

The Virtuous Circle:
The Power for Benchmarking Tools to Improve the
Performance of Both New and Existing Buildings,
Track and Measure On-going Performance and
Create Self-Healing Databases

The Weidt Group[®]

The Company for Energy Decision Makers

Collaboration

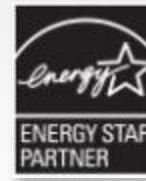


Energy Designsm

Analysis



Research



- ▲ Benchmarking
 - ▲ Metrics and Methods
 - ▲ Why Benchmarking in India?
 - ▲ Benefits and Challenges
 - ▲ Process
- ▲ MN B3 Benchmarking
 - ▲ History
 - ▲ Website overview with new features
 - ▲ Future Features

Benchmarking Metrics



Building's energy use is measured by Energy Use Intensity (EUI)
= kWh/Sqm/yr



Why Benchmarking in India?

- ▲ Exponential growth expected in buildings' sector over next two decades
- ▲ Buildings account for 70% urban electric consumption
- ▲ Chronic power crisis
 - ▲ 9.9% capacity shortage
 - ▲ 16.6% peak shortage
- ▲ Substantial need to track and improve energy efficiency in existing buildings
- ▲ Lack of robust building energy database
- ▲ Opportunities for integration with GRIHA and DSM program planning

Benchmarking Methods

▲ Internal Review

- ▲ Consumption records to compare the building to itself over time

▲ Peer Comparison

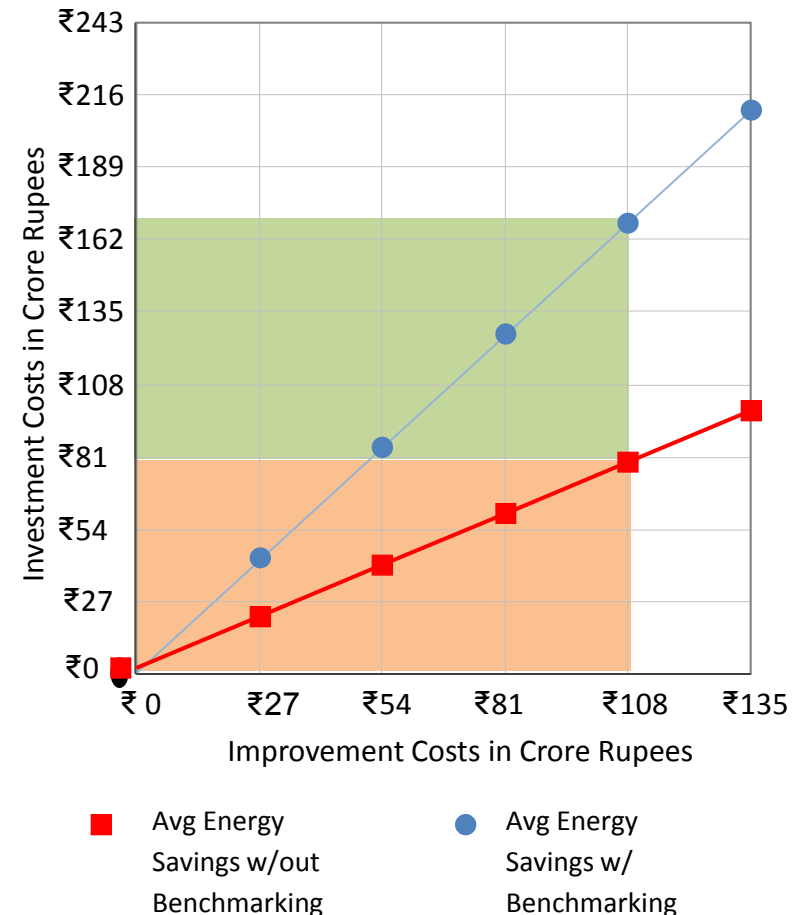
- ▲ Utilize a database to rate the building's performance to similar buildings - ENERGY STAR®

▲ EUI Model

- ▲ Utilize a computer based energy simulation model to compare the building's actual & expected usage
- MN B3 Benchmarking

Benchmarking Benefits

- Identify buildings most in need of energy conservation improvements
- A random approach to fixing buildings can result in high payback periods
- Provides higher return on investment, potentially reducing payback periods in half
- Over ₹81 crore savings in additional improvement costs with Benchmarking



