APPENDIX B

Tools and Models Referenced in Each Chapter

DOCUMENT MAP

TOOLS AND MODELS REFERENCED IN CHAPTER 2

EXAMPLES OF AVAILABLE TOOLS FOR ESTIMATING DIRECT ENERGY IMPACTS

Internet-Based Methods:

- eCalc
  WEB SITE: *http://ecalc.tamu.edu/*
- EPA Energy Savings Calculators
  WEB SITE: *http://www.energystar.gov/purchasing*
- ENERGY STAR Roofing Comparison Calculator
  WEB SITE: *http://www.roofcalc.com/default.aspx*
- ENERGY STAR Target Finder
  WEB SITE: *http://www.energystar.gov/index.cfm?c=new_bldg_design.bus_target_finder*
- ENERGY STAR Portfolio Manager
  WEB SITE: *https://www.energystar.gov/benchmark*
- PVWatts
  WEB SITE: *http://rredc.nrel.gov/solar/codes_algs/PVWATTS/version1/*

Spreadsheet-Based Methods:

- EMD International WindPro
  WEB SITE: *http://www.emd.dk/WindPRO/Introduction/*
- RETScreen Clean Energy Project Analysis Software
  WEB SITE: *http://www.retscreen.net/ang/home.php*
- Integral Analytics: DSMore
  WEB SITE: *http://www.integralanalytics.com/dsmore.php*

Software Methods:

- fChart and PV-fChart
  WEB SITE: *http://www.fchart.com/index.shtml*
- EQuest
  WEB SITE: *http://www.doe2.com/equest/*
- ENERGY-10™
  WEB SITE: *http://www.nrel.gov/buildings/energy10.html*
- DOE-2
  WEB SITE: *http://doe2.com/DOE2/index.html*

EXAMPLES OF SOPHISTICATED SUPPLY FORECASTING MODELS

Electricity Dispatch:

- PROSYM
  WEB SITE: *http://www1.ventyx.com/analytics/market-analytics.asp*
- GE-MAPS
  WEB SITE: *http://www.gepower.com/prod_serv/products/utility_software/en/ge_maps/index.htm*
- PROMOD
  WEB SITE: *http://www.ventyx.com/analytics/promod.asp*
- MIDAS
  WEB SITE: *http://www.ventyx.com/advisory/horizons-interactive.asp*

Capacity Expansion or Planning:

- NEMS
  WEB SITE: *http://www.eia.doe.gov/oiaf/aeo/overview/index.html*
- IPM®
  WEB SITE: *http://www.icfi.com/Markets/Energy/energy-modeling.asp#2*
- ENERGY 2020
  WEB SITE: *http://www.energy2020.com/*
- Long range Energy Alternatives Planning System (LEAP)
  WEB SITE: *http://www.energycommunity.org/default.asp?action=47*
- Strategist
  WEB SITE: *http://www1.ventyx.com/analytics/strategist.asp*
- Plexos
  WEB SITE: *http://www.energyexemplar.com/*

- EGEAS

  WEB SITE: *http://my.epri.com/portal/server.pt?space=CommunityPage&cached=true&parentname=ObjMgr&parentid=2&control=SetCommunity&CommunityID=221&PageIDqueryComId=0*

- AURORAxmp

  WEB SITE: *http://www.epis.com/aurora_xmp/*

- MARKAL-MACRO

  WEB SITE: *http://www.etsap.org/Tools/MARKAL.htm.*

- Ventyx System Optimizer

  WEB SITE: *http://www.ventyx.com/analytics/system-optimizer.asp*

TOOLS AND MODELS REFERENCED IN CHAPTER 3

DISPATCH MODELS AVAILABLE FOR STATES

- EnerPrise Market Analytics (powered by PROSYM) supported by Ventyx.

  WEB SITE: *http://www1.ventyx.com/analytics/market-analytics.asp*

- Multi-Area Production Simulation (MAPS™) developed and supported by GE Energy and supported by other contractors.

  WEB SITE: *http://www.gepower.com/prod_serv/products/utility_software/en/ge_maps/index.htm*

- Plexos for Power Systems owned by Energy Exemplar.

  WEB SITE: *(http://www.energyexemplar.com)*

- PowerBase Suite™ (including PROMOD IV®) supported by Ventyx.

  WEB SITE: *http://www1.ventyx.com/analytics/promod.asp*

ELECTRIC SECTOR-ONLY CAPACITY EXPANSION MODELS

- IPM® developed and supported by ICF International.

  WEB SITES:

  http://www.icfi.com/Markets/Energy/energy-modeling.asp#2

  http://www.icfi.com/markets/energy/doc_files/ipmglobal.pdf

- PowerBase Suite™ (including Strategist®) supported by Ventyx.

  WEB SITE: *http://www1.ventyx.com/analytics/strategist.asp*

WHOLE ENERGY–ECONOMY SYSTEM PLANNING MODELS

Energy system-wide models with electricity sector capacity expansion:

- U.S. DOE National Energy Modeling System (NEMS)

  WEB SITE: *http://www.eia.doe.gov/oiaf/aeo/overview/*

- MARKet ALlocation (MARKAL) Model
  WEB SITE: *http://www.etsap.org/markal/main.html*

- Energy 2020
  WEB SITE: *http://www.energy2020.com/*

Specialized proprietary models of the T&D system's operation:

- PowerWorld Corporation's power systems simulation package
  WEB SITE: *http://www.powerworld.com/*

- Siemens (PSS®E) probabilistic analyses and dynamics modeling
  WEB SITE: *https://www.energy.siemens.com/cms/00000031/en/ueberuns/organizati/services/siemenspti/softwareso/Pages/psse_1439533.aspx*

