Tools and Models Referenced in Each Chapter

CHAPTER ONE
Introduction

CHAPTER TWO
Potential Energy Impacts of Clean Energy

CHAPTER THREE
Electric System Benefits of Clean Energy

CHAPTER FOUR
Air Quality Benefits of Clean Energy

CHAPTER FIVE
Economic Benefits of Clean Energy

APPENDIX A
Catalogue of Clean Energy Case Studies

APPENDIX B
Tools and Models Referenced in Each Chapter
TOOLS AND MODELS REFERENCED IN CHAPTER 2

EXAMPLES OF AVAILABLE TOOLS FOR ESTIMATING DIRECT ENERGY IMPACTS

Internet-Based Methods:

- eCalc
  WEB SITE: http://ecalculator.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://www.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

- EQuest
  WEB SITE: http://www.do2.com/equest/

- ENERGY-10™

- 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

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

- MIDAS

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/
TOOLS AND MODELS REFERENCED IN CHAPTER 3

DISPATCH MODELS AVAILABLE FOR STATES

- EnerPrise Market Analytics (powered by PRO-SYM) 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.

- 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

- 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/
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

For criteria air pollutant inventories:

- Point Sources: Landfill Gas Emissions Model

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/

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

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

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

**Electric Dispatch**

- **PROSYM**

- **GE-MAPS**

- **PROMOD**

**Capacity Expansion or Planning**

- **NEMS**
  WEB SITE: [http://www.eia.doe.gov/oiaf/aeo/overview/index.html](http://www.eia.doe.gov/oiaf/aeo/overview/index.html)

- **IPM**

- **ENERGY 2020**

- **LEAP**

**TOOLS FOR QUANTIFYING AIR QUALITY AND/OR HEALTH IMPACTS**

- **SCRAM**
  WEB SITE: [http://www.epa.gov/ttn/scram/](http://www.epa.gov/ttn/scram/)

- **REMSAD**
  WEB SITE: [http://remsad.saintl.com](http://remsad.saintl.com)

- **CAMx**
  WEB SITE: [http://www.camx.com](http://www.camx.com)

- **UAM-V**
  WEB SITE: [http://uamv.saintl.com](http://uamv.saintl.com)

- **CMAQ**
  WEB SITE: [http://www.epa.gov/AMD/CMAQ/CMAQscienceDoc.html](http://www.epa.gov/AMD/CMAQ/CMAQscienceDoc.html)

**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](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](http://www.epa.gov/climatechange/wycd/stateandlocalgov/analyticaltools.html)

- **The Clean Air and Climate Protection Software Tool.**

**Basic and Sophisticated Approaches for Quantifying Air Pollutant and GHG Emission Effects of Clean Energy Initiatives**

**Basic Approaches:**

- **eCalc**

- **OTC Workbook**

- **CACPS**
• CALPUFF and AERMOD
  WEB SITE:  http://www.epa.gov/scram001/disposition_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/ucas/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)