bellefonte Nuclear Plant Units 1 and 2. Chattanooga, Tennessee.
- _____. 1995. Energy Vision 2020 Integrated Resource Plan Environmental Impact Statement. Chattanooga, Tennessee.
- _____. 1997. Final Environmental Impact Statement for the Bellefonte Conversion Project. Knoxville, Tennessee.
- _____. 1998. Red Hills Power Project - Final Environmental Impact Statement. Knoxville, Tennessee.
- _____. 2000. Addition of Electric Generation Peaking and Baseload Capacity at Greenfield Sites, Haywood County, Tennessee - Final Environmental Impact Statement. Knoxville, Tennessee.
- _____. 2001. Construction and Operation of Photovoltaic Facilities within the Tennessee Valley Power Service Territory - Final Generic Environmental Assessment. Knoxville, Tennessee.
- _____. 2001. Addition of Electric Generation Baseload Capacity in Franklin County, Tennessee - Final Environmental Impact Statement. Knoxville, Tennessee.
- _____. 2002. Final Supplemental Environmental Impact Statement for Operating License Renewal for the Brown Ferry nuclear Plant in Athens, Alabama. Knoxville, Tennessee.
- _____. 2003. Chip Mill Terminals on the Tennessee River - Final Environmental Impact Statement. Knoxville, Tennessee.
- _____. 2004. Reservoir Operations Study Final Programmatic Environmental Impact Statement. Knoxville, Tennessee.
- _____. 2005a. Wilson Hydro Plant Modernization of Hydroturbines - Final Environmental Assessment. Knoxville, Tennessee.
- _____. 2005b. 500-kV Transmission Line in Middle Tennessee - Final Environmental Impact Statement. Knoxville, Tennessee.
- _____. 2006. Installation of Flue Gas Desulfurization System at Kingston Fossil Plant - Final Environmental Assessment. Knoxville, Tennessee.

- _____. 2007a. Strategic Plan. Knoxville, Tennessee. Available at <http://www.tva.gov/stratplan/>.
- _____. 2007b. Adoption of PURPA Standards for Energy Conservation and Efficiency – Environmental Assessment. Knoxville, Tennessee.
- _____. 2007c. Completion and Operation of Watts Bar Nuclear Plant Unit 2, Rhea County, Tennessee - Final Supplemental Environmental Impact Statement. Knoxville, Tennessee.
- _____. 2008. Environmental Policy. Knoxville, Tennessee. Available at <http://www.tva.com/environment/policy.htm>.
- _____. 2008a. Supplemental Environmental Assessment For The Potential Upgrade Of The Tenaska Site For Establishing A Simple-cycle Or Combined-Cycle Electric Generation Facility. Knoxville, Tennessee.
- _____. 2009. Integrated Resource Plan Environmental Impact Statement Scoping Report. Knoxville, Tennessee. Available at <http://www.tva.com/environment/reports/irp/index.htm>.
- _____. 2008c. Bellefonte Nuclear Plant, Units 3&4, COL Application, Part 3, Environmental Report, Revision 1. Chattanooga, Tennessee.
- _____. 2010a. John Sevier Fossil Plant Addition of Gas-Fired Combustion Turbine/Combined-Cycle Generating Capacity and Associated Gas Pipeline - Environmental Assessment. Knoxville, Tennessee. Available at http://www.tva.com/environment/reports/johnsevier_ct/index.htm.
- _____. 2010b. Biggersville, Mississippi 161-Kilovolt Transmission Line - Provide Delivery Point - Environmental Assessment. Chattanooga, Tennessee. Available at <http://www.tva.gov/environment/reports/biggersville/index.htm>.
- _____. 2010c. Single Nuclear Unit at the Bellefonte Plant Site - Final Supplemental Environmental Impact Statement. Knoxville, Tennessee. Available at <http://www.tva.com/environment/reports/blnp/index.htm>.
- _____. 2010d. TVA's Mission and Values. Knoxville, Tennessee. Available at <http://www.tva.gov/abouttva/vision.htm>.
- Tennessee Wildlife Resources Agency (TWRA). 2005. Tennessee's Comprehensive Wildlife Conservation Strategy. TWRA, Nashville, Tennessee.
- _____. 2009. Climate Change and Potential Impacts to Wildlife in Tennessee: An update to Tennessee's State Wildlife Action Plan. Tennessee Wildlife Resources Agency, Nashville. Available at <http://www.state.tn.us/twra/cwcs/cwcsindex.html>.
- Thomas, R. K.; J.M. Melillo, and T.C. Peterson (eds.). 2009. Global Climate Change Impacts in the United States. Cambridge University Press, New York.