TOOLS AND MODELS REFERENCED IN CHAPTER 4

TOOLS TO HELP STATE AND LOCAL GOVERNMENTS DEVELOP GHG AND CRITERIA AIR POLLUTANT EMISSION INVENTORIES

- EPA's State Inventory Tool (SIT)
  WEB SITE: *http://www.epa.gov/climatechange/emissions/state_guidance.html*

- Clean Air and Climate Protection Software Tool (CACPS)
  WEB SITE: *http://www.cacpsoftware.org/*

TOOLS STATES CAN USE TO HELP DEVELOP BOTTOM-UP GHG AND CRITERIA AIR POLLUTANT INVENTORIES

For GHG inventories:

- Portfolio Manager
  WEB SITE: *http://www.energystar.gov/index.cfm?c=evaluate_performance.bus_portfoliomanager_carbon*

For criteria air pollutant inventories:

- Point Sources: Landfill Gas Emissions Model
  WEB SITE: *http://www.epa.gov/ttn/catc/dir1/landgem-v302-guide.pdf*

Mobile sources:

- MOBILE6
  WEB SITE: *http://www.epa.gov/OMS/m6.htm*

- NON ROAD 2005
  WEB SITE: *http://www.epa.gov/oms/nonrdmdl.htm*

- Motor Vehicle Emission Simulator (MOVES)
  WEB SITE: *http://www.epa.gov/otaq/models/moves/index.htm*

DATA SOURCES AND ADDITIONAL RESOURCES FOR TOP-DOWN AND BOTTOM-UP INVENTORIES

- National Emissions Inventory (NEI)
  WEB SITE: *http://www.epa.gov/ttnchie1/trends/*

- eGRID

  WEB SITE: *http://www.epa.gov/cleanenergy/energy-resources/egrid/index.html*

- Emissions Collection and Monitoring Plan System (ECMPS)

  WEB SITE: *http://www.epa.gov/airmarkets/business/*

- WRI Climate Analysis Indicators Tool:

  WEB SITE: *http://cait.wri.org/*

- State Agencies and Universities
- EPA State GHG Inventories
- Local GHG Inventories

TOOLS FOR FORECASTING FUTURE EMISSIONS

- EPA EIIP Technical Report Series, Volume X: Emissions Projections.

  WEB SITE: *http://www.epa.gov/ttn/chief/eiip/techreport/volume10/x01.pdf*

- EPA State GHG Projection Tool.

  WEB SITE: *http://www.epa.gov/climatechange/wycd/stateandlocalgov/analyticaltools.html*

- The Clean Air and Climate Protection Software Tool.

  WEB SITE: *http://www.cacpsoftware.org/*

BASIC AND SOPHISTICATED APPROACHES FOR QUANTIFYING AIR POLLUTANT AND GHG EMISSION EFFECTS OF CLEAN ENERGY INITIATIVES

Basic Approaches:

- eCalc

  WEB SITE: *http://www.ecalc.com/calculator/scientific/*

- OTC Workbook
- CACPS

  WEB SITE: *http://www.cacpsoftware.org/*

Sophisticated Approaches:

Electric Dispatch

- PROSYM

  WEB SITE: *http://www.ventyx.com/analytics/market-analytics.asp*

- GE-MAPS

  WEB SITE: *http://www.gepower.com/prod_serv/products/utility_software/en/ge_maps/index.htm*

- PROMOD

  WEB SITE: *http://www.ventyx.com/analytics/promod.asp*

Capacity Expansion or Planning

- NEMS

  WEB SITE: *http://www.eia.doe.gov/oiaf/aeo/overview/index.html*

- IPM®

  WEB SITE: *http://www.icfi.com/Markets/Energy/energy-modeling.asp#2*

- ENERGY 2020

  WEB SITE: *http://www.energy2020.com/*

- LEAP

TOOLS FOR QUANTIFYING AIR QUALITY AND/OR HEALTH IMPACTS

- SCRAM

  WEB SITE: *http://www.epa.gov/ttn/scram/*

- REMSAD

  WEB SITE: *http://remsad.saintl.com*

- CAMx

  WEB SITE: *http://www.camx.com*

- UAM-V

  WEB SITE: *http://uamv.saintl.com*

- CMAQ

  WEB SITE: *http://www.epa.gov/AMD/CMAQ/CMAQscienceDoc.html*

- CALPUFF and AERMOD

  WEB SITE: *http://www.epa.gov/scram001/dispersion_prefrec.htm*

- COBRA

  WEB SITE: *http://epa.gov/statelocalclimate/resources/cobra.html*

- BenMAP

  WEB SITE: *http://www.epa.gov/air/benmap/*

- ASAP

  WEB SITE: *http://www.epa.gov/ttn/ecas/asap.html*

TOOLS AND MODELS REFERENCED IN CHAPTER 5

SCREENING TOOLS

- Job and Economic Development Impact (JEDI) Model for Wind Projects

  WEB SITE: *http://www.energyfinder.org/*

- REPP Labor Calculator

  WEB SITE: *http://www.repp.org/index.html*

- RMI Community Energy Opportunity Finder

  WEB SITE: *http://www.energyfinder.org/*

MODELS FOR ESTIMATING MACROECONOMIC BENEFITS

- IMPLAN® input-output model (IMPLAN)

  WEB SITE: *http://www.implan.com/*

- RAND

  WEB SITE: *http://www.rand.org/*

- REMI Policy Insight model (REMI)

  WEB SITE: *http://www.remi.com/*

- Berkeley Energy and Resources model (BEAR)