



# National Action Plan for Energy Efficiency

[www.epa.gov/  
eeactionplan](http://www.epa.gov/eeactionplan)

## Integrating Energy Efficiency into Utility Resource Planning: Best Practices

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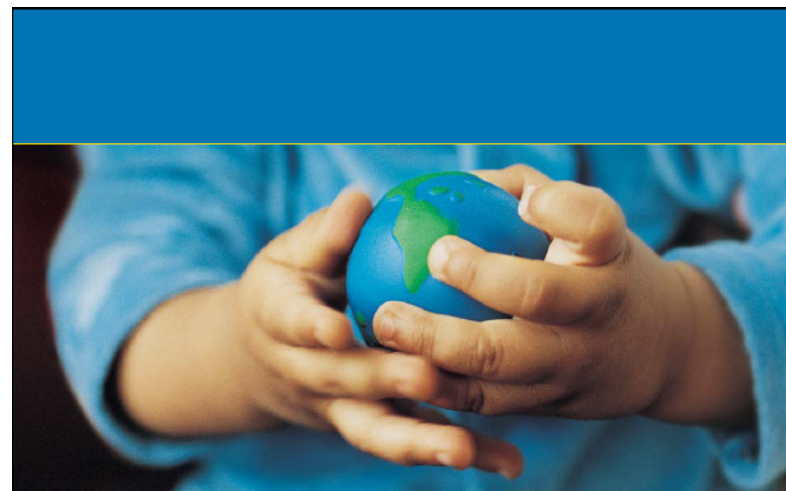
# The Urgency of Integrating EE in Resource Planning

- Huge surge in EE spending in the US
  - States across the country are actively ramping up EE programs
    - California \$1B+/year, New York, Vermont, others
    - Illinois, Pennsylvania, Ohio, others
  - Federal stimulus package of \$16B+
  - Federal EE portfolio legislation is being considered
- Unprecedented spending means unprecedented responsibility to spend the money well
  - What happens if these programs are not successful? How long will EE be set back?
- The key to capturing the value of EE is careful coordination of EE with utility resource planning



# National Action Plan for Energy Efficiency

- Encouraging EE is becoming standard industry practice
- Guide to Resource Planning with Energy Efficiency is a compilation of best practices and examples



## Guide to Resource Planning with Energy Efficiency

A RESOURCE OF THE NATIONAL ACTION PLAN FOR  
ENERGY EFFICIENCY

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## Origins of Utility Planning Processes

- Traditional least cost utility planning objective is to...
  - develop the least cost supply portfolio that
  - has acceptable level of cost risk,
  - meets established reliability criteria, and
  - complies with environmental regulations.
- Traditional analysis yields a preferred supply plan
- Integrated supply and demand planning (“IRP”) can also yield a preferred supply plan
- No ‘benefits’ calculation is needed in this framework, just a complete characterization of all costs required to meet the object function



## Why cost-effectiveness analysis?

- Shortcomings of “full IRP” approach
  - Complex analysis on broad set of issues from fuel supply, operability, supply technology
  - Significant time required (2+ years typically)
  - Lack of stakeholder transparency
  - Focus on ratepayer cost and risk, subject to minimum standards on reliability, environment
- Once you have your ‘preferred plan’

How do you test for a lower cost solution?



# Typical EE Evaluation Framework

Testing whether an alternative plan is lower cost is the basic building block of CE analysis

