Retailer Energy Alliance

REA Supplier Summit

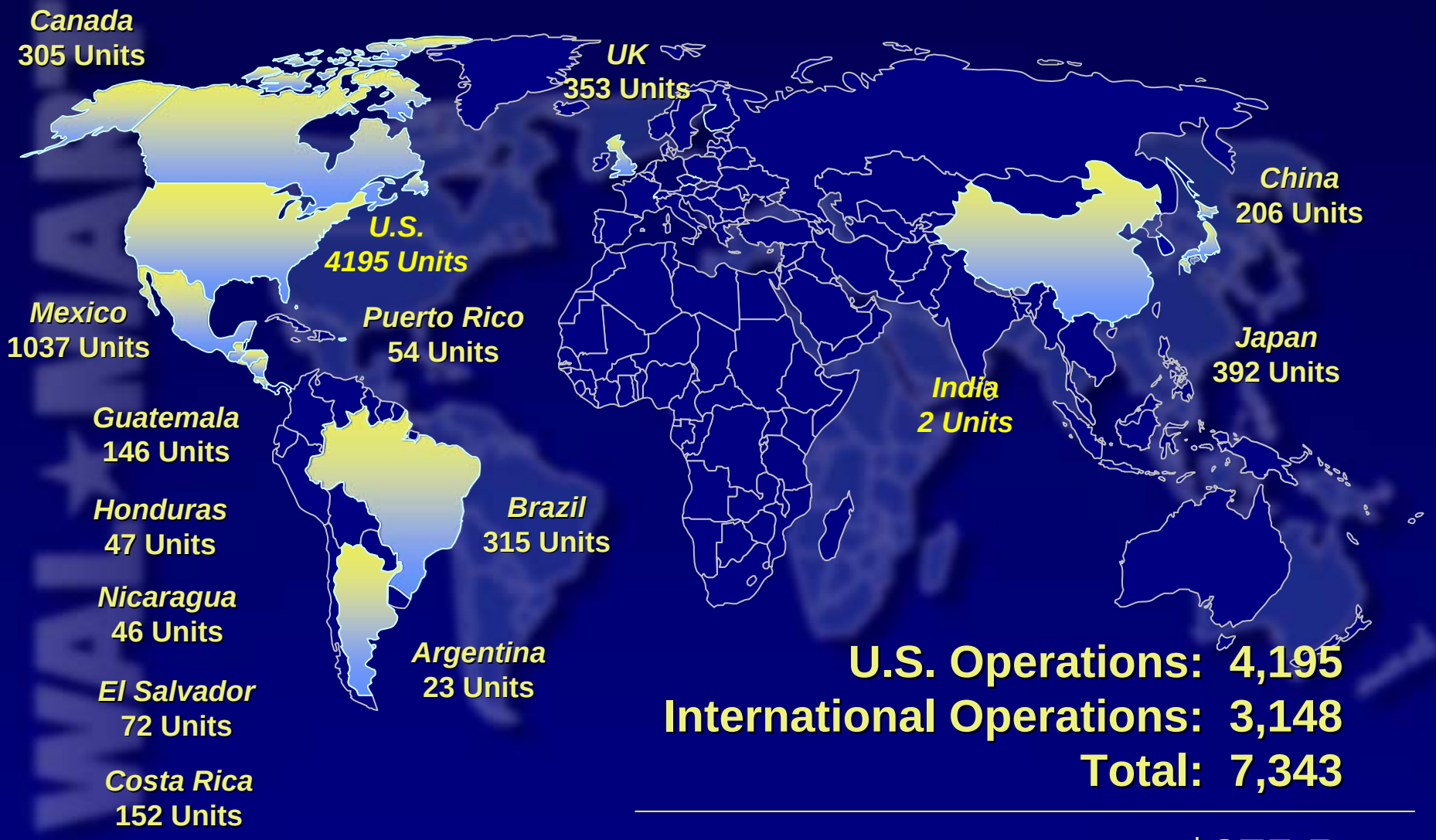
Jim McClendon
Walmart Stores, Inc

20/12 – 25/09 - 100

June 5, 2008

Retailer
Energy Alliance

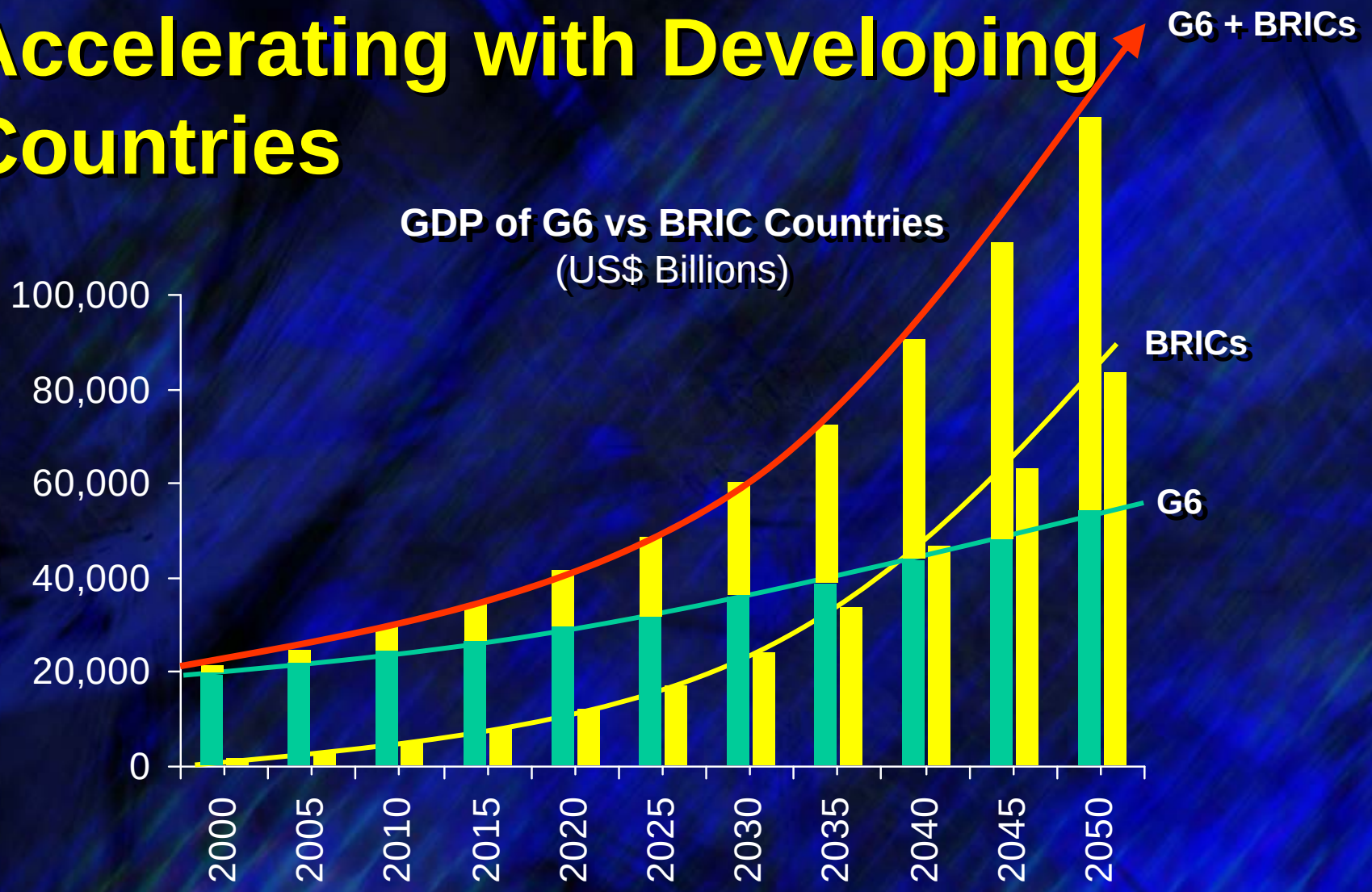
Global Presence – 2007



U.S. Operations: 4,195
International Operations: 3,148
Total: 7,343

Annual Sales: $375 B

Competition for Resources Accelerating with Developing Countries



Growth Expectations…

	1995	2005	2015
Revenue	4th	1st	1st
Profit	12th	8th	5th
Associates	3rd	1st	1st
Real Estate	1st	1st	1st