Source: Oak Ridge National Laboratory



Benchmarking Goal

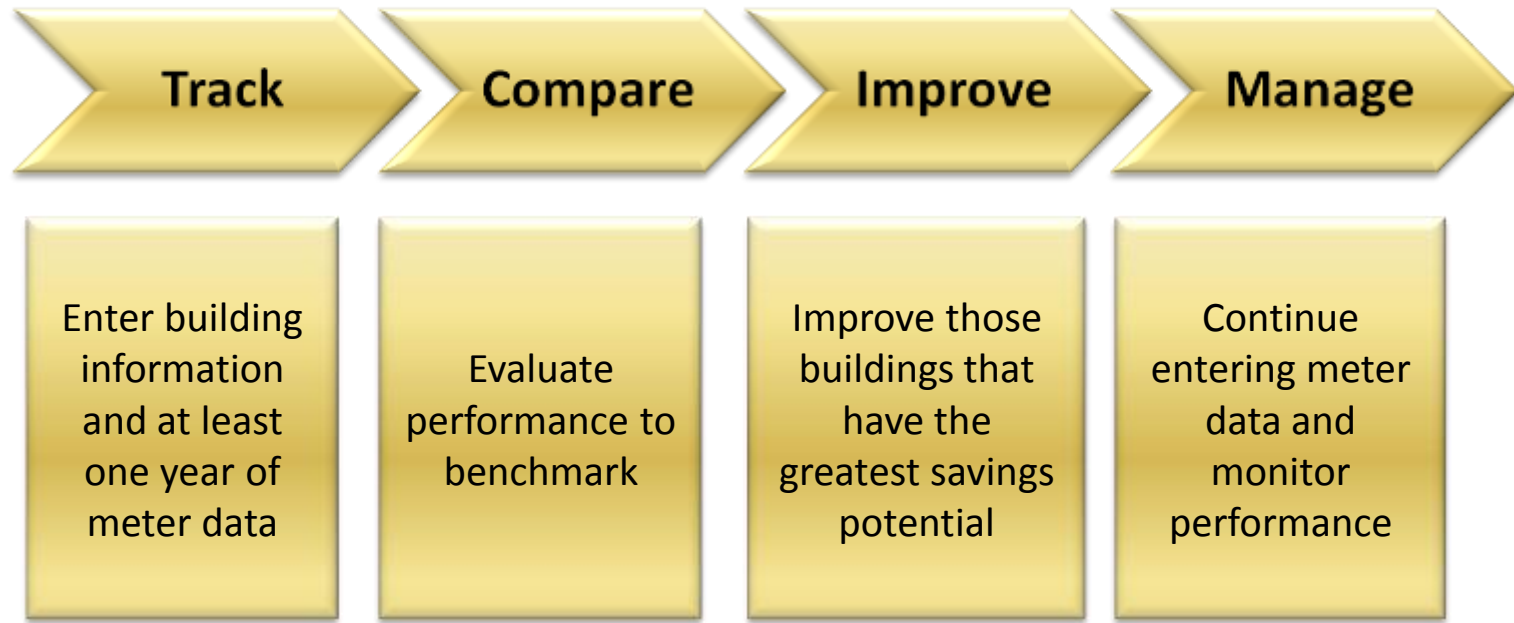
- ▲ Find the buildings that would best be served by a more rigorous and detailed evaluation
- ▲ Identify buildings that may be candidates for:
 - ▲ Energy auditing
 - ▲ Re-commissioning/Retro-commissioning
 - ▲ Energy retrofit programs
 - ▲ ESCO projects
 - ▲ Targeted DSM programs

Benchmarking Challenges

- ▲ Complex definitions of building and space types
- ▲ Different units of measurement
- ▲ Unconventional fuel types
- ▲ Non-purchased renewable energy
- ▲ Multiple meters per building
- ▲ Multiple buildings per meter



Benchmarking Process



Minnesota B3 Benchmarking

- Component of "Buildings, Benchmarks and Beyond"



- Program to identify the energy performance of existing public buildings and determine those that are most in need of energy conservation improvements
- <https://mn.b3benchmarking.com>

Summary View - Organization

B3 BENCHMARKING

Logged in as Cheri Schneider

Group By: Organization

City, Woodbury

- Afton Fire Station
- Bielenberg Sports Cen
- Central Park
- City Hall
- Eagle View Club House
- Fox Run Fire Station
- Public Safety
- Public Works 2300
- Public Works 2301
- Thames Fire Station

Click on Site in tree or list to view

City, Woodbury

SUMMARY

BENCHMARK

PEER COMPARISON

ENERGY STAR

BASELINE

TARGETS

REPORTS

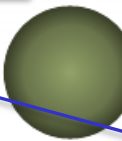
Summary of the organization is detailed below. The better the entered data, the more accurate the results.

Name City, Woodbury
First Meter Reading 12/9/2001
Last Meter Reading 2/10/2012

Organization Custom Attributes

Summary of organizational completeness

Add new buildings & sites



Square Feet
% Complete

Completeness

| | Sites | SF | Bldgs | Meters |
|------------|-------|---------|-------|--------|
| Complete | 10 | 457,872 | 10 | 21 |
| Incomplete | 0 | 0 | 0 | 0 |
| Total | 10 | 457,872 | 10 | 21 |
| % Complete | 100% | 100% | 100% | 100% |

Export To Excel

+ Add New Building/Site

| Site Name | Status | Primary Space Usage | SF | Bldgs | Meters | First Reading | Last Reading | Days Overdue | Contiguous Months |
|--------------------------|--------|---------------------|---------|-------|--------|---------------|--------------|--------------|-------------------|
| Afton Fire Station | ✓ | Fire Station | 8,671 | 1 | 2 | 12/7/2006 | 2/8/2012 | 0 | 61 |
| Bielenberg Sports Center | ✓ | Ice Arena | 112,500 | 1 | 2 | 12/9/2001 | 2/9/2012 | 0 | 121 |
| Central Park | ✓ | Library | 92,964 | 1 | 3 | 10/8/2002 | 2/10/2012 | 0 | 111 |
| City Hall | ⚠ | City Hall | 42,000 | 1 | 2 | 12/9/2005 | 2/8/2012 | 0 | 61 |
| Eagle View Club House | ✓ | Park / Recreation | 10,744 | 1 | 2 | 12/9/2001 | 12/2/2011 | 25 | 119 |
| Fox Run Fire Station | ✓ | Fire Station | 8,671 | 1 | 2 | 12/10/2006 | 2/8/2012 | 0 | 61 |
| Public Safety | ✓ | Police Facility | | | | | 2/8/2012 | 0 | 61 |
| Public Works 2300 | ✓ | Maintenance Repair | | | | | 2/8/2012 | 0 | 121 |
| Public Works 2301 | ✓ | Maintenance Repair | | | | | 2/9/2012 | 0 | 121 |
| Thames Fire Station | ✓ | Fire Station | 8,100 | 1 | 2 | 7/9/2007 | 2/9/2012 | 0 | 54 |