- Tillman, T. A. 2004. Draft Report: Biomass Resource Availability Characteristics in the Tennessee Valley Authority Area. D. A. Tillman and Associates, Easton, PA.
- Trenberth, K.E.; P.D. Jones, P. Ambenje, R. Bojariu, D. Easterling, A.K. Tank, D. Parker, F. Rahimzadeh, J.A. Renwick, M. Rusticucci, B. Soden, and P. Zhai. 2007. Observations: Surface and Atmospheric Climate Change. In *Climate Change 2007: The Physical Science Basis*; Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change, Solomon, S.; D. Qin, M. Manning, Z. Chen, M. Marquis, K.B. Averyt, M. Tignor, and H.L. Miller, Eds. Cambridge University Press, Cambridge, United Kingdom and New York.
- United Nations Environment Programme (UNEP) Chemicals Branch. 2008. The Global Atmospheric Mercury Assessment: Sources, Emissions and Transport. UNEP Chemicals, Geneva, Switzerland. Available at http://www.chem.unep.ch/mercury/Atmospheric_Emissions/Atmospheric_emissions_mercury.htm.
- U.S. Bureau of Economic Analysis (USBEA). 2010. Regional Economic Accounts. Retrieved from <http://www.bea.gov/regional/index.htm>. Accessed May 28, 2010.
- U.S. Climate Change Science Program (USCCSP). 2007. Scenarios of Greenhouse Gas Emissions and Atmospheric Concentrations (Part A) and Review of Integrated Scenario Development and Application (Part B). A Report by the U.S. Climate Change Science Program and the Subcommittee on Global Change Research [Clarke, L., J. Edmonds, J. Jacoby, H. Pitcher, J. Reilly, R. Richels, E. Parson, V. Burkett, K. Fisher-Vanden, D. Keith, L. Mearns, C. Rosenzweig, M. Webster (Authors)]. U.S. Department of Energy, Office of Biological & Environmental Research, Washington, DC.
- _____. 2008. Climate Models: An Assessment of Strengths and Limitations. A Report by the U.S. Climate Change Science Program and the Subcommittee on Global Change Research. [Bader D. C., C. Covey, W. J. Gutowski Jr., I. M. Held, K. E. Kunkel, R. L. Miller, R. T. Tokmakian and M. H. Zhang (Authors)]. U.S. Department of Energy, Office of Biological & Environmental Research, Washington, DC.
- U.S. Department of Agriculture (USDA). 2004. AgCensus – The U.S. Census of Agriculture 1987, 1992, 1997. Available at <http://agcensus.mannlib.cornell.edu/>. Accessed June 24, 2009 and October 6, 2009.
- _____. 2007. 2007 Census of Agriculture, Vol. 1, U.S. Summary and State Reports. http://www.agcensus.usda.gov/Publications/2007/Full_Report/index.asp. Accessed June 24, 2009 and October 6, 2009.
- _____. 2009. Summary Report: 2007 National Resources Inventory. Natural Resources Conservation Service, Washington, DC, and Center for Survey Statistics and Methodology, Iowa State University, Ames, Iowa. Available at http://www.nrcs.usda.gov/technical/NRI/2007/2007_NRI_Summary.pdf.