Equivalent GDP	32nd	19th	13th

….International Driven.


PALÍ
EL PRECIO MÁS BAJO
COMPROMISO PÚBLICO
PALÍ
BIENVENIDO A LOS PRECIOS MÁS BAJOS
21/11/2005


WAL*MART
SUPERCENTER


LIVIN
LIVIN
BANK
LIVIN


SEIYU
SEIYU
LIBRO
BOOKS
モダンパスタ
居食屋
和み亭
大型手芸専門店
Craft Heart
Tokai
SEIYU
立体 600m

#1001 – GUIYANG PEOPLE SQUARE, CHINA – SUP NEW – GO 5/28/04


24
hours
ASDA
VAL★MART
Supercentre


ASDA


Always
Food Center
WAL★MART
SUPERCENTER

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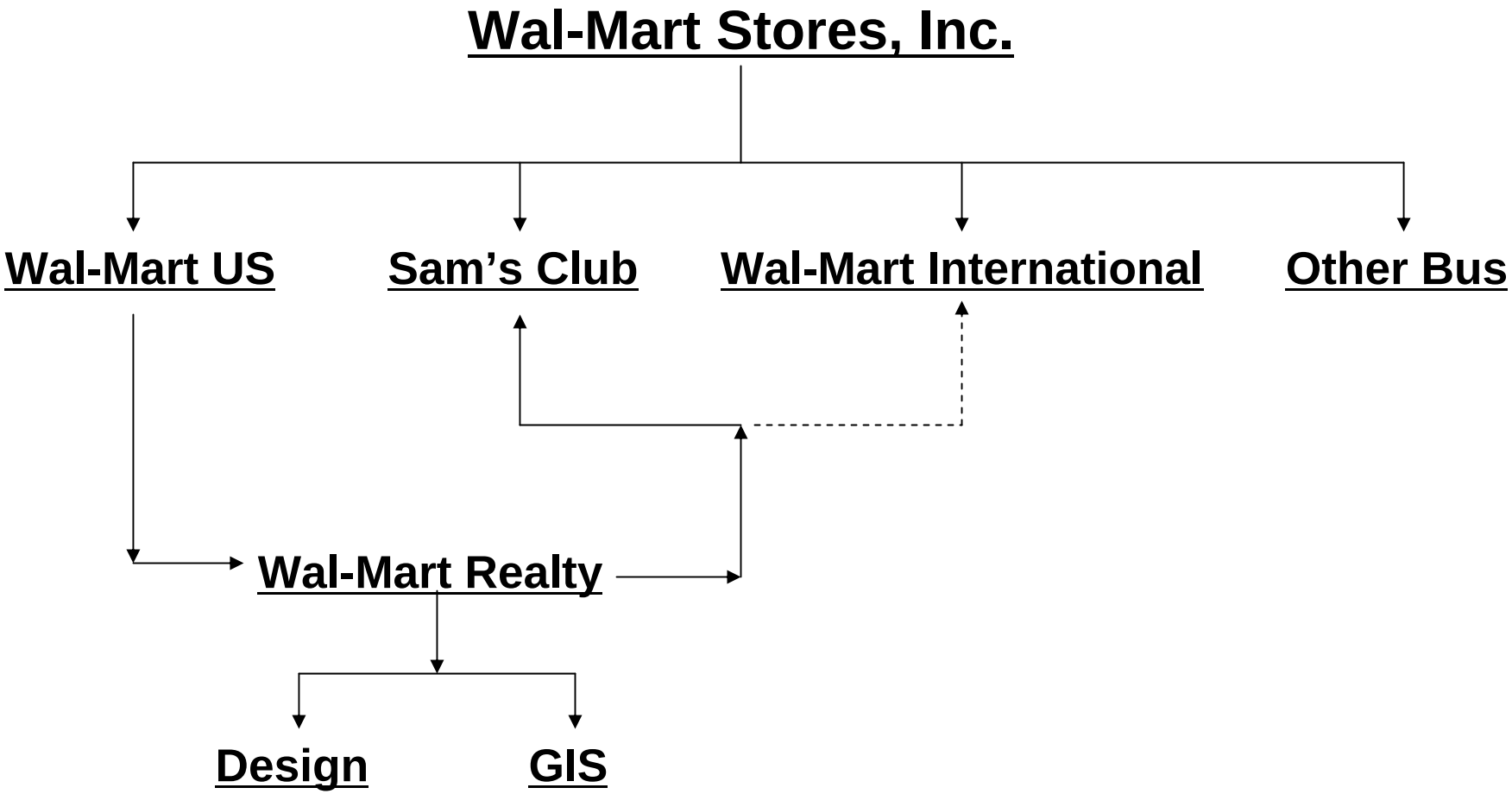

