

# *Le Petite Renaissance:* Potential Studies Redux

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# Thumbnail History: Potential/IRP Studies

- Initial supply curve studies in early 1980s
  - Meier, Rosenfeld, Sant, Lovins, et al.
- Many comprehensive utility studies in late 1980s
  - Dozens of utility-specific, few regional (NWPPC)
  - Several models developed
- Early 1990s focus on inputs to IRP
  - Process peaked by 1994
- Very few studies from 1996 - 2000



## A Few Recent and In-Progress Potential Studies

- California, several
- Energy Trust of Oregon
- BC Hydro
- Excel
- Southwest – SWEEP
- Iowa
- Northwestern Energy
- Puget
- Connecticut
- New York
- Massachusetts
- Vermont
- Clean Energy Futures (late 90s, national)



## My Own Potential Path...

- 1988 Rhode Island
- 1989 PG&E
- 1990 SMUD
- 1991 SDG&E
- 1992-1994 SCE
- 1995 IID
- 1994-1995 Grupo Endesa (Spain)
- 1995-1996 PGE
- 2001/2002 CA (IOUs, CEC, EF)
- CEC PIEREA GHG Mitigation Supply Curves (R&D)
- 2003 Connecticut



## Why Estimate EE Potential?

- Efficiency is a “resource”, like any supply-side resource, need to know:
  - How much is available at what cost?
- ID best opportunities – and those tapped
- Improve targeting of programs
- Prioritize among opportunities
- Necessary for true IRP
- Critical input to energy policymaking



## Who Cares? Who Doesn't?

- Generally interested:
  - Regulatory staff and commissioners
  - Senior utility and EE org management
  - Planners, forecasters, and policymakers
- Not so interested:
  - Day-to-day program managers
  - Folks in the field



## What's Driving *Le Petite Renaissance*?

- Failure of restructuring to deliver energy efficiency in meaningful quantities
- Failure of restructuring, in some states, to deliver adequate and reliable supply
- New organizations, new EE funding
- Need to update for market changes
- Need to make case for EE continuance
- Response to capacity and local T&D constraints
- Response to BANANA



## Some Concerns

- Inadequate/absent data – “cart before the horse”:
  - End use shares/intensities; load shapes
  - Segment-based measure saturations/penetrations
  - Historic program accomplishments
  - Meaningful baseline forecasts
- Widely varying budgets, many inadequate
- Unrealistic schedules
  - *Not enough time to do it right, but always time to do it over!*
- Lack of formal cross-organization collaboration/multi-client studies



## Potential Paradox

- Which is better?
  - In-depth, bottom up or quick-and-dirty top-down
- Former more expensive/time consuming
  - Worth it with high quality baseline data
    - Requires excellent data management and quality control
  - Questionable value with guesstimated data
- Latter more appropriate where baseline data is poor
  - But...dependent on someone else funding the in-depth studies first



## A Few Methodological Issues

- Inconsistent definition of terms
- Incorporation of market barrier costs
- Incorporation of future standards
- Incorporation of conservation and price effects
- Appropriate forecast horizon
- Emerging technologies/EE innovation rates
- Aggregation and static assumptions
- Avoided cost and rate uncertainty, hedging value
- Intrinsic adoption modeling uncertainties
- Incorporation of demand response/load control



# Recommendations

(If we're going to be serious about this...)

- Improve segment-based, measure saturation data
- Reinvigorate end-use forecasting
- Improve tracking of efficiency accomplishments
- Increase focus on industrial and new construction
- Reduce aggregation bias, model uncertainty
- Improve adoption modeling, calibration
- Expand and refine achievable potential forecasts
  - alternative programmatic approaches
- Improve IRP methods, clarify EE input needs