- U.S. Department of Energy (USDOE). 2007. FutureGen Project - Final Environmental Impact Statement. DOE/EIS-0394. Morgantown, W.V. Available at <http://www.netl.doe.gov/technologies/coalpower/futuregen/EIS/>.
- _____. 2009. Mesaba Energy Project - Final Environmental Impact Statement. DOE/EIS-0382. Pittsburgh, PA. Available at <http://nepa.energy.gov/1167.htm>.
- _____. 2010. Kemper County Integrated Gasification Combined-Cycle Project - Final Environmental Impact Statement. DOE/EIS-0409. Pittsburg, PA. Available at http://www.netl.doe.gov/technologies/coalpower/cctc/EIS/eis_kemper.html.
- U.S. Energy Information Administration. 2009. Emissions of Greenhouse Gases Report. U.S. Department of Energy. DOE/EIA-0573(2008), available at <http://www.eia.doe.gov/oiaf/1605/ggrpt/>.
- _____. 2010. State CO₂ Emissions. http://www.eia.doe.gov/oiaf/1605/state/state_emissions.html. Accessed February 1, 2011.
- _____. 2010b. Heat Content of Natural Gas Consumed. http://www.eia.gov/dnav/ng/ng_cons_heat_dcunusa.htm. Accessed January 25, 2011.
- U.S. Fish and Wildlife Service (USFWS). 2006. Routine Operations and Maintenance of TVA's Water Control Structures in the Tennessee River Basin - Biological Opinion. Log No. 42430-2006-F-0146, Cookeville, TN.
- _____. 2008. Birds of Conservation Concern 2008. United States Department of Interior, Fish and Wildlife Service, Division of Migratory Bird Management, Arlington, Virginia. Available at <http://www.fws.gov/migratorybirds/>.
- U.S. Geological Survey (USGS). 1996. Coal Fields of the Conterminous United States. USGS Open-File Report OF 96-92. Available at <http://pubs.usgs.gov/of/1996/of96-092/doc.htm>. Accessed December 16, 2009.
- _____. 2008. Land Cover Trends Project. Available at <http://landcover.trends.usgs.gov/main/resultsOverview.html>. Accessed May 28, 2009.
- U.S. Forest Service (USFS). 2010. Forest Inventory Data Online. Available at <http://fiatools.fs.fed.us/fido/index.html>. Accessed March 23, 2010.
- University of Tennessee (UT). 2008. Short Rotation Woody Crops for Biofuel. UT Agricultural Extension Station Publication SP702-C, Knoxville.
- Visibility Improvement State and Tribal Association of the Southeast (VISTAS). 2009. G4 Emissions Inventory. Available at http://www.metro4-sesarm.org/vistas/SesarmBF_Area.htm.

- Voigtlander, C. W., and W. L. Poppe. 1989. The Tennessee River. Pages 372-384 in D. P. Dodge, ed. Proc. International Large River Symposium, Canadian Journal of Fisheries and Aquatic Sciences Special Publication 106.
- Walker, T., P. Cardellichio, A. Colnes, J. Gunn, B. Kittler, R. Perschel, C. Recchia, and D. Saah. 2010. Biomass Sustainability and Carbon Policy Study. Manomet Center for Conservation Sciences, NCI-201--03. Available at <http://www.manomet.org/node/322>.
- Wiltsee, G. 2000. Lessons Learned from Existing Biomass Power Plants. NREL/SR--570-26946, National Renewable Energy Laboratory, U.S. Department of Energy, Golden, CO.
- White, S. W., and G. L. Kulcinski. 2000. Birth to death analysis of the energy payback ration and CO₂ gas emission rates from coal, fission, wind, and DT-fusion electrical power plants. Fusion Engineering and Design 48:473-481.
- Wood, R., P. Gilbert, M. Sharmina, K. Anderson, A. Footitt, S. Glynn, and F. Nicholls. 2011. Shale Gas: A Provisional Assessment of Climate Change and Environmental Impacts. Tech. Report, Tyndall Centre for Climate Change. Available at <http://www.tyndall.ac.uk/publications/technical-report/2011/shale-gas-provisional-assessment-climate-change-and-environmental>.
- Yeary, C. 2009. Personal communication of 2005 groundwater use data for Kentucky, July 10.
- Zoback, M., S. Kitasei, and B. Copithorne. 2010. Addressing the Environmental Risks from Shale Gas Development. Natural Gas and Sustainable Energy Initiative Briefing Paper 1, Worldwatch Institute. Available at <http://www.worldwatch.org/node/6421>.
- Zurawski, A. 1978. Ground-Water Resources of the United States, Tennessee Region. USGS Professional Paper 813-F.

CHAPTER 9

9.0 LIST OF PREPARERS

John T. Baxter

Education: M.S. and B.S., Zoology

Experience: 21 years in protected aquatic species monitoring, habitat assessment, and recovery; 13 years in environmental review

Role: Aquatic Ecology, Threatened and Endangered Species

J. Markus Boggs

Education: M.S., Hydrology; B.S., Geophysics

Experience: 37 years in hydrologic investigation and analysis for environmental and engineering applications

Role: Groundwater

Charles E. Bohac, P.E.

