Net Zero Energy Leased Buildings

Getting to Zero Forum
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BEST PRACTICES FOR LEASING NET-ZERO ENERGY BUILDINGS
AN ACTIONABLE GUIDE EXPLAINING THE BUSINESS CASE AND PROCESS FOR DEVELOPERS AND LANDLORDS TO PURSUE NET ZERO ENERGY LEASED BUILDINGS

Apply Best Practices From Leading NZE Buildings To Your Portfolio
Why Net Zero? Why go Green?

Ecology: human ecology, climate change, biodiversity, & clean water

Economics: marketing, entitlements, financing, lease-up & occupancy
Ecology is More Important than Utility Bills

Human ecology is critical for tenant satisfaction:
- Natural daylight
- Indoor air quality
- Comfortable temperatures

Electric utility expenses were 5% of NNN operating expenses at 1400 Page Mill Road in 2017

Increased the Likelihood of Success at Every Stage of Development Cycle

The marketing advantage of net zero increased our success:
- Marketing
- Entitlements
- Financing
- Lease-up and long-term occupancy
Tenant Leasing Presents Unique Challenges for Net Zero

Net zero & lease-up:
- The marketing edge of net zero brings tenants to the table
- Lease requirements for net zero are necessary to align base building with tenant improvements
- Plan review and inspections are necessary during TI design & construction

Hanover Page Mill Associates Integrates Ecology and Economics for the Benefit of People and the Environment

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How Do You Design/Develop To NZE?
What Does A Developer Want?
What’s In It For Them…?

• Lease rates/sales price that create a return on invested capital (8-10%)

• Predictability with regard to operating costs and tenants

• Long-term operating costs lower than competitors

• Long-term value (high occupancy, appreciation, etc.)

Our Strategy

• High quality design
• Long life/loose fit
• Low resource consumption
• Great environment for people
• Dialogue with the environment
Photovoltaic Locations / Solar Analysis

Northeast Perspective - Aerial  Southwest Perspective - Aerial
Solar / Building Form Evolution
How Can Solar Create A Good Return?...Before Tax Credits
Creating a Market Rate Return on Solar

- Total solar cost-including attachment $1.9M $2.3M
- Market rate for energy (low end) $1.90/SF/year
  $190,000 per year before depreciation/credits
- 10.83% cash on cash return before financing

100,000 square foot building

Daylighting
A Building Is The Sum Of Its Systems

Daylight, Views, Efficient Floor Plans, Flexible Configurations

“Off the Shelf” Components

- Narrow floor plates
- Variable volume refrigerant system
- Composite steel structure
- Triple glazed windows-gas filled
- Good thermal envelope-mineral wool on exterior
- All LED lighting
### Net Zero Goal / Energy Comparison

<table>
<thead>
<tr>
<th>Description</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average Office Building in this Climate</td>
<td>67</td>
</tr>
<tr>
<td>LEED Platinum Building (Approximate)</td>
<td>35</td>
</tr>
<tr>
<td>Base Sustainable Design</td>
<td>29.7</td>
</tr>
<tr>
<td>+ Argon-Filled Fiberglass Window Frames</td>
<td>28.2</td>
</tr>
<tr>
<td>+ Tight Construction for Reduced Infiltration</td>
<td>27.2</td>
</tr>
<tr>
<td>Net-Zero Goal</td>
<td>25.3</td>
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- **Net-Zero Goal**
- **Ecospace Elevator**
- **Pumps**
- **Fans**
- **Cooling**
- **DHW**
- **Heating**
- **Lights**
- **Plugs**

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**A New Space For RMI**

- bright, Collaborative And Energy Efficient
Where Do We Go From Here?

Repeat, Refine and Expand

- When it works-repeat
- Refine details and installation methods
- Develop new integration techniques
- Integrate transportation into the dialogue
- Develop more district level projects
- Continue to "experiment"


Laurence Preble, Holland & Hart
Defining NZE

- On-site energy generation = on-site use
- Each Tenant has a designated plug load
- Monitored monthly; confirmed annually
- Office and common areas included
- Restaurant and commercial areas excluded

Commissioning

- Annual commissioning of project to establish baseline performance
- Cost of commissioning is an operating expense
- Monthly reports to Tenants
NZE Operation

What if project does not perform?
• Building does not meet NZE goal; or
• Tenants exceed plug loads; or
• *Force majeure* affects project performance

If Building Does Not Meet NZE Goal:

• LL purchases excess electricity from Xcel;
• LL purchases equivalent renewable energy certificates (RECs);
• LL pays additional cost
If Tenants Exceed Plug Loads

- LL purchases excess electricity from Xcel;
- LL purchases equivalent RECs;
- Tenants pay additional cost

If An Event Of Force Majeure Occurs

- LL purchases additional electricity from Xcel;
- LL purchases equivalent RECs;
- LL bills all Tenants for additional cost as an operating expense
What If Landlord Defaults?

• What are the Tenant's remedies?
• May Tenant purchase RECs and recover cost from LL?
• Liquidated damages
• Lender concerns

Bringing an Existing Portfolio to NZE
Blair Madden Bui, John Madden Company
Sustainable Properties Benefit Tenants

- Improves brand value
- Increased health & productivity
- Reduces risk
- Employee attraction & retention

To overcome these challenges we:
- Build partnerships with tenants around energy consumption
- Utilize financing tools like PACE
- Plan energy improvements for the most cost optimal time

Existing Buildings Have Their Own Unique Set of Challenges
**Property Assessed Clean Energy Programs**

- City or county creates type of assessment district
- Property owners voluntarily sign-up for financing and install energy/water projects
- Financing provided to property owner to pay for energy project
- Property owner repays loan through property assessment

Well timed upgrades can overcome cost barrier

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**Next Steps**

- Energy concierge
- More transparent energy consumption for tenants
- Goal of net-zero energy over time
Questions?