Underwriting Energy Efficiency Loans for Commercial Borrowers

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Agenda

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- Components of good EE loan program design
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Introduction

- Buildings consume 40% of nation's energy, 70% of its electricity.
- Building retrofits can cut energy use by 20 to 40 percent with off-the-shelf technologies.
- Retrofits can pay for themselves from energy savings.
- Increasingly, building owners and tenants are asking:
  - How vulnerable am I to energy price volatility and increases?
  - What investments can be made now that will have large payoffs in the future?
  - How do I address the question of split incentives?

Components of good EE loan program design

- Determine which types of energy projects will be addressed
  - Building-related (4 types, see subsequent slides)
  - Commercial EE-related enterprises (growth capital, capex, working capital, A/R financing)
- Develop a mini-business plan for the program
  - Goals, operating principles
  - Target markets
  - Loan products & services
  - Implementation team (in-house & external)
  - Financial projections

Components of good EE loan program design (cont.)

- Identify sources of subsidy, credit enhancement
  - Initial program operating subsidy
  - Credit enhancement (interest rate buy-downs, LLRs, guarantees)
- Identify products & services to be provided or coordinated
  - Construction & mini-perm loans, fully amortizing mortgages
  - Technical assistance ("owner's rep")
  - Energy audits, building energy modeling
  - EE workforce training programs
  - Assistance with measurement & verification
- Establish minimum energy savings targets that projects must achieve

Components of good EE loan program design (cont.)

- Create a strong marketing plan – deployment, pipeline are critical
- Identify strong sources of deal flow & establish partnerships that incorporate others' pipelines
- Create policies & procedures for EE lending
- Create an initial financing request form and a full loan application form
- Design an iterative application review & underwriting process

Components of good EE loan program design (cont.)

- Establish standards for participating contractors
  - Develop & maintain a qualified contractors list
- Recruit one or more new loan committee members with energy-related experience
- Consider combining with solar PV, geothermal, district heating & power

Sample credit memo template

- See sample credit memo template
- Traditional credit analysis, but with additional evaluation
  - Traditional risk analysis re: project and borrower
  - But also include:
    - Evaluation of design team, contractor experience
    - Review of energy audit, energy modeling report
    - Sensitivity analysis of energy savings calculations (consumption & costs)
    - Thorough review of energy-related portion of budget reconciled against:
      - Energy audit, building energy model
      - Architectural plans / construction docs
      - Cost estimates, contractor bids, equipment quotes & specs
    - Assessment of O&M risk, energy savings degradation
    - Address issue of questionable collateral

EE underwriting checklist

- Resumes of Project Team Members (Project Manager, Architect, Engineers, General Contractor, consultants, etc.
- 5 years of Financial Statement projections.
- Personal Financial Statements of principals owning 20% or more of company / entity.
- Most recent year Personal Tax Returns of principals.
- Aging of Receivables and Payables.
- List of existing liabilities (current loan balances, credit limits, monthly payments).
- Project Operating Pro forma (include executed leases or letters of intent).

EE underwriting checklist (cont.)

- Detailed Project Budget, showing Sources and Uses.
- Construction Cost Estimates / Contractor Bids / Equipment Quotes
- Quotes for soft costs, *i.e.,* for lawyers, accountants, bank fees, permits, architect fees, etc.
- Bank financing term sheets, commitment letter(s).
- Real estate appraisal(s) (as-completed basis).
- For project with Tenants, a rent schedule and copies of letters of intent & leases, as applicable.
- Proof of site control (*e.g.,* Agreement of Sale, copy of lease agreement).

EE underwriting checklist (cont.)

- Phase I Environmental Audit of project site (Phase II if available) .
- Equipment Schedule - Include type, function, useful life, and age (if used) of equipment to be purchased**.**
- Energy audit report or building energy simulation modeling report.
- Architectural plans or construction documents.
- Project specifications document.
- Grant application, utility rebate application or award notices that the project has submitted or received

Methods of establishing baseline & projected energy savings

- Energy analysis involves 2-step process:
  - Establish an energy goal
  - Show project achieves goal (Δ baseline & projected ECMs)
- Building-related EE projects fall into 4 categories
  - (1) Projects involving limited energy retrofit measures or replacement of equipment in an existing, occupied building.
  - (2) Projects involving extensive energy retrofit measures in an existing, occupied building.
  - (3) Projects involving the gut rehab of an existing, unoccupied building to be renovated for a different usage.
  - (4) Projects involving new construction.
- Each of these categories requires a different approach for establishing how EE goals will be achieved.