Education: Ph.D., M.S., and B.S., Civil Engineering

Experience: 36 years in water resource investigations, water quality analysis, waste treatment and disposal system design, groundwater supply and contamination analysis, and hydro and fossil power plant engineering

Role: Water Supply

Gary S. Brinkworth, P.E.

Education: M.S. and B.S., Electrical Engineering

Experience: 28 years of electric utility experience in system planning, DSM analysis, forecasting, and rate analysis

Role: Need for power, capacity expansion, production cost and financial modeling; stochastic and risk analysis

Lawrence A. Cole

Education: B.S., Electrical Engineering

Experience: 3 years experience as field engineer, 24 years in TVA power control center including 4 years in day ahead generation planning. 1 year experience long term power supply planning. NERC Certified System Operator.

Role: IRP preparation

Edward L. Colston

Education: B.S., Mechanical Engineering

Experience: 30 years in demonstration, design, implementation, and measurement of energy efficiency and demand response programs

Role: Input on energy efficiency and demand response (EEDR) program accomplishments, current programs, and program plans.

Patricia B. Cox

Education: Ph.D., Botany (Plant Taxonomy and Anatomy); M.S. and B.S., Biology

Experience: 31 years in plant taxonomy at the academic level; 7 years in environmental assessment and NEPA compliance

Role: Threatened and Endangered Species, Terrestrial Ecology

Integrated Resource Plan

Russell E. Dotson, CPA

Education: M.B.A.; B.S., Accounting and Finance

Experience: 9 years in accounting, compliance, and financial reporting and analysis

Role: IRP preparation, metric development, portfolio scoring

L. Suzanne Fisher

Education: M.S., Environmental Health; B.S., Ecology and Evolutionary Biology

Experience: 11 years in Assessments of Environmental Health and Ecological Trends

Role: Greenhouse Gas Emissions, Climate Change

Nicholas D. Galle (Sargent & Lundy)

Education: Masters of Energy Engineering; B.S., Chemical Engineering

Experience: 10 years in energy industry and business management consulting

Role: Need for Power analysis

B. J. Gatten

Education: B. S. in Communications, MBA in Marketing

Experience: 25 years in communications, including issues management, advertising, crisis communications, and public participation

Role: IRP and EIS review, project media relations

Steven M. Gilbert (ScottMadden)

Education: B.S., Mechanical Engineering; M.S., Management and Engineering

Experience: 3 years consulting experience in utility system planning

Role: Scenario planning development; summarizing and communicating results to internal/external stakeholders

Jill Glenn

Education: B.B.A., Marketing; M.B.A., Marketing

Experience: 2 years of experience in project management, including TVA integrated resource planning, distributed generation and green power pricing programs. 5 years experience working in TVA Supply Chain.

Role: Project manager of IRP communications

Jaun E. Gonzalez

Education: B.A., Economics, Political Science, and Mathematics M.A., Economics

Experience: 32 years of experience in TVA economic forecasting and economic development. Previous experience includes research in economic forecasting and utility economics at the University of Florida.

Role: Economic impact analysis

James R. Hagerman, P.E.

Education: M.S. and B.S., Agricultural Engineering

Experience: 21 years in nonpoint source pollution and water quality

Role: Water Quality

David A. Hankins

Education: B.S., Fish and Wildlife Management

Experience: 30 years in geographic information and engineering

Role: Map Preparation

Heather M. Hart

Education: M.S., Environmental Science and Soils; B.S., Plant and Soil Science
Experience: 8 years in surface water quality and soil and groundwater Investigations; 6 years in environmental reviews
Role: Parks, managed areas, and ecologically significant sites

Travis Hill Henry

Education: M.S., Zoology; B.S., Wildlife Biology
Experience: 22 years in zoology and endangered species; 15 years in NEPA compliance
Role: Terrestrial Ecology, Threatened and Endangered Species

Randall E. Johnson, PE

Education: MS, Engineering Management; BS, Civil Engineering; Registered Professional Engineer
Experience: 34 years engineering and project management experience in the areas of fuel handling, combustion and quality control; environmental control systems and balance of plant systems
Role: Integrated Resource Plan project manager

Scott C. Jones, PE

Education: BS, Electrical Engineering, Professional Engineer in Tennessee
Experience: 20 years TVA experience in nuclear systems engineering, resource planning, price forecasting, and financial analysis
Role: Integrated expansion, production cost, and financial modeling. Application of stochastic and risk analysis.