Business Structure

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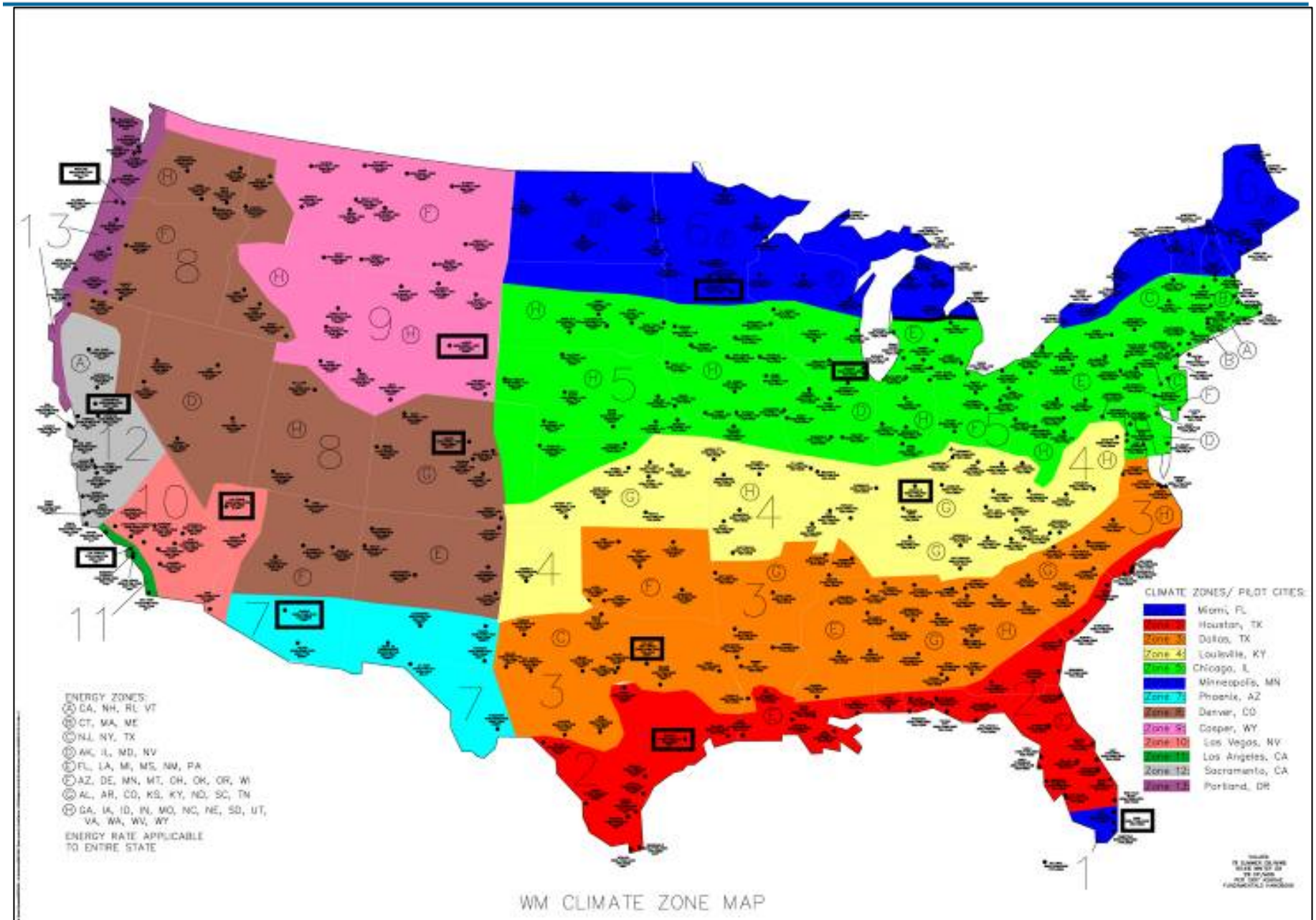
Manage Design and Construction:

- Prototype and New Format Development
  - Develop, manage, maintain prototype library
  - One-offs, takeovers, multi-levels
- Site Adapt – Project Floor
  - Site conditions, constraints, market demands
  - ~40–50 MM ft^2/yr
- GIS; Sourcing per Design Specifications
  - Global opportunities, scale, common denominators
- Technology – Applications must have program opportunity
  - Incentives, rebates, shared programs are tough…

Energy Use Profile



WM CLIMATE ZONE MAP

Energy Use Profile

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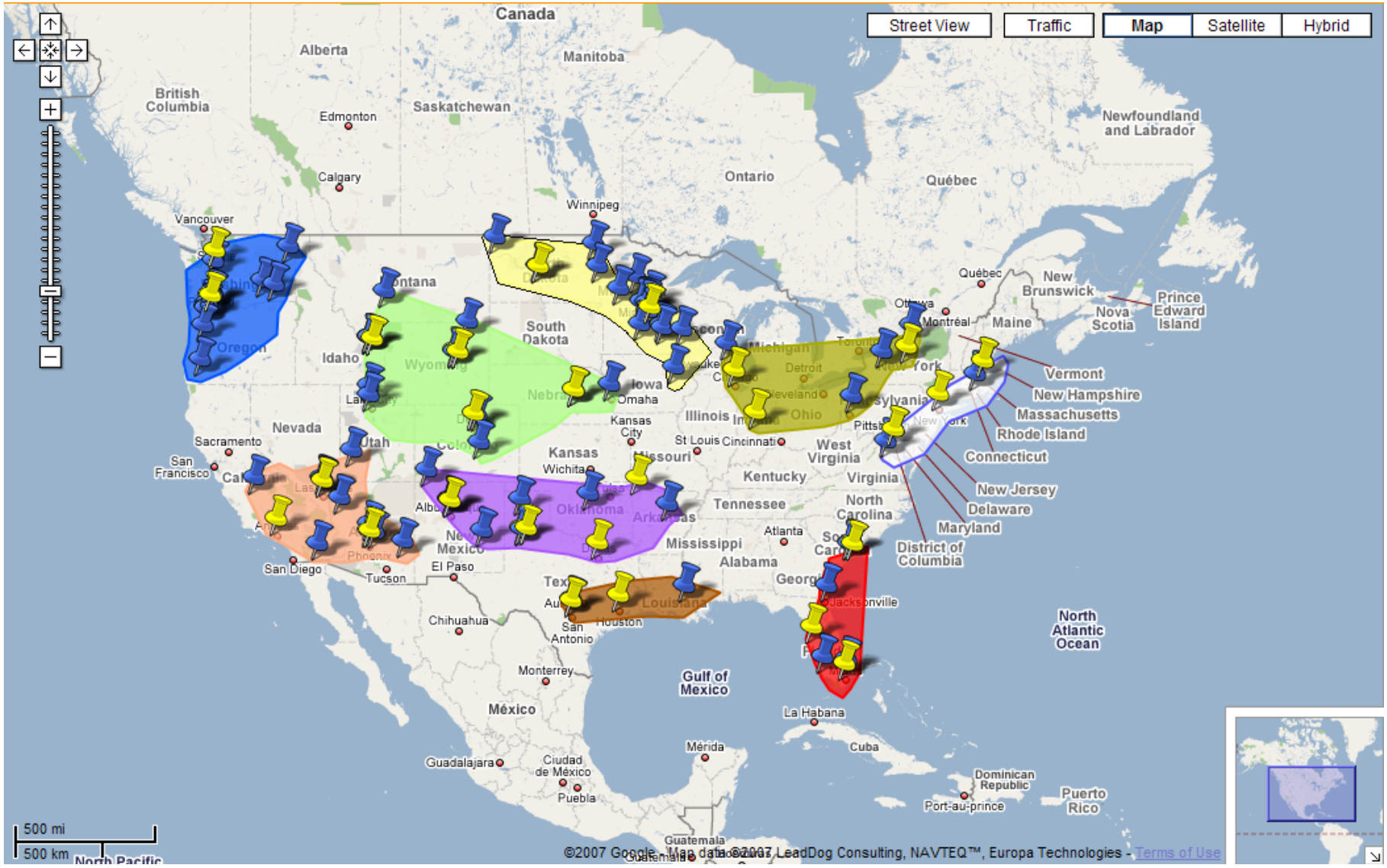