(1) Limited EE measures, existing occupied building

- Limited EE measures = generally 3 ECMs or fewer
- Often occurs when equipment reaches end of useful life
- To determine if project meets energy performance:
  - Calculate energy consumption of existing M&E, system.
  - Review cut sheets of new M&E, system
  - Review written cost estimates, estimated energy consumption & useful life of new hardware & installation
  - Calculate estimated annual & lifetime savings or increase re: new ECM(s) related to:
    - O&M costs
    - Energy savings - kWh of electricity, ccf of natural gas
    - Energy cost savings – including future energy cost assumptions

(2) Extensive EE measures, existing occupied building

- Generally 4 ECMs or more, requiring a whole building energy audit that analyzes:
  - Historic utility use for previous 24 months
    - Monthly figures for kW, kWh, ccf, gallons of fuel oil / H2O
    - Identify utility rate schedule (tariff) for each acct
    - Develop a load (demand) profile for electric, gas accts
  - Describe building's size, age, constr. type, features; also building usage, occupancy profiles
  - Describe bldg envelope (roof, exterior walls & doors, windows) – assess air tightness, U-values, solar reflectance
  - Evaluate major M&E and bldg systems for loads, hours of operation, proper sizing, current condition, operating efficiencies, remaining useful life – includes plug load.

Extensive EE measures, existing occupied building (cont.)

- Energy audit then describes detailed ECMs to be implemented:
  - E.g., for lighting retrofits: fixture type, ballast & lamp type, proposed lamp count, watts per fixture, projected energy & energy cost savings, pre- & post-lighting levels.
  - Similar detail required for all ECMs, including installation cost, life expectancy, annual & lifetime energy / energy cost / operating cost savings, identification of rebates, grants, tax credits, simple payback & ROI calculation.
  - All assumptions must be specified, calculations must disclose essential data, formulas, estimates & assumptions necessary for the reviewer to be able to replicate the calculations.

(3) Gut rehab of unoccupied building for different use

- Complete stripping of a bldg to its walls & floors
- Because "prior" data is not relevant as baseline, can use avg. energy consumption of an existing bldg in same region with same use.
  - See US DOE CBECS at: www.eia.doe.gov/emeu/cbecs/cbecs2003/detailed_tables_2003/detailed_tables_2003.html
- Once baseline is determined, can calculate the project's energy consumption target

Gut rehab of unoccupied building for different use (cont.)

- Project must demonstrate it can achieve energy target by:
  - (1) Identifying specific ECMs that address bldg envelope, HVAC system, lighting, water consumption, & plug loads.
  - (2) Submitting an energy modeling report by a qualified energy consultant using recognized software to estimate total annual energy consumption given rehabbed bldg with ECMs
    - Examples: DOE-2.2, EnergyPlus, eQuest & Energy10
    - See complete list: http://www1.eere.energy.gov/buildings/qualified_software.html

(4) New construction

- Requires an energy modeling report that addresses:
  - Building envelope, HVAC system & controls, lighting, water consumption & plug loads.
  - Building's predicted energy consumption if built to existing building energy code as calculated by DOE-2.2, etc.
  - Building's predicted energy consumption with higher-than-code ECMs and systems as calculated by DOE-2.2, etc.
  - The difference between energy code predicted consumption & project consumption with proposed ECMs must achieve energy target.

Projected energy savings' impact on credit underwriting

- Important that energy audit details calculations, discloses essential data, formulas, estimates & assumptions so reviewer can replicate calculations
- Savings must be expressed in both energy consumption & cost savings for sensitivity analysis
- Useful life of ECMs should not exceed loan term.
- Energy cost savings are typically discounted for DSC ratio analysis
  - Air-sealing, behavioral changes have lower correlation w/ savings, whereas boiler replacement, other whole system M&E replacements have higher correlation w/ savings.
- Despite improved NOI from project, as-completed appraisals still don't reflect higher real estate values

Loan conditions prior to closing

- Specified ECMs must be tracked so they're not dropped from final design and construction.
  - Prior to closing, provide (1) final building energy modeling report based on final design specs that achieve energy target, & (2) provide final construction drawings, specs & cut sheets for ECMs in final building energy modeling.
  - Building to be inspected prior to all loan draws to ensure ECMs are present as specified.

Measurement & verification

- Post construction, Borrower should provide post-occupancy energy data for at least a year.
- Use an accepted energy consumption data tracking software
  - ENERGY STAR *Portfolio Manager*
    - http://www.energystar.gov/index.cfm?c=evaluate_performance.bus_portfoliomanager
  - EnergyScoreCards
    - http://www.energyscorecards.com/
  - WegoWise
    - https://www.wegowise.com/#home

Conclusions & recommendations

- Good EE loan programs have strong marketing partnerships that integrate additional pipelines, iterative application review & underwriting process
- Establish relevant baseline, reconcile detailed ECMs that achieve target savings w/ construction docs, cut sheets
- Address O&M risk, energy savings degradation, split incentives, collateral issues
- Replicate energy savings calculations, stress the energy projections
- Ensure ECM implementation through construction draw inspections
  - Change orders to be run through building energy model

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