P. Alan Mays

Education: B.S., Plant and Soil Science
Experience: 33 years in soil-plant-atmospheric studies
Role: Prime Farmland

Randy McAdams (ScottMadden)

Education: B.S., Management Science; M.B.A.
Experience: 28 years as a management consultant; the last 23 in the electric utility industry with consulting to over 50 utilities
Role: IRP team member and subject matter expert on integrated resource planning, strategy development, and scenario planning.

Alisha Spears Mulkey

Education: B.S., Environmental and Soil Sciences
Experience: 4 years in land and resource management, 2 years in environmental policy
Role: IRP and EIS preparation, development of strategic environmental metrics

Charles P. Nicholson

Education: PhD, Ecology and Evolutionary Biology; MS, Wildlife Management; BS, Wildlife and Fisheries Science
Experience: 15 years in NEPA compliance, 17 years in wildlife and endangered species management
Role: NEPA compliance and EIS preparation

Integrated Resource Plan

W. Chett Peebles, RLA; ASLA

Education: Bachelor of Landscape Architecture

Experience: 22 years in site planning, design, and scenic resource management; 5 years in architectural history and historic preservation

Role: Historic Architectural Resources

Kim Pilarski

Education: M.S., Geography, Minor Ecology

Experience: 15 years in wetlands assessment and delineation

Role: Wetlands

Erin E. Pritchard

Education: M.A., Anthropology

Experience: 13 years in archaeology and cultural resource management

Role: Cultural Resources

Edward A. Stephens, Jr.

Education: MS, Engineering Science and Mechanics; BS, Engineering Science

Experience: 35 years in the electric power industry; 30 years in research and development on generation, environmental control, and renewable energy technologies

Role: Carbon sequestration potential, electric power generation technical support

Ryan M. Swanson (Sargent & Lundy)

Education: BS and MS in Mechanical Engineering

Experience: 2 years in energy research and development

Role: Energy Alternatives analysis

Tommy R. Thompson

Education: B.S., M.S., Mechanical Engineering

Experience: 35 years in power plant systems design

Role: IRP preparation

Christopher D. Ungate (Sargent & Lundy)

Education: M.B.A; B.S., M.S., Civil Engineering

Experience: 35 years in engineering, planning, management and consulting in the electric utility industry

Role: Preparation of IRP chapters on Need for Power, Energy Alternatives, and IRP Results

Cassandra L. Wylie

Education: M.S., Forestry and Statistics; B.S., Forestry

Experience: 22 years in air quality analyses and studying the effects of air pollution on forests

Role: Air Quality

Courtne E. Yetter

Education: B.S., Environmental and Soil Science

Experience: Recent graduate

Role: IRP preparation and editing, project coordination

Michael J. Young, Jr.

Education: B.S., M.S., Business Administration

Experience: 3 years in TVA system planning, 3 years in TVA risk management and economic analysis

Role: Capacity expansion modeling and data analysis

CHAPTER 10

10.0 LIST OF AGENCIES, ORGANIZATIONS, AND PERSONS TO WHOM COPIES ARE SENT

Federal Agencies

USDA Forest Service, Region 8, Atlanta, GA
U.S. Environmental Protection Agency, Washington, DC
U.S. Environmental Protection Agency, Region 4, Atlanta, GA
Department of Interior, Atlanta, GA
U.S. Fish and Wildlife Service, Southeast Region Office, Atlanta, GA
U.S. Fish and Wildlife Service, Frankfort, KY
U.S. Fish and Wildlife Service, Asheville, NC
U.S. Fish and Wildlife Service, Abingdon, VA
U.S. Fish and Wildlife Service, Cookeville, TN
U.S. Fish and Wildlife Service, Gloucester, VA
U.S. Fish and Wildlife Service, Daphne, AL
U.S. Fish and Wildlife Service, Athens, GA
U.S. Army Corps of Engineers, Savannah District
U.S. Army Corps of Engineers, Nashville District
U.S. Army Corps of Engineers, Memphis District
U.S. Army Corps of Engineers, Wilmington District
U.S. Army Corps of Engineers, Vicksburg District
U.S. Army Corps of Engineers, Mobile District
Economic Development Administration, Atlanta, GA
Advisory Council on Historic Preservation

State Agencies

Alabama

Department of Agriculture and Industries
Department of Conservation and Natural Resources
Department of Economic and Community Affairs
Department of Environmental Management
Department of Transportation
Alabama Historic Commission
Top of Alabama Regional Council of Governments
North-Central Alabama Regional Council of Governments
Northwest Alabama Council of Local Governments