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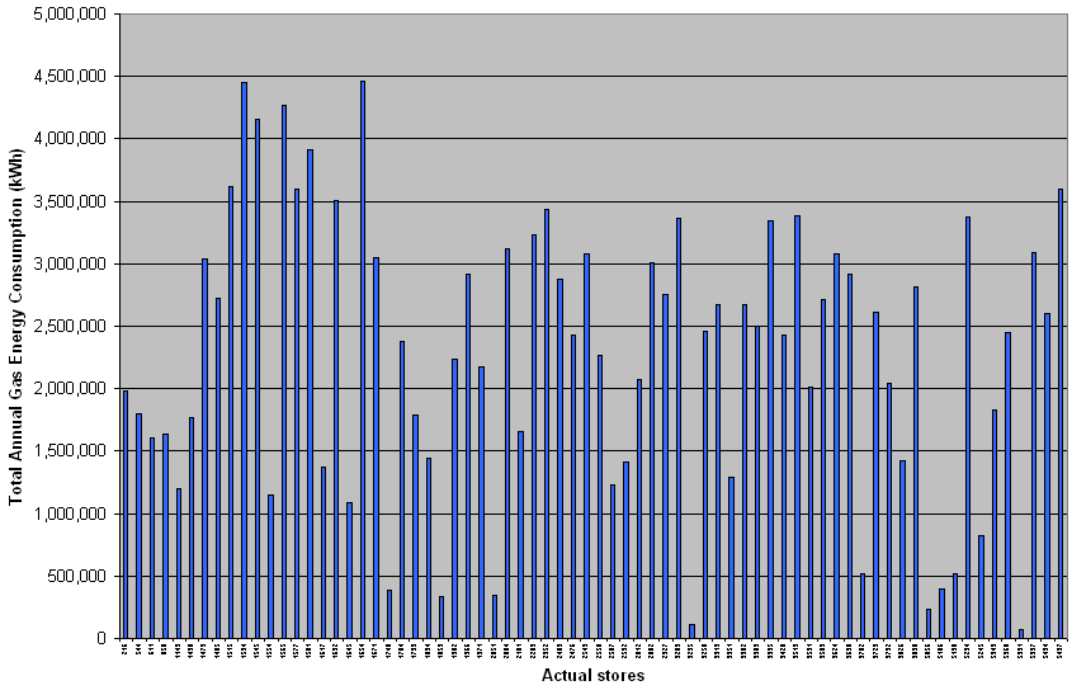
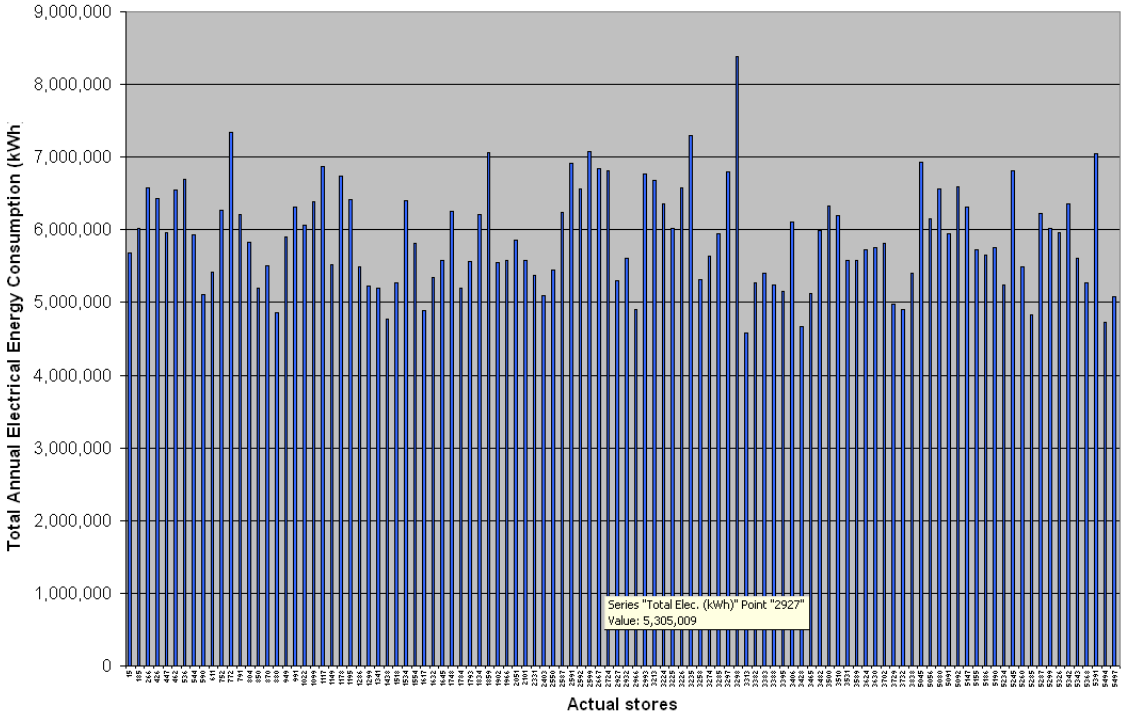


Gas

Electric



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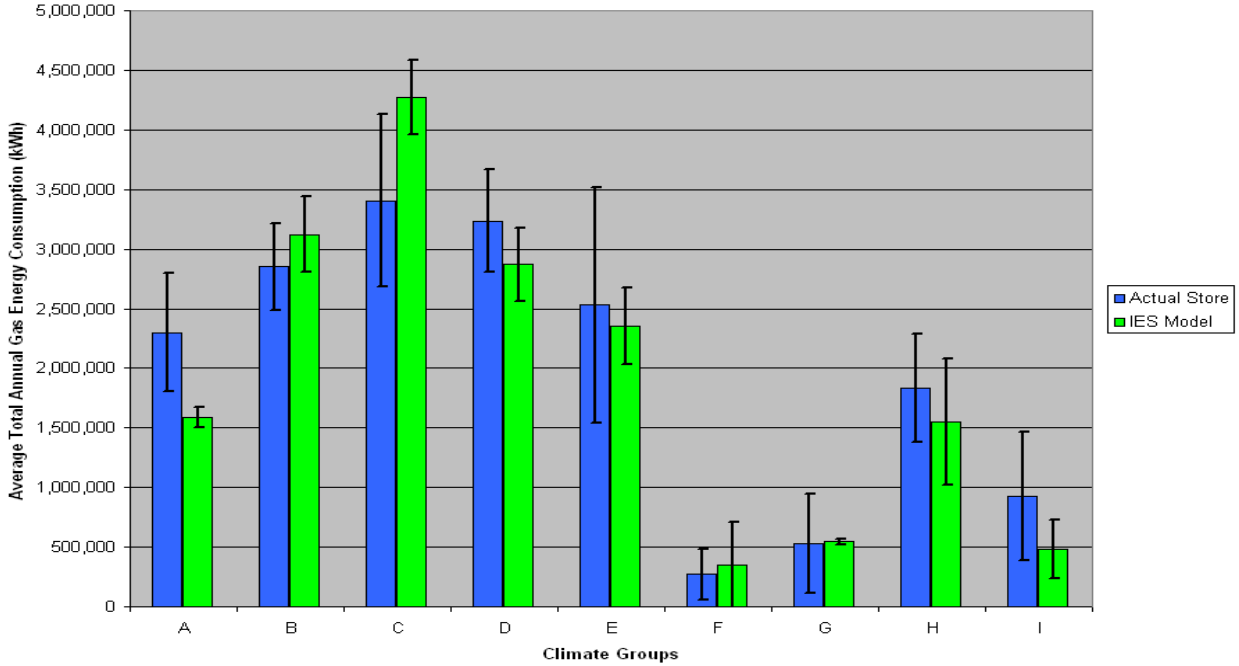
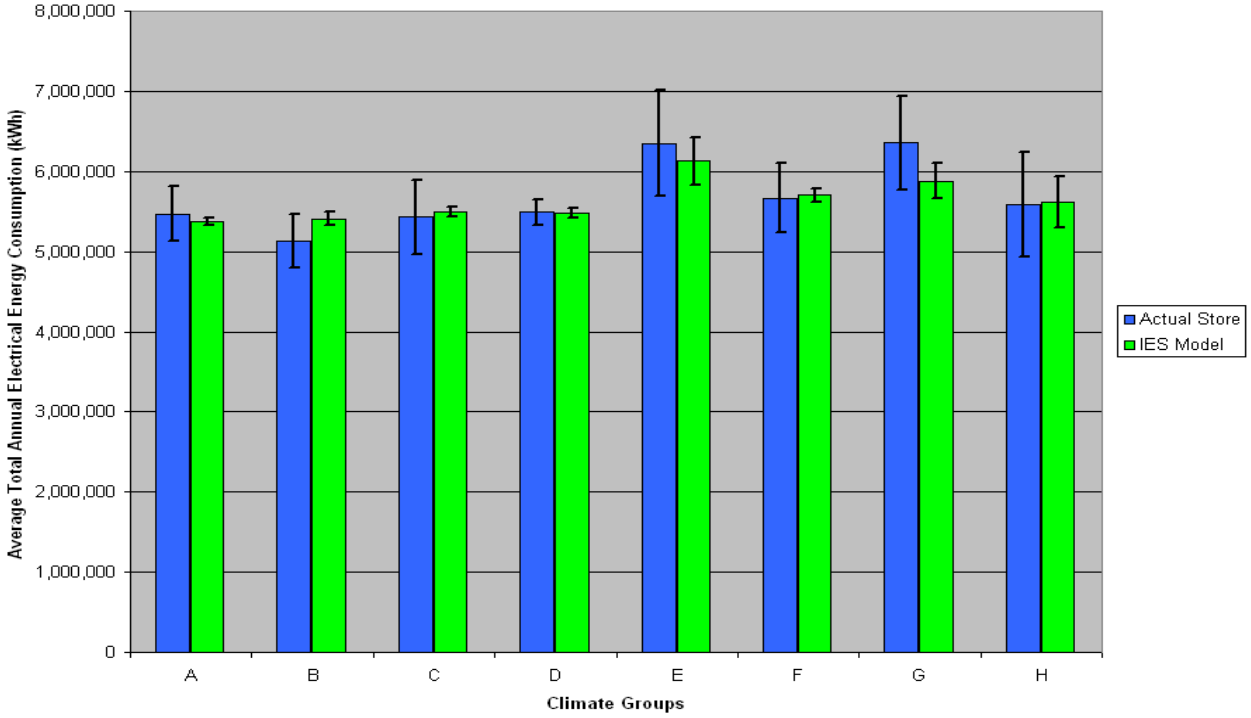


Gas

Electric



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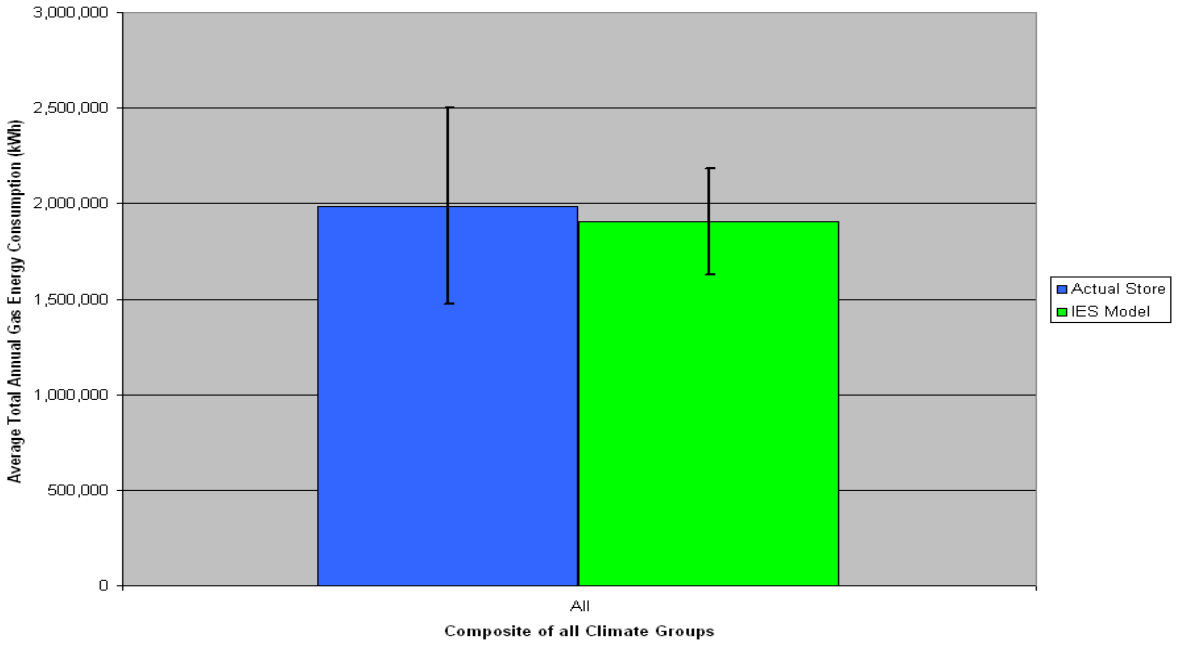

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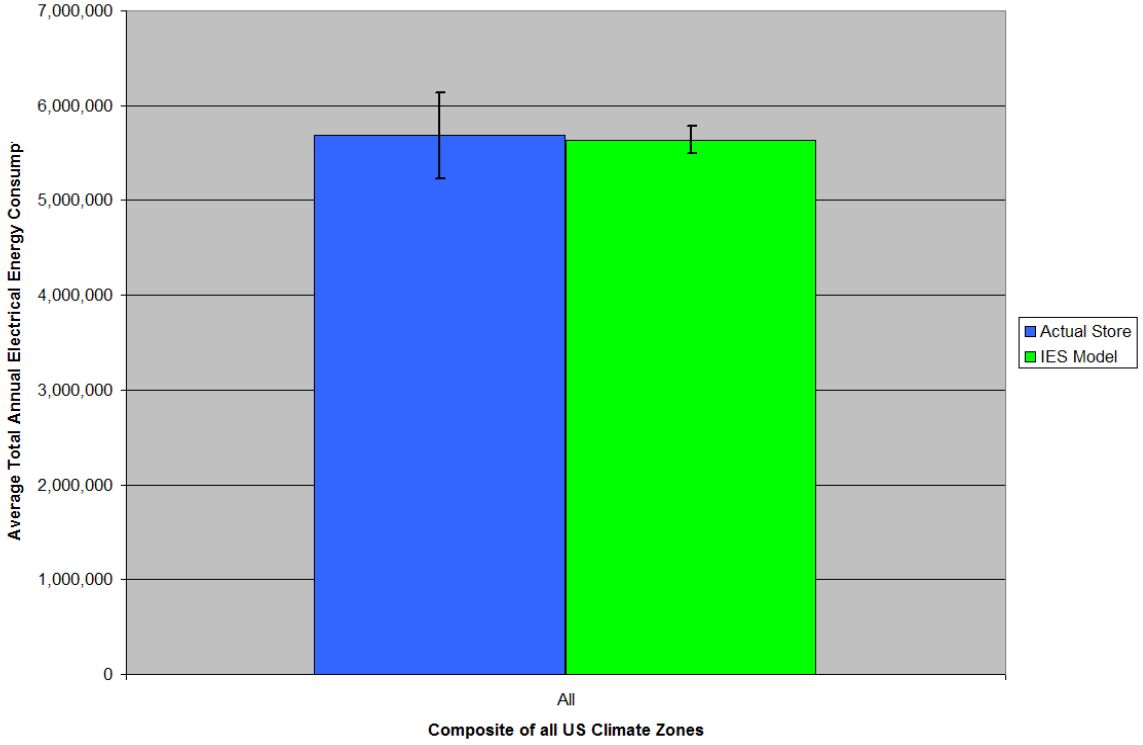
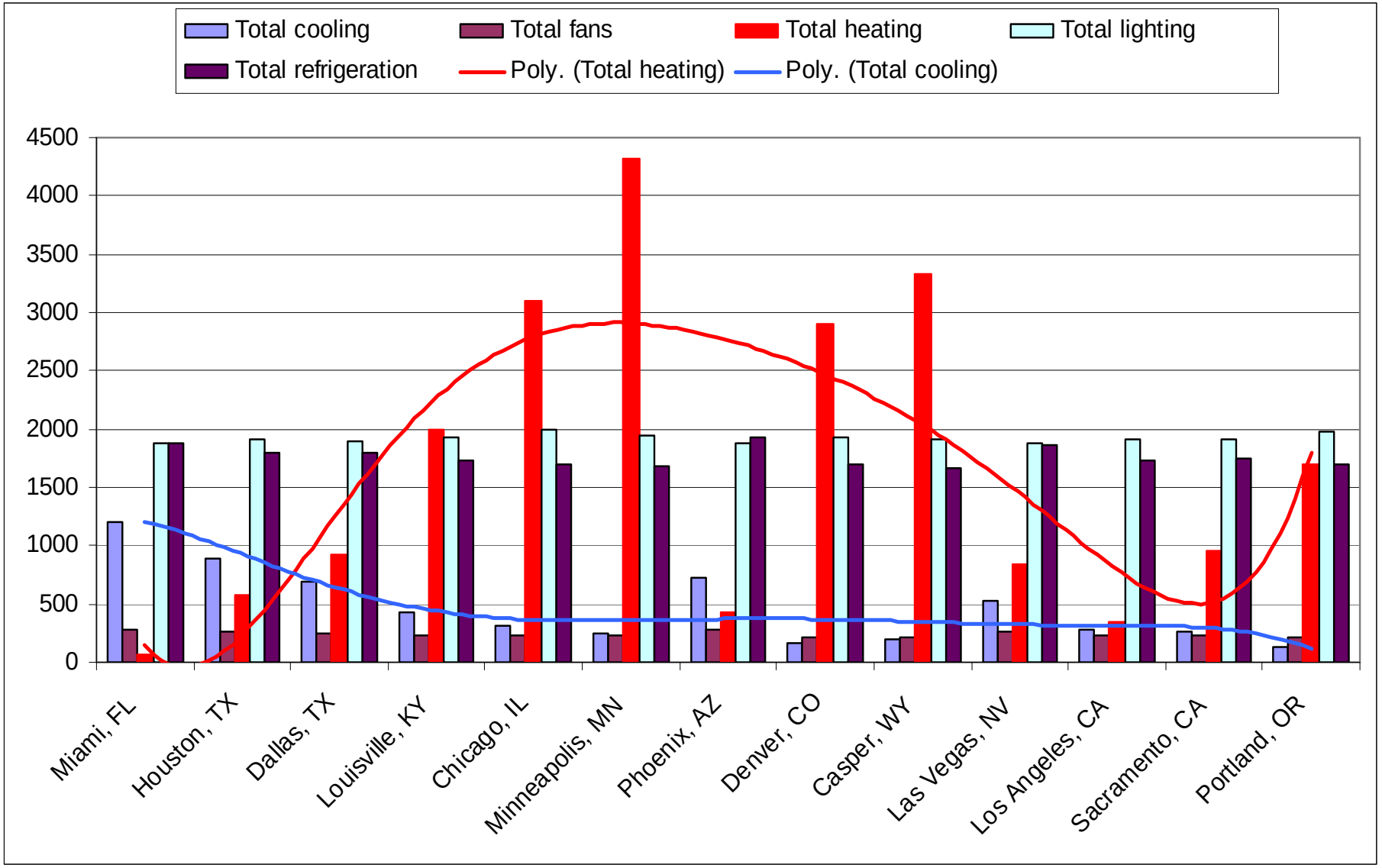


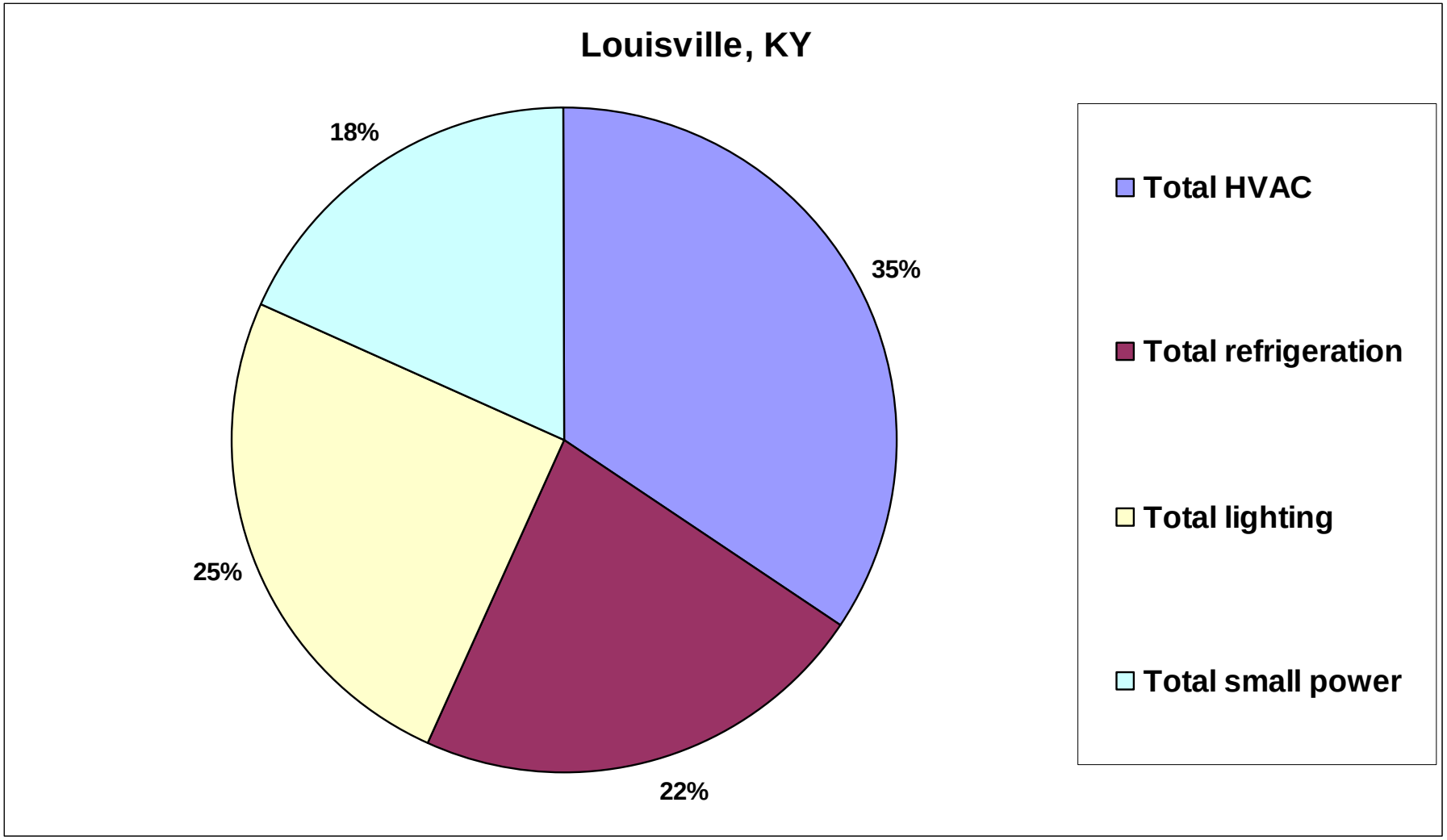
Model Energy Use Profile

Retailer Energy Alliance