**Step 1** Evaluate the costs of EE program

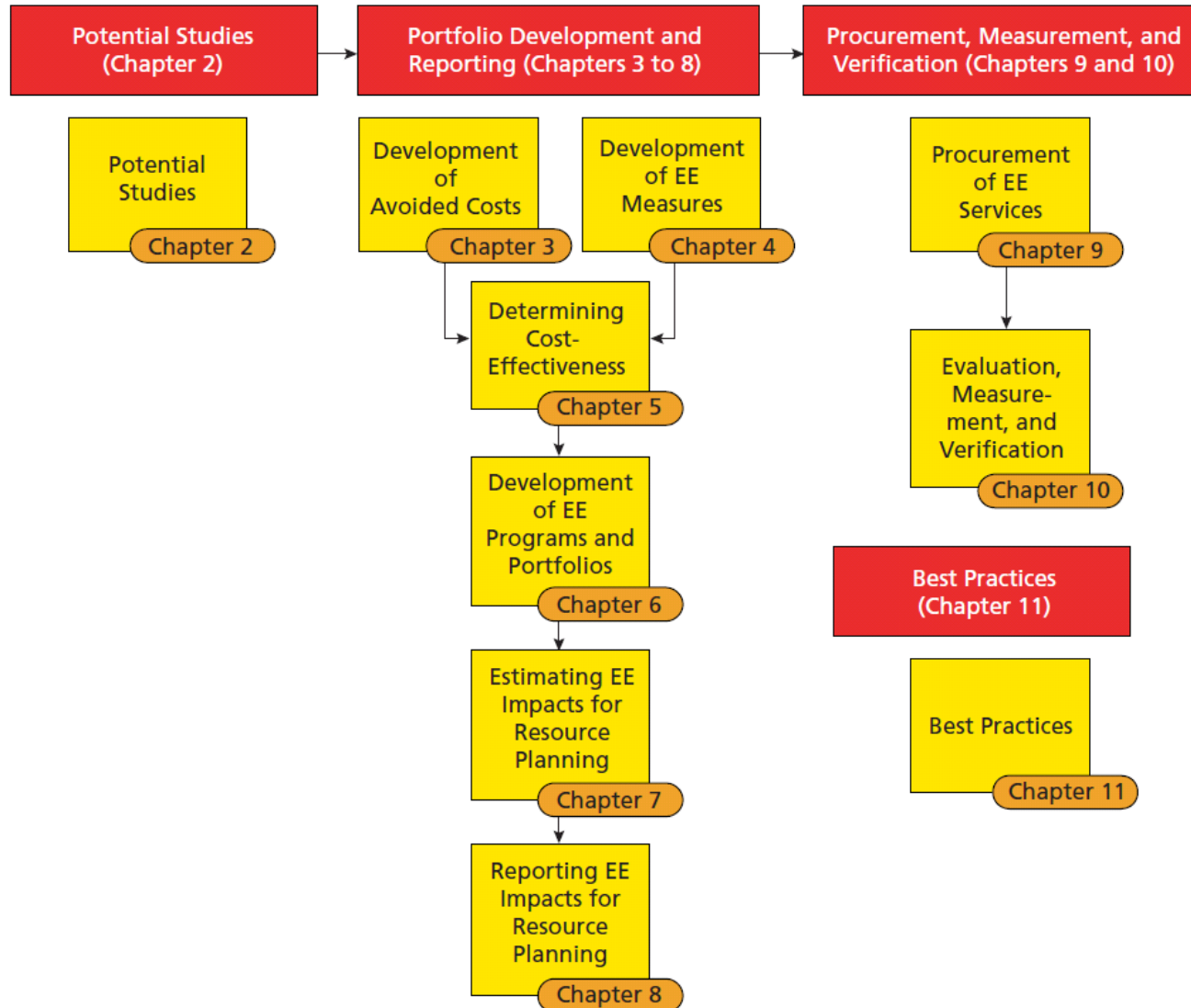
**Step 2** Evaluate the change in costs of the alternative supply plan – these are the “avoided costs” or ‘benefits’ of implementing your program

**Step 3** Compute the difference (or ratio)

Without close coordination with resource planners we may not capture all of the avoided costs from EE, particularly capacity value of supply projects



# Key Elements of Integrating EE in Utility Planning





# Key Challenges/Steps in Integrating EE into Resource Plan

- Determining the value of EE
  - Energy procurement (estimating and valuing savings)
  - Capacity benefits (estimating and valuing savings, factors in achieving benefits)
  - Incorporating non-energy benefits (such as reductions in GHG emissions)
- Setting targets and allocating budgets
  - Quantity of EE to implement
  - Estimating program effectiveness
  - Institutional difficulty in reallocating budget
  - Cost expenditure timing vs. benefits
  - Ensuring program costs are recaptured
- Measuring impacts and adjusting resource plans, EE programs, and EE delivery to maximize savings