Georgia

Georgia State Clearinghouse
Historic Preservation Division

Kentucky

Department for Local Government
Department for Environmental Protection
Energy and Environment Cabinet
Department for Energy Development and Independence
Department for Natural Resources
Kentucky Heritage Council

Mississippi

Northeast Mississippi Planning and Development District
Department of Finance and Administration
Department of Environmental Quality
Department of Wildlife, Fisheries, and Parks
Historic Preservation Division

North Carolina

North Carolina State Clearinghouse
Office of Archives and History

Tennessee

Department of Environment and Conservation
Division of Water Pollution Control
Division of Air Pollution Control
Division of Natural Heritage
Division of Ground Water Protection
Division of Water Supply
Division of Solid Waste Management
Department of Economic and Community Development
Tennessee Historical Commission
Tennessee Wildlife Resources Agency
First Tennessee Development District
East Tennessee Development District
Southeast Tennessee Development District
Upper Cumberland Development District
South Central Tennessee Development District
Greater Nashville Regional Council
Southwest Tennessee Development District
Memphis Area Association of Governments
Northwest Tennessee Development District

Virginia

Office of Environmental Review
Department of Historic Resources

Federally Recognized Tribes

Cherokee Nation
Eastern Band of Cherokee Indians
United Keetoowah Band of Cherokee Indians in Oklahoma
The Chickasaw Nation
Muscogee (Creek) Nation of Oklahoma
Poarch Band of Creek Indians
Alabama-Coushatta Tribe of Texas
Alabama-Quassarte Tribal Town
Kialegee Tribal Town
Thlopthlocco Tribal Town
Choctaw Nation of Oklahoma
Jena Band of Choctaw
Mississippi Band of Choctaw

Seminole Tribe of Florida
Seminole Nation of Oklahoma
Absentee Shawnee Tribe of Oklahoma
Eastern Shawnee Tribe of Oklahoma
Shawnee Tribe

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Mark Sharp, Nashville, TN
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Chapter 10 - List of Agencies, Organizations, and Persons to Whom Copies are Sent

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Bill Watkins, Loudon, TN

Lloyd Webb, Cleveland, TN
Howard Weinberg, New York, NY
Kenneth Wilson
Martha and Glen Wilson, Brentwood, TN
L. B. Windley
Tom Winters, Columbia, TN
Evelyn Winther, Knoxville, TN
Wally Witmer, Memphis, TN
Shane Womack, Chattanooga, TN
Jeff Wood, Franklin, TN
Linda Woodcock, Huntsville, AL
Deborah Woolley, Nashville, TN
Louise Zeller, Glendale Springs, NC

11.0 GLOSSARY, ACRONYMS, AND ABBREVIATIONS

Acid Deposition - The deposition of wet or dry acidic chemical compounds from the atmosphere on land or water. Sometimes known as acid rain.

Base Load - The minimum electrical load over a given period of time. It is typically met by large generating plants, often coal-fueled or nuclear, that run continuously at full capacity.

BFN - Browns Ferry Nuclear Plant.

BLN - Bellefonte Nuclear Plant.

BTU - British Thermal Unit, a commonly used unit of energy, especially for fuels or heat. A kilowatt-hour (kWh) is equal to 3412 BTU. MMBTU (or mmBTU) is frequently used to represent one million BTUs.

Capacity - The amount of electric power that can be delivered by a generating unit or electric system, as determined by the manufacturer's nameplate rating or by testing. It is typically expressed in MW.

Capacity Factor - A standard for measuring power plant performance, expressed as the ratio in percent, of a plant's actual output to its maximum potential output.

CCP - Coal Combustion Product, a term for the ash, slag, scrubber waste, and other solids produced by burning coal.

CH₄ - Methane

CO - Carbon monoxide.

CO₂ - Carbon dioxide.

CO₂-eq - Carbon Dioxide Equivalent, the amount of a carbon dioxide that would have the same global warming potential as a given amount of another greenhouse gas.

CCS - Carbon Sequestration and Storage, the capture and permanent storage of CO₂ from large stationary sources.

CEQ - Council on Environmental Quality.

C.F.R. - Code of Federal Regulations.

Cogeneration - The production of electricity and useful thermal energy from a single fuel source. Also known as combined heat and power.