Summary of consumption data by days overdue and contiguous months

Benchmark View - Organization

B3 BENCHMARKING

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City, Woodbury

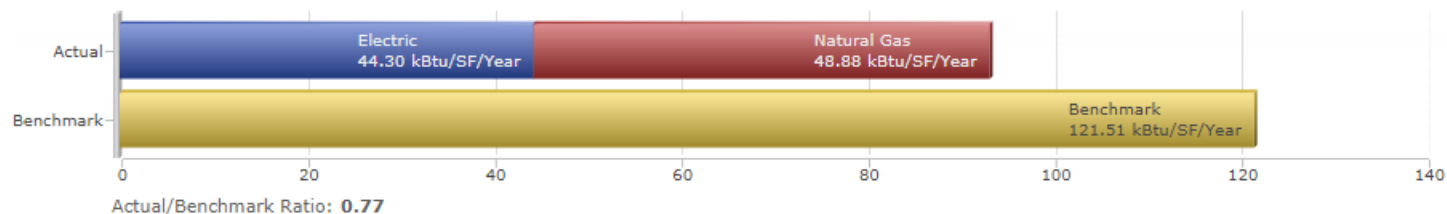
Organization

SUMMARY **BENCHMARK** PEER COMPARISON ENERGY STAR BASELINE TARGETS REPORTS

The B3 Benchmark is an engineering model that predicts how much energy a site would use if it were built to today's energy code. The B3 Rating is a measurement of a site's actual consumption to its predicted benchmark. [More Info...](#)

Benchmark By Fuel Source

[Export To Excel](#)



Organization's overall
Benchmark Ratio

| Site Name | Status | Primary Space Usage | SF | Bldgs | Actual | Benchmark | Ratio | Potential Savings | B3 Rating |
|--------------------------|--------|---------------------|---------|-------|--------|-----------|-------|-------------------|-----------|
| Afton Fire Station | ✓ | Fire Station | 8,671 | 1 | 130.92 | 125.64 | 1.04 | 45,801 | ★ ★ ★ ☆ ☆ |
| Fox Run Fire Station | ✓ | Fire Station | 8,671 | 1 | 123.96 | 125.30 | 0.99 | | ★ ★ ★ ☆ ☆ |
| Central Park | ✓ | Library | 92,964 | 1 | 117.87 | 129.63 | 0.91 | | ★ ★ ★ ☆ ☆ |
| Eagle View Club House | ✓ | Park / Recreation | 10,744 | 1 | 74.15 | 82.46 | 0.90 | | ★ ★ ★ ☆ ☆ |
| Thames Fire Station | ✓ | Fire | | | | 122.68 | 0.89 | | ★ ★ ★ ☆ ☆ |
| City Hall | ⚠ | City | | | | 100.98 | 0.86 | | ★ ★ ★ ☆ ☆ |
| Public Safety | ✓ | Police | | | | 132.62 | 0.77 | | ★ ★ ★ ☆ ☆ |
| Bielenberg Sports Center | ✓ | Ice Arena | 112,500 | 1 | 104.97 | 147.74 | 0.71 | | ★ ★ ★ ☆ ☆ |
| Public Works 2301 | ✓ | Maintenance Repair | 78,086 | 1 | 54.59 | 94.85 | 0.58 | | ★ ★ ★ ★ ☆ |
| Public Works 2300 | ✓ | Maintenance Repair | 27,268 | 1 | 40.11 | 78.12 | 0.51 | | ★ ★ ★ ★ ★ |

Sites stack ranked by
Benchmark Ratio with
worst performing on top

city, woodbury

Advanced Meter Search >>

B3 Framework v3.0.0.3198 | Copyright © 2012

Peer Comparison View - Organization

B3 BENCHMARKING

Logged in as Cheri Schneider

Group By: Organization

City, Woodbury

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city, woodbury

Advanced Meter Search >>

City, Woodbury

SUMMARY

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Peer Comparison is a ranking of a site as compared to other sites in B3 of similar space usage. Peers are determined by having the exact or similar space type usage within a certain tolerance. [More Info...](#)

Export To Excel

| Site Name | Primary Space Usage | SF | Actual | Benchmark | Ratio | Peer Rating ▲ |
|------------------------|---------------------|---------|--------|-----------|-------|---------------|
| Public Works 2301 | Maintenance Repair | 78,086 | 54.59 | 94.85 | 0.58 | N/A |
| Bielenberg Sports Cent | Ice Arena | 112,500 | 104.97 | 147.74 | 0.71 | N/A |
| Afton Fire Station | Fire Station | 8,671 | 130.92 | 125.64 | 1.04 | 16% |
| Fox Run Fire Station | Fire Station | 8,671 | 123.96 | 125.30 | 0.99 | 19% |
| Central Park | Library | 92,964 | 117.87 | 129.63 | 0.91 | 31% |
| Thames Fire Station | Fire Station | 8,100 | 109.10 | 122.68 | 0.89 | 33% |
| City Hall | City Hall | 42,000 | 86.73 | 100.98 | 0.86 | 47% |
| Eagle View Club House | Park / Recreation | 10,744 | 74.15 | 82.46 | 0.90 | 58% |
| Public Safety | | | | 132.62 | 0.77 | 60% |
| Public Works 2300 | | | | 78.12 | 0.51 | 82% |