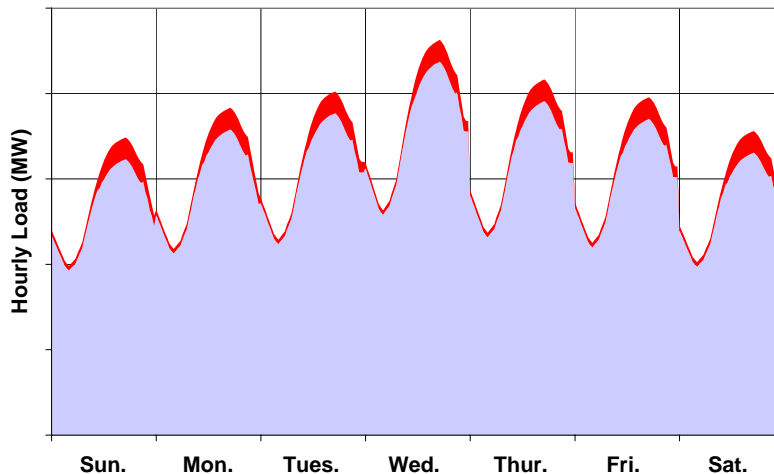




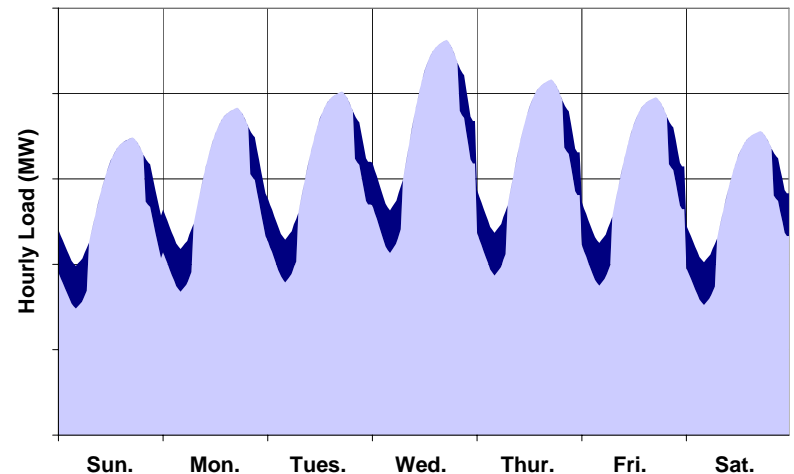
# Incorporating Energy Efficiency in Load Forecasting

- Need to incorporate into planning process to capture the full value of energy efficiency
  - Distinguish between incremental energy efficiency and energy efficiency already embedded in the base forecasts
  - Recognize that some energy efficiency would occur without specific utility programs
- Peak impacts need to be based on coincidence with the system peak.

Residential A C Program



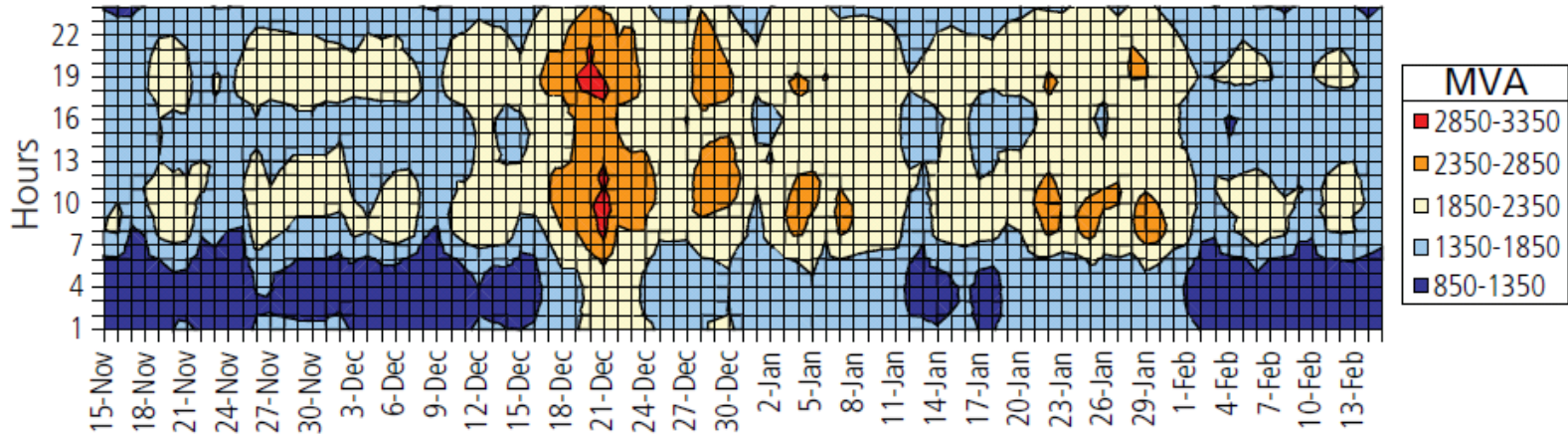
Street Light Program



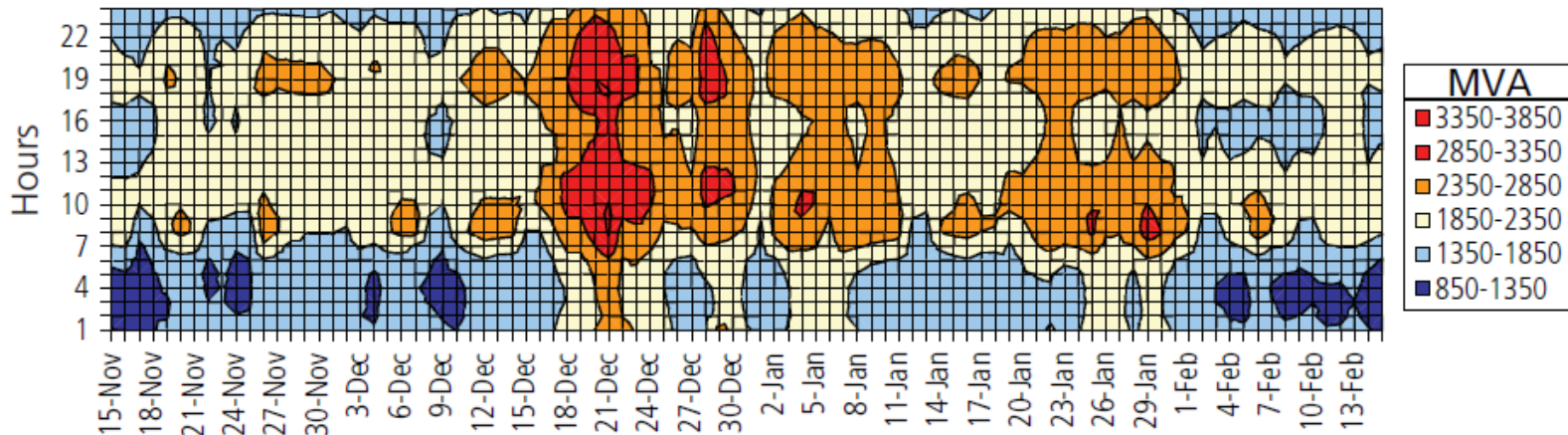


# Targeted Energy Efficiency Example: Bonneville Power Administration

2004 Covington Transformer Bank Loadings by Day and Hour  
Emergency Unit = 2850 MVA

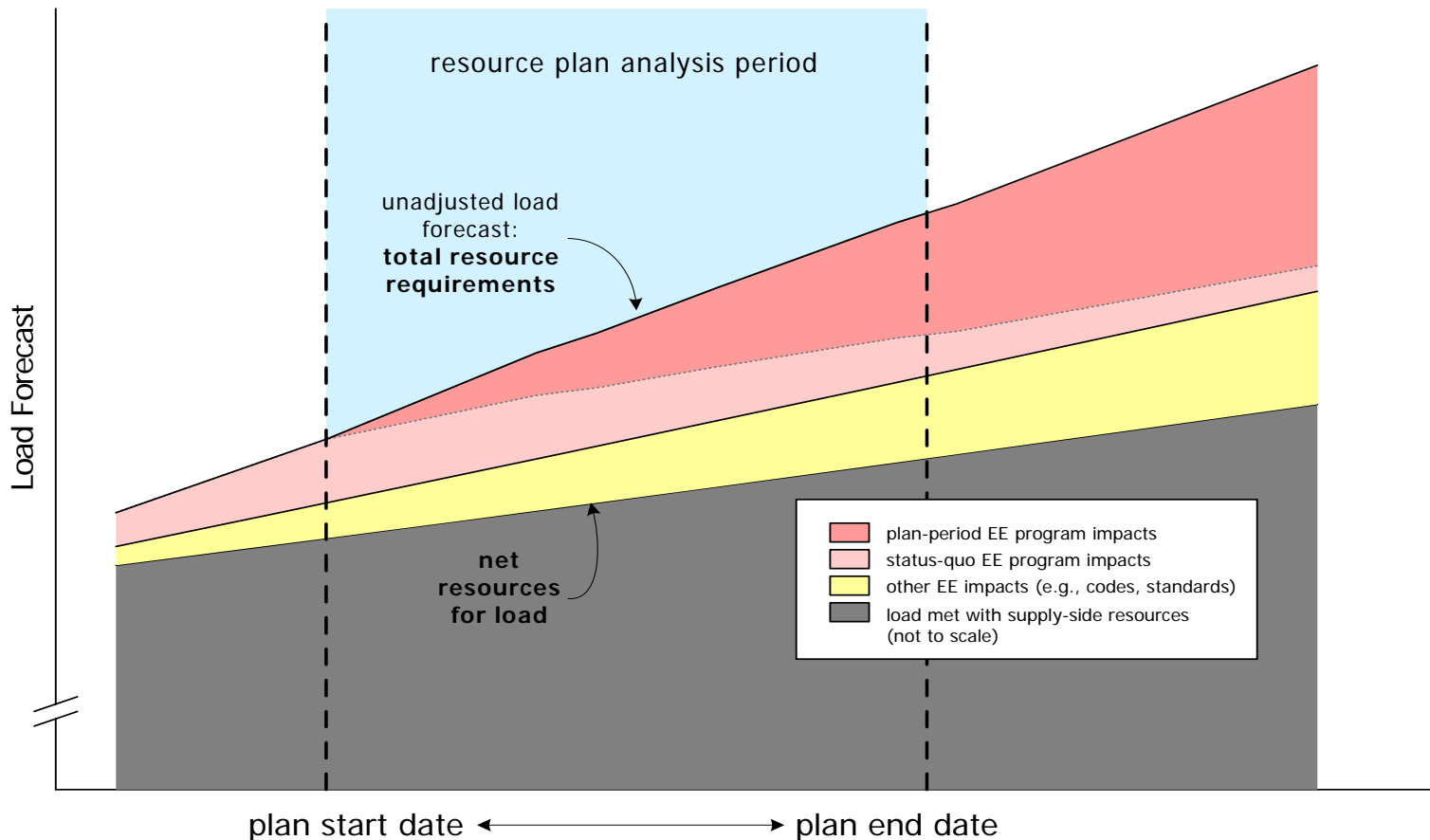


2010 Covington Transformer Bank Loadings by Day and Hour  
Emergency Unit = 2850 MVA





# Tracking Energy Efficiency Resources in Load Forecasts



**Note: Energy Efficiency in Western Utility Resource Plans: Impacts on Regional Resource Assessment and Support for WGA Policies can be downloaded at <http://eetd.lbl.gov/ea/EMS/rplan-pubs.html>**



# Evaluation, Measurement and Verification (EM&V)

- Evaluation, measurement, and verification (EM&V) is the process of determining and documenting the results, benefits, and lessons learned from an energy-efficiency program.
- Critical for program improvement and measurement of the impact of EE in the resource portfolio
- Critical for promotion of the EE team achievements in the service territory and community
- Without EM&V we just have “programs” and can’t justify EE as a tangible resource with delivered savings



# Budgeting for Energy Efficiency

- Biggest barrier to EE is the budget
- Many states are ramping up EE. How do we spend the budget well and justify increases?
  - Delivering high value services to customers
  - Promotion of achievements and goals
  - Continuous improvement
- Getting the most out of our energy efficiency dollars will be critical to on-going funding

Just like any business, the key to secure funding is delivering high value, promotion, and continuous improvement



## Resources and Next Steps

- **National Action Plan for Energy Efficiency: The Report**
  - Covers key barriers and policy options for EE in resource planning, utility revenue requirements, rate design and program implementation.
  - [Chapter 3: Energy Resource Planning Processes.](#)
- **Guidebook on Energy Resource Planning and Procurement Processes: Integrating Energy Efficiency**
  - A ‘How-to-Guide’ that walks through important methodology and data input assumptions for incorporating EE in the resource planning process.
  - Lists important sources of data that are commonly used to develop the necessary data and information.





# For More Information

[www.epa.gov/eeactionplan](http://www.epa.gov/eeactionplan)

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