CAES - Compressed Air Energy Storage, an energy storage system that compresses air and stores it underground during periods of low electrical loads. During periods of high electrical loads, the compressed air is released to drive natural gas-fired combustion turbine generators to produce electricity.

CC - Combined Cycle, a generating plant that combines a simple cycle combustion turbine and a heat recovery steam generator, which uses the exhaust heat from the combustion turbine to generate steam which in turn drives a steam turbine-generator. The combustion turbine also drives a generator.

CT - Combustion Turbine, a turbine, typically fueled by natural gas or fuel oil, that drives a turbine and generator to produce electricity.

DEIS - Draft environmental impact statement.

Demand - The amount of electric energy used at a specific point in time.

Demand Response - See Energy Efficiency and Demand Response.

Demand-Side Management - Activities and programs designed to reduce the use of electricity; a synonym for Energy Efficiency and Demand Response.

Demand-Side Resource - An activity that can be used to reduce customer energy demand.

Derate - Lowering the capacity of a generating unit due to factors such as age, loss of reliability, or lack of adequate cooling capacity.

Distributor - A company that usually buys wholesale electricity from a provider and delivers it to individual industrial, commercial, and residential customers.

DO - Dissolved oxygen.

DOE - U.S. Department of Energy.

Ecoregion - A geographic area with characteristic, distinct assemblages of natural communities and species.

EIS - Environmental impact statement.

Energy - The amount of power consumed over a period of time, measured in watt hours.

EEDR - Energy Efficiency and Demand Response, measures to reduce overall electricity consumption without degrading the services provided (energy efficiency) or to shift the use of electricity from high demand to low demand times (demand response).

EPA - Environmental Protection Agency.

EPRI - Electric Power Research Institute.

ESA - Endangered Species Act.

EV2020 - The 1995 TVA *Energy Vision 2020* Integrated Resource Plan and Environmental Impact Statement.

FERC - Federal Energy Regulatory Commission.

FGD - Flue Gas Desulfurization, a technique for removing sulfur dioxide from the flue gas of a coal-fired power plant by using limestone or related compounds. Also known as a scrubber.

Gasification - The process of converting a typically solid fuel such as coal or biomass to a fuel gas.

GHG - Greenhouse Gases, gases whose presence in the upper atmosphere contribute to the greenhouse effect by allowing visible light to pass through the atmosphere while preventing heat radiating back from Earth to escape.

GW - Gigawatt, an amount of energy equal to 1,000 megawatts or 1 billion watt-hours.

GWh - Gigawatt Hour, an amount of energy equal to 1,000 megawatt-hours or 1 billion watt-hours.

GWP - Global Warming Potential, a measure of the potential for a given amount of a greenhouse gas to contribute to global warming.

HAP, Hazardous Air Pollutant, air pollutants that are not covered by ambient air quality standards but that are known or suspected to cause adverse or environmental effects

Hazardous Waste - A waste that poses substantial or potential threats to public health or the environment due to its ignitability, corrosivity, toxicity, or reactivity, or are listed as hazardous by regulation.

High-Level Waste - Highly radioactive waste consisting primarily of spent (used) nuclear fuel.

Highly Enriched Uranium - Uranium containing 20 percent or more of the uranium-235 isotope and typically used in nuclear weapons, in fast neutron reactors, or to produce medical isotopes. It can be blended with low-enriched uranium for use in commercial nuclear power plants.

HRSG - Heat Recovery Steam Generator, a component of a combined cycle plant that produces steam from the heat in combustion turbine exhaust.

HVAC - Heating, ventilation, and air conditioning.

Insolation - Solar radiation (sunshine).

IGCC - Integrated Gasification Combined Cycle, a generating facility combining a coal gasification plant, which converts coal into a synthetic fuel gas, and a combined cycle generating plant. IGCC plants may also be fueled with biomass.

Integrated Resource Planning - A utility planning process that evaluates a full range of supply-side and demand-side resources to reliably and cost-effectively meet the future energy needs of customers.

Intermediate Resource - A generating plant that is used to fill the gap in generation between base load and peaking needs and can change its output as energy demand increases and decreases over time. Typical intermediate resources include combined cycled plants and smaller coal plants.

Interruptible Power - A type of demand-side management in which TVA has contractual rights with a customer to turn off the power when overall demand is high in return for a lower electricity price to the customer.

IPCC - International Panel on Climate Change.

IRP - Integrated Resource Plan.

JSF - John Sevier Fossil Plant.

kV - Kilovolt, one thousand volts

KWh - Kilowatt Hours, an amount of energy equal to 1 thousand watt-hours.

Load - The amount of electricity that is drawn from the TVA system at a given point in time.

Load Shape - The time-of-use of electricity consumption, typically for a 24-hour daily or 8,760-hour annual period.

Low-Level Waste - Trash and other materials that are slightly to moderately contaminated with radioactive material or have become radioactive through exposure to neutron radiation.

MACT - Maximum Achievable Control Technology, an emission standard for air pollutants not covered by the National Ambient Air Quality Standards that requires the maximum degree of emission reduction that the Environmental Protection Agency determines to be achievable.

MBtu - One million BTUs

MW - Megawatt, the amount of power equal to 1,000 kilowatts or 1,000,000 watts.

MWh - Megawatt Hour, an amount of energy equal to 1 thousand KWh or 1 million watt-hours.

MGD - Million gallons per day

NAAQS - National Ambient Air Quality Standards, uniform national air quality standards established by the Environmental Protection Agency that restrict ambient levels of certain pollutants to protect public health or public welfare.

NEPA - National Environmental Policy Act.

NERC - North American Electric Reliability Corporation.

Non-attainment Area - A geographic area that does not meet one or more of the National Ambient Air Quality Standards for criteria air pollutants.

NOx - Nitrogen oxide or nitrous oxide.

NPDES - National Pollutant Discharge Elimination System

NRC - Nuclear Regulatory Commission

NREL - National Renewable Energy Laboratory

NRHP - National Register of Historic Places.

NWS - National Weather Service

PC - Pulverized Coal, a type of coal-fired generating plant in which finely ground pulverized coal is injected into the boiler.

PM - Particulate Matter, typically expressed as PM₁₀, airborne particulate matter less than 10 micrometers in diameter, and PM_{2.5}, particulate matter less than 2.5 micrometers in diameter.

Peak Load - The maximum load experienced during a given period of time (often a day). It is often met by generating plants that can rapidly change the amount of electricity they generate, such as combustion turbines, conventional hydroelectric generation, and energy storage facilities.

PPA - Power Purchase Agreement, a contractual right to the capacity and output of generating facilities not owned by TVA.

PVRR - Present Value of Revenue Requirements, the current value of the total expected future revenue requirements associated with a particular resource portfolio.

PSH - Pumped Storage Hydro, a hydroelectric plant consisting of two reservoirs at different elevation connected by an underground tunnel or pipes, and a reversible pump/generator unit. When demand for electricity is low, water from the lower reservoir is pumped to the upper reservoir. When demand is high, water is released from the upper reservoir to generate electricity.

PURPA - Public Utility Regulatory Policies Act.

PV - Photovoltaic, a method of generating electricity by converting solar energy into direct current electricity using semiconductors, typically embedded in flat panels.

SCPC - Supercritical Pulverized Coal, a more modern and efficient version of a pulverized coal plant in which the boiler operates at supercritical pressures of more than 3,200 pounds per square inch.

Scrubber - See Flue Gas Desulfurization.

Scrubber Sludge - The effluent from a scrubber (flue gas desulfurization system) composed mostly of calcium sulfate. It is typically stored in a landfill or, as synthetic gypsum, used in making wallboard.

SCR - Selective Catalytic Reduction, a method of reducing emissions of nitrogen oxides by using a catalyst to promote the reaction between nitrogen oxides and ammonia or urea to produce molecular nitrogen and water.

SNCR - Selective Non-catalytic Reduction, a method of reducing emissions of nitrogen oxides by injecting ammonia or urea into the hot flue gas to reduce the nitrogen oxides to molecular nitrogen and water.

SF₈ - Sulfur hexafluoride.

SO₂ - Sulfur dioxide.

SQN - Sequoyah Nuclear Plant.

Supply-Side Resource - An energy resource that meets customer needs by generating electricity.

TSP - Total Suspended Particulates.

TVA - Tennessee Valley Authority.

U.S.C. - United States Code.

USCCSP - U.S. Climate Change Science Program.

USDA - U.S. Department of Agriculture.

VOCs - Volatile organic compounds.

Volt - The unit of electromotive force of electric pressure analogous to water pressure in pounds per square inch.

Watt - A unit of power, defined by the International System of Units as one joule per second.

WBN - Watts Bar Nuclear Plan