Click on column headers to re-sort

Sites stack ranked by Peer Rating with worst performing on top

ENERGY STAR® View - Organization

B3 BENCHMARKING

Logged in as Cheri Schneider

Group By: Organization

City, Woodbury

- Afton Fire Station
- Bielenberg Sports Cen
- Central Park
- City Hall
- Eagle View Club House
- Fox Run Fire Station
- Public Safety
- Public Works 2300
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- Thames Fire Station

city, woodbury

Advanced Meter Search >>

City, Woodbury

SUMMARY

BENCHMARK

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ENERGY STAR is a national program designed to promote energy efficiency. The B3 Benchmarking System is able to request your ENERGY STAR rating automatically using the data gathered in B3. Not all buildings are applicable. [More Info...](#)

Export To Excel

| Site Name | Status | SF | B3 Primary Space | ES Primary Space | Bldgs | ENERGY STAR Rating |
|---------------------------------|--------|---------|-------------------|------------------|-------|--------------------|
| Public Safety | | 68,868 | Police Facility | Other | 1 | Ineligible |
| Fox Run Fire Station | | | | | 1 | Ineligible |
| Public Works 2300 | | | | | 1 | Ineligible |
| Thames Fire Station | | | | | 1 | Ineligible |
| Public Works 2301 | | | | | 1 | Ineligible |
| Bielenberg Sports Center | | 112,500 | Ice Arena | Other | 1 | Ineligible |
| Afton Fire Station | | 8,671 | Fire Station | Other | 1 | Ineligible |
| Central Park | | 92,964 | Library | Other | 1 | Ineligible |
| Eagle View Club House | | 10,744 | Park / Recreation | Other | 1 | Ineligible |
| City Hall | | 42,000 | City Hall | Office | 1 | 78 |

Not all public buildings are eligible for an ENERGY STAR rating

Warnings (yellow) and Errors (red) ... click icon for details

Baseline View - Organization

B3 BENCHMARKING

Logged in as Cheri Schneider

Group By: Organization

- City, Woodbury
 - Afton Fire Station
 - Bielenberg Sports Cen
 - Central Park
 - City Hall
 - Eagle View Club House
 - Fox Run Fire Station
 - Public Safety
 - Public Works 2300
 - Public Works 2301
 - Thames Fire Station

city, woodbury

Advanced Meter Search >>

City, Woodbury

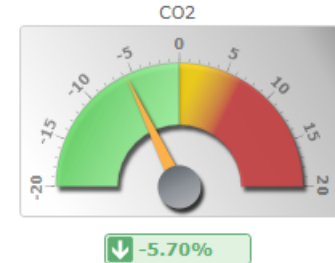
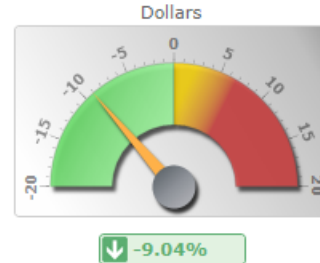
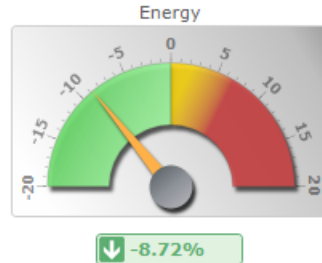
Organization

SUMMARY BENCHMARK PEER COMPARISON ENERGY STAR **BASLINE** TARGETS REPORTS

Baseline is used to compare a site to itself using a defined baseline period. The baseline is weather normalized so that changes in weather do not affect the comparison. [More Info...](#)

Organization Baseline

Export To Excel



Using each site's latest 12 month period to a global organization baseline period of **July 2007 - June 2008**

Baseline By Site

| Site Name | Status | Primary Space Usage | SF | Bldgs | Actual | Baseline | Change | % Change |
|-----------------------|--------|---------------------|--------|-------|--------|----------|--------|-----------|
| Public Works 2301 | | Office Repair | 78,086 | 1 | 54.59 | 51.08 | 3.50 | ↑ 6.86% |
| Public Safety | | Facility | 68,868 | 1 | 101.78 | 95.82 | 5.96 | ↑ 6.22% |
| Public Works 2300 | | Office Repair | 27,268 | 1 | 40.11 | 38.74 | 1.37 | ↑ 3.53% |
| Central Park | ✓ | Library | 92,964 | 1 | 117.87 | 115.74 | 2.13 | ↑ 1.84% |
| Thames Fire Station | ✓ | Fire Station | 8,100 | 1 | 100.10 | 111.02 | -1.92 | ↓ -1.73% |
| City Hall | ⚠ | City Hall | | | | 91.26 | -4.53 | ↓ -4.97% |
| Fox Run Fire Station | ✓ | Fire Station | | | | 135.58 | -11.62 | ↓ -8.57% |
| Afton Fire Station | ✓ | Fire Station | | | | 147.71 | -16.79 | ↓ -11.36% |
| Eagle View Club House | ✓ | Park / Recreation | 10,744 | 1 | 74.15 | 88.28 | -14.13 | ↓ -16.00% |

Set Baseline Period

Sites stack ranked by Baseline % change with worst performing on top

Target View - Organization

B3 BENCHMARKING

Logged in as Cheri Schneider

Group By: Organization

City, Woodbury

- Afton Fire Station
- Bielenberg Sports Cen
- Central Park
- City Hall
- Eagle View Club House
- Fox Run Fire Station
- Public Safety
- Public Works 2300
- Public Works 2301
- Thames Fire Station

city, woodbury

Advanced Meter Search >>

City, Woodbury

Organization

SUMMARY

BENCHMARK

PEER COMPARISON

ENERGY STAR

BASELINE

TARGETS

REPORTS

Targets

Targets are used to establish quantifiable consumption goals for your sites and organizations. Use the table below to define your custom targets, then monitor your targets against actual consumption in the Reports tab. [More Info...](#)

☐ Show All Targets

[+ Add New Target](#)

| Name | Type | Scope | Fuel Sources/Units | Achieve Date |
|---------------|----------|-------|--------------------|--------------|
| 20% Reduction | Relative | - | | Jan 2015 |

City, Woodbury

Organization

SUMMARY

BENCHMARK

PEER COMPARISON

ENERGY STAR

BASELINE

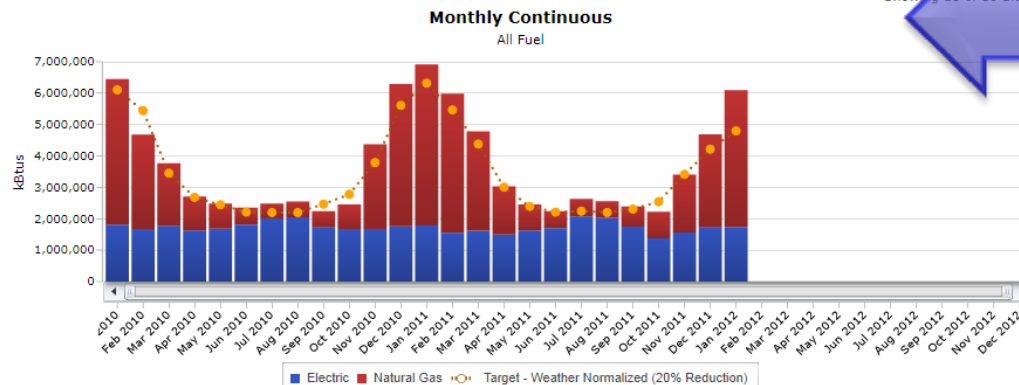
TARGETS

REPORTS

Report: Target: 20% Reduction

Show Report Options

Showing 10 of 10 Sites



| Year | Days | SF | Total kBTu | Normalized Target kBTu | Change from Target kBTu | % Change | Total Energy Cost \$ | Average Cost Rate \$ /kBTu |
|------|------|---------|------------|------------------------|-------------------------|----------|----------------------|----------------------------|
| 2010 | 365 | 457,872 | 42,848,094 | 41,400,442 | 1,447,651 | 3% | \$666,358.76 | \$0.02 |
| 2011 | 365 | 457,872 | 43,304,027 | 40,707,394 | 2,596,632 | 6% | \$697,661.61 | \$0.02 |
| 2012 | 31 | 457,872 | 7,721,971 | 9,093,909 | -1,371,939 | -15% | \$83,321.42 | \$0.01 |

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Summary View – Site

B3 BENCHMARKING

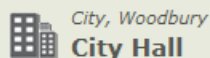
Logged in as Cheri Schneider

Group By: Organization

City, Woodbury

- Afton Fire Station
- Bielenberg Sports Cen
- Central Park
- City Hall
- Eagle View Club House
- Fox
- Public
- Public Works 2300
- Public Works 2301
- Thames Fire Station

Summary of all four site metrics



City, Woodbury
City Hall

SUMMARY

BENCHMARK

PEER COMPARISON

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TARGETS

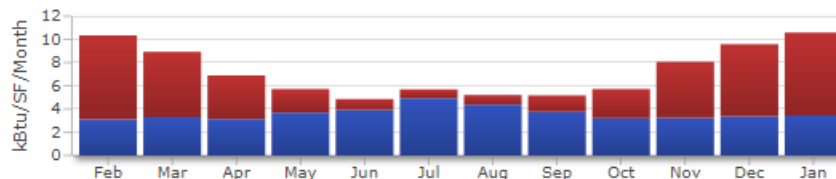
REPORTS

Summary of the site is detailed below, along with controls to manage buildings, meters, meter readings and general site attributes. [More Info...](#)

Site City Hall
Square Feet 42,000
Primary Space Usage City Hall
Meter Total 86.73 kBtu/SF/Year
Previous Months 61
[Custom Attributes](#)

Consumption Feb 2011 - Jan 2012

[Export To Excel](#)



B3 Benchmark



This site is using slightly less energy than the B3 Benchmark.

B3 Peer Rating

47%

This site is ranked in the 47th percentile amongst 95 similar sites.

ENERGY STAR Rating

78

This site may be eligible to apply for the ENERGY STAR.

Baseline

-4.97%

This site is operating below the baseline period based on energy.

Buildings

[+ Add New Building](#)

| Name | Status | Primary Space Usage | Address | City | State | Zip | SF | Occupancy | |
|-----------|--------|---------------------|------------------------|----------|-------|-------|--------|-----------|--|
| City Hall | ✓ | City Hall | 8301 Valley Creek Road | Woodbury | MN | 55125 | 42,000 | 12/1/2005 | |

Buildings & Meters associated with site

Locates building in Google Maps

Meters

[+ Add New Meter](#)

| Name | Status | Type | Company | Meter # | Account # | Inst Reading | |
|--------------------------|--------|-------------|-------------|---------|--------------|-----------------------|--|
| City Hall Electric Meter | ✓ | Electric | Xcel Energy | | 51-5738908-5 | 62 12/9/2006 2/8/2012 | |
| City Hall Gas Meter | ✓ | Natural Gas | Xcel Energy | | 51-5738908-5 | 74 12/9/2005 2/8/2012 | |

city, woodbury

[Advanced Meter Search >>](#)

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Benchmark View – Site

B3 BENCHMARKING

Logged in as Cheri Schneider

Group By: Organization

City, Woodbury

- Afton Fire Station
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- City Hall**
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City, Woodbury
City Hall

Site

SUMMARY

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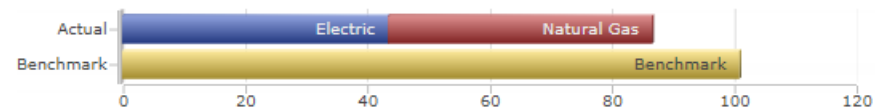
The B3 Benchmark is an engineering model that predicts how much energy a site would use if it were built to today's energy code. The B3 Rating is a measurement of a site's actual consumption to its predicted benchmark. [More Info...](#)

Site Square Feet **42,000**
Primary Space Usage **City Hall**
Actual Meter Total **86.73 kBtu/SF/Year**
Benchmark Meter Total **100.98 kBtu/SF/Year**
Actual/Benchmark Ratio **0.86**
Potential Savings -
Time Period **Feb 2011 - Jan 2012**



This site is using slightly less energy than the B3 Benchmark.

[Export To Excel](#)



Buildings

[+ Add New Building](#)

| Name ^ | Status | Primary Space Use | City | State | Zip | SF | Occupancy | |
|------------------|--------|-------------------|----------|-------|-------|--------|-----------|--|
| City Hall | ✓ | City Hall | Woodbury | MN | 55125 | 42,000 | 12/1/2005 | |

Site benchmark details

Meters

[+ Add New Meter](#)

| Name ^ | Status | Type | Utility Company | Meter # | Account # | Rdgs | First Reading | Last Reading | |
|---------------------------------|--------|-------------|-----------------|---------|--------------|------|---------------|--------------|--|
| City Hall Electric Meter | ✓ | Electric | Xcel Energy | | 51-5738908-5 | 62 | 12/9/2006 | 2/8/2012 | |
| City Hall Gas Meter | ✓ | Natural Gas | Xcel Energy | | 51-5738908-5 | 74 | 12/9/2005 | 2/8/2012 | |

city, woodbury

[Advanced Meter Search >>](#)

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Peer Comparison View – Site

B3 BENCHMARKING

Logged in as Cheri Schneider

Group By: Organization

City, Woodbury

- Afton Fire Station
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- City Hall
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- Public Works 2301
- Thames Fire Station

city, woodbury

Advanced Meter Search >>

City, Woodbury
City Hall

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Export To Excel

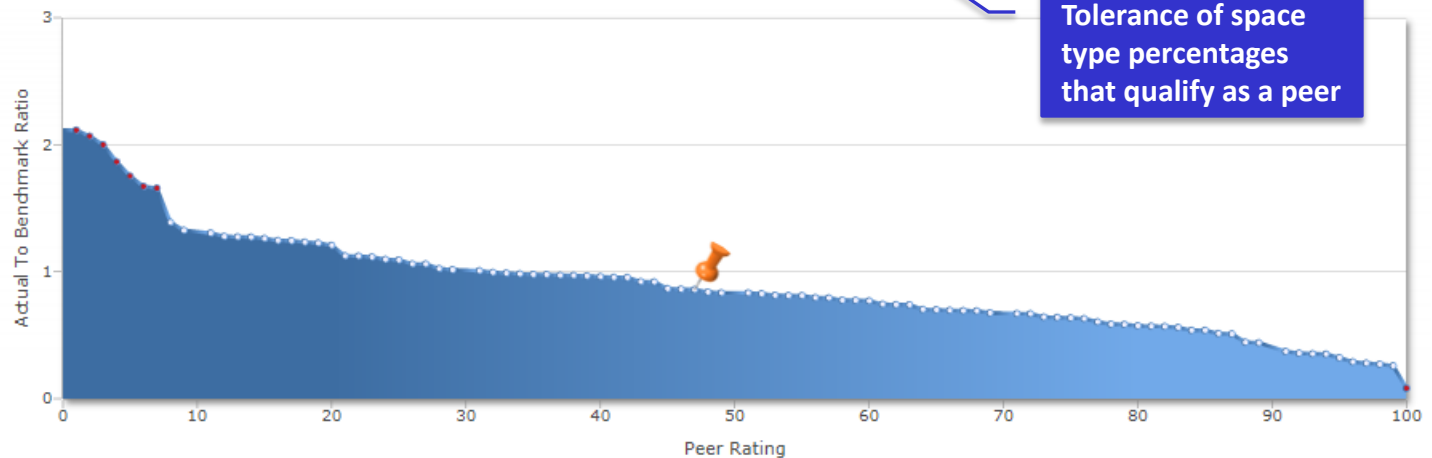
Site Square Feet 42,000
Primary Space Usage City Hall
Actual Meter Total 86.73 kBtu/SF/Year
Benchmark Meter Total 100.98 kBtu/SF/Year
Actual/Benchmark Ratio 0.86
Sampled Square Feet 2,785,937

47%

This site is ranked in the 47th percentile amongst 95 similar sites.

Similar sites are determined using a space usage tolerance of $\pm 15\%$.
73.8%-100% City Hall

Peer Distribution



ENERGY STAR® View – Site

B3 BENCHMARKINGLogged in as Cheri-Demo Schneider

Group By: Organization

(All Organizations)

City, Woodbury

Afton Fire Station

Bielenberg Sports Cen

Central Park

City Hall

Eagle View Club House

Fox Run Fire Station

Public Safety

Public Works 2300

Public Works 2301

Thames Fire Station

Other, The Weidt Group

City, Woodbury

City Hall

SUMMARY

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ENERGY STAR is a national program designed to promote energy efficiency. The B3 Benchmarking System is able to request your ENERGY STAR rating automatically using the data gathered in B3. Not all buildings are applicable. [More Info...](#)


Site Square Feet 42,000

Primary Space Usage Office

Status Success

Using Period Ending 1/2012

Date Rating Received 3/26/2012 9:45:38 AM



78

Export To Excel

This site may be eligible to apply for the ENERGY STAR.
⚠ Estimates used for IT energy load.
[Contact us to learn how to get started...](#)

Buildings

Name

Status

Primary Space Usage

Address

City

State

Zip

SF

Occupancy

City Hall

✓

City Hall

8301 Valley Creek Road




Woodbury

MN

55125

42,000

12/1/2005



Name

Status

Type

Utility Company

Meter #

Account #

Rdgs

First Reading

Last Reading

City Hall Electric Met

✓

Electric



Xcel Energy

51-5738908-5

62

12/9/2006

2/8/2012



City Hall Gas Meter

✓

Natural Gas



Xcel Energy

51-5738908-5

74

12/9/2005

2/8/2012



Advanced Meter Search >>

ENERGY STAR rating

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GRIHA RGBC 2012

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Baseline View – Site

B3 BENCHMARKING

Logged in as Cheri Schneider

Group By: Organization

City, Woodbury

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City, Woodbury
City Hall

Site

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BENCHMARK

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ENERGY STAR

BASELINE

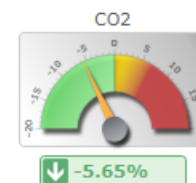
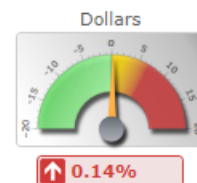
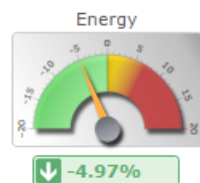
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Baseline is used to compare a site to itself using a defined baseline period. The baseline is weather normalized so that changes in weather do not affect the comparison. [More Info...](#)

Export To Excel

Site Square Feet **42,000**
Primary Space Usage **City Hall**
Actual Meter Total **86.73 kBtu/SF/Year**
Time Period **Feb 2011 - Jan 2012**
Baseline Meter Total **91.26 kBtu/SF/Year**
Baseline Time Period **Jul 2007 - Jun 2008**



Based on the latest 12 month period Feb 2011 - Jan 2012 to baseline period
Jul 2007 - Jun 2008

Site Baseline details

| Status | Primary Space Usage | Address | City | State | Zip | SF | Occupancy | |
|--------|---------------------|------------------------|----------|-------|-------|--------|-----------|--|
| ✓ | City Hall | 8301 Valley Creek Road | Woodbury | MN | 55125 | 42,000 | 12/1/2005 | |

Add New Building

Baseline metrics –
Energy, Dollars, CO2

Meters

Add New Meter

| Name | Status | Type | Utility Company | Meter # | Account # | Rdgs | First Reading | Last Reading | |
|---------------------------------|--------|-------------|-----------------|---------|--------------|------|---------------|--------------|--|
| City Hall Electric Meter | ✓ | Electric | Xcel Energy | | 51-5738908-5 | 62 | 12/9/2006 | 2/8/2012 | |
| City Hall Gas Meter | ✓ | Natural Gas | Xcel Energy | | 51-5738908-5 | 74 | 12/9/2005 | 2/8/2012 | |

city, woodbury

Advanced Meter Search >>

B3 Framework v3.0.0.3198 | Copyright © 2012

Potential Savings Opportunity of B3

▲ Over ₹100 crore savings opportunity

| Sector / Org | Total Area (m ²) | Total no. of Bldgs | Potential Improvement Buildings | Buildings % | Potential Improvement Area (m2) | SF % | Potential Savings (MMBTU/YR) | Potential Annual Rs. Savings |
|----------------|------------------------------|--------------------|---------------------------------|-------------|---------------------------------|------------|------------------------------|------------------------------|
| Higher Ed | 4,918,033 | 1,167 | 148 | 13% | 1,277,320 | 26% | 708,805 | ₹ 479,152,492 |
| City | 3,956,022 | 1,582 | 387 | 24% | 795,295 | 20% | 351,492 | ₹ 237,608,592 |
| State | 2,374,312 | 2,556 | 537 | 21% | 920,839 | 39% | 294,292 | ₹ 198,941,184 |
| Public Schools | 13,277,746 | 1,330 | 108 | 8% | 890,815 | 7% | 215,653 | ₹ 145,781,636 |
| County | 2,172,581 | 573 | 126 | 22% | 401,660 | 18% | 175,090 | ₹ 118,361,100 |
| Total: | 26,698,693 | 7,208 | 1,306 | 18% | 4,285,928 | 16% | 1,745,333 | ₹ 1,179,844,952 |

Future Features for B3

Renewable Meter

- ▲ New meter type for tracking renewable energy from wind and photovoltaic



Water Consumption Tracking

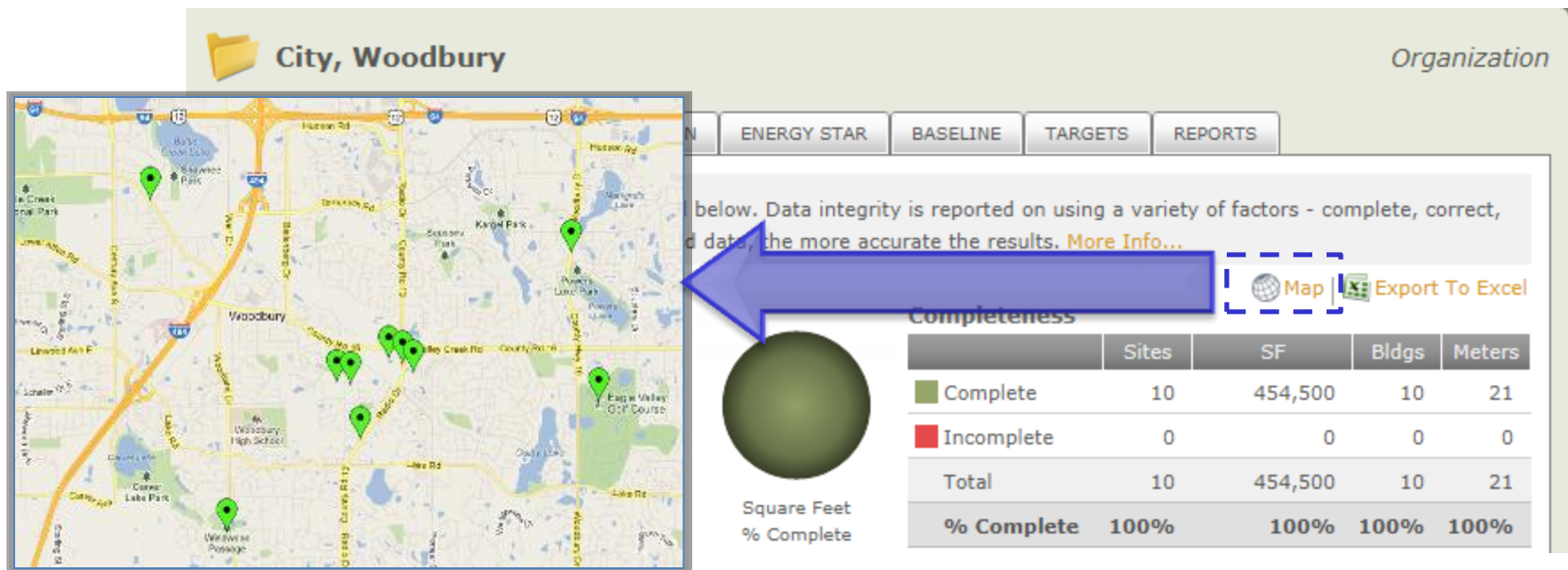
- ▲ New mode to track and baseline the water consumption



Future Features for B3

Organizational Map View

- All buildings within an organization will be displayed on the map
- A map at the summary level and for each metric: Benchmark, Peer Comparison, ENERGY STAR and Baseline
- Pins color-coded based on performance

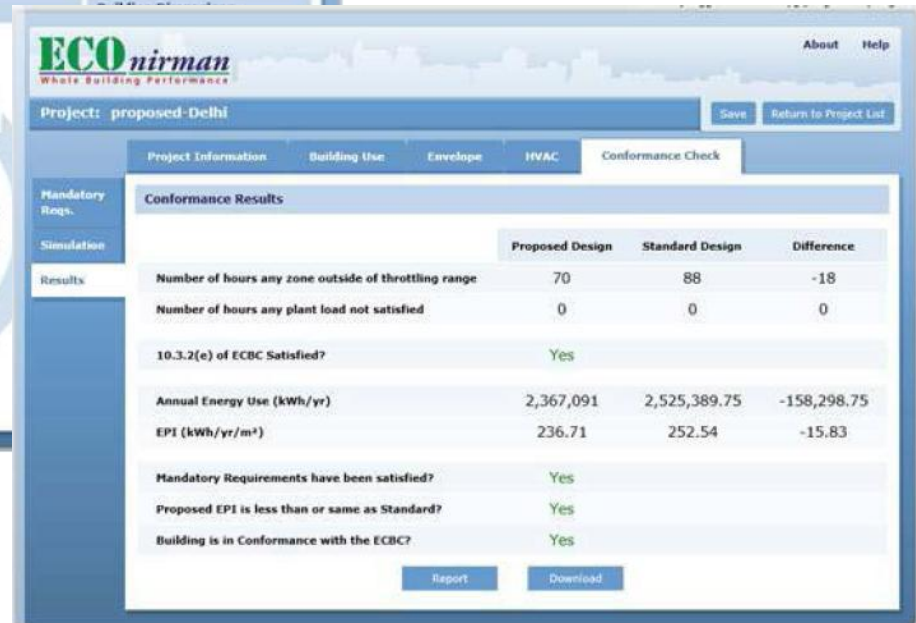


Potential Features for B3 in India

Integration with ECOnirman



- ▶ <http://econirmanwbp.eetools.in>
- ▶ Free tool for ECBC compliance
- ▶ Whole building performance



Summary

- ▲ Benchmarking system helps identify buildings most in need of energy conservation improvements
- ▲ B3 Benchmarking has successfully engaged over 7200 public building managers
- ▲ Stakeholders using the tool to help justify funding and target energy audit candidates
- ▲ Potential energy savings opportunities in buildings of all ages, sizes, and types
- ▲ A benchmarking system similar to B3 has a significant potential in India
 - ▲ Exponential growth in buildings sector
 - ▲ Lack of robust building energy database
- ▲ Opportunities for integration with GRIHA and DSM program planning



Thank You

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