Energy Efficiency in Buildings

Green Buildings Action Forum
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Director

Supply Side

Building Integrated Photovoltaic Panels (BIPV)
**BIPV - 4 Times Square New York**

- **Location:** Conde Nast Building, NYC
- **Construction:** BIPV Curtain Wall
- **Completed:** July 2001
- **Peak capacity:** 20kW
- **Type:** Custom triple-laminated 40W amorphous Si modules
- **Environmental:** >1million lbs of CO2 over its lifetime

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**US Court House, Denver**

- **Location:** Denver, CO
- **Completed:** 2002
- **Peak capacity:** 18.4 kW
- **Type:** Single or Polycrystalline Silicon

Source: http://www.imaginit.cc/bipv.pdf
### Lehrter Train Station, Germany

- Number of modules: 1,440
- Total area: 3,311 m²
- PV output: 325 kW
- Electricity generation: 274,000 kWh/yr

Source: [http://www.cler.org/predac/article.php3?id_article=511](http://www.cler.org/predac/article.php3?id_article=511)

### Sanyo Solar Park, Japan

- Number of solar panels: 5,046
- Maximum power output: 630 kW
- Dimension (L x Hmax): 315m x 37.1m
- Weight: 3000 tons

**HIT Double Solar Panels**

SANYO HIT (Heterojunction with Intrinsic Thin Layer) bifacial solar cells are hybrids of single crystalline silicon surrounded by ultra-thin amorphous silicon layers.

- Power from both sides
- More electricity production with the increase in temperature
- High efficiency
- 20-year limited power output warranty

Source: [www.us.sanyo.com/solar](http://www.us.sanyo.com/solar)

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**Demand Side**

**Efficient Lighting Devices**

Advanced Research Institute
Virginia Polytechnic Inst & State University, U.S.A
Efficiency of Electric Lamps

- Incandescent: 1%
- Fluorescent: 5%
- LED: 15-30%

Energy Efficient LED Light Bulbs

- Input voltage: 120V, 60Hz
- Average Input Power: 1.3W
- Lumens equivalent: 11W incandescent lamp
- Estimated life: ~100,000 hours
Energy Efficient Lighting Programs

- CFL program approaches
  - Subsidized prices
  - Distributor mechanisms
  - Consumer financing mechanism
  - Consumer education and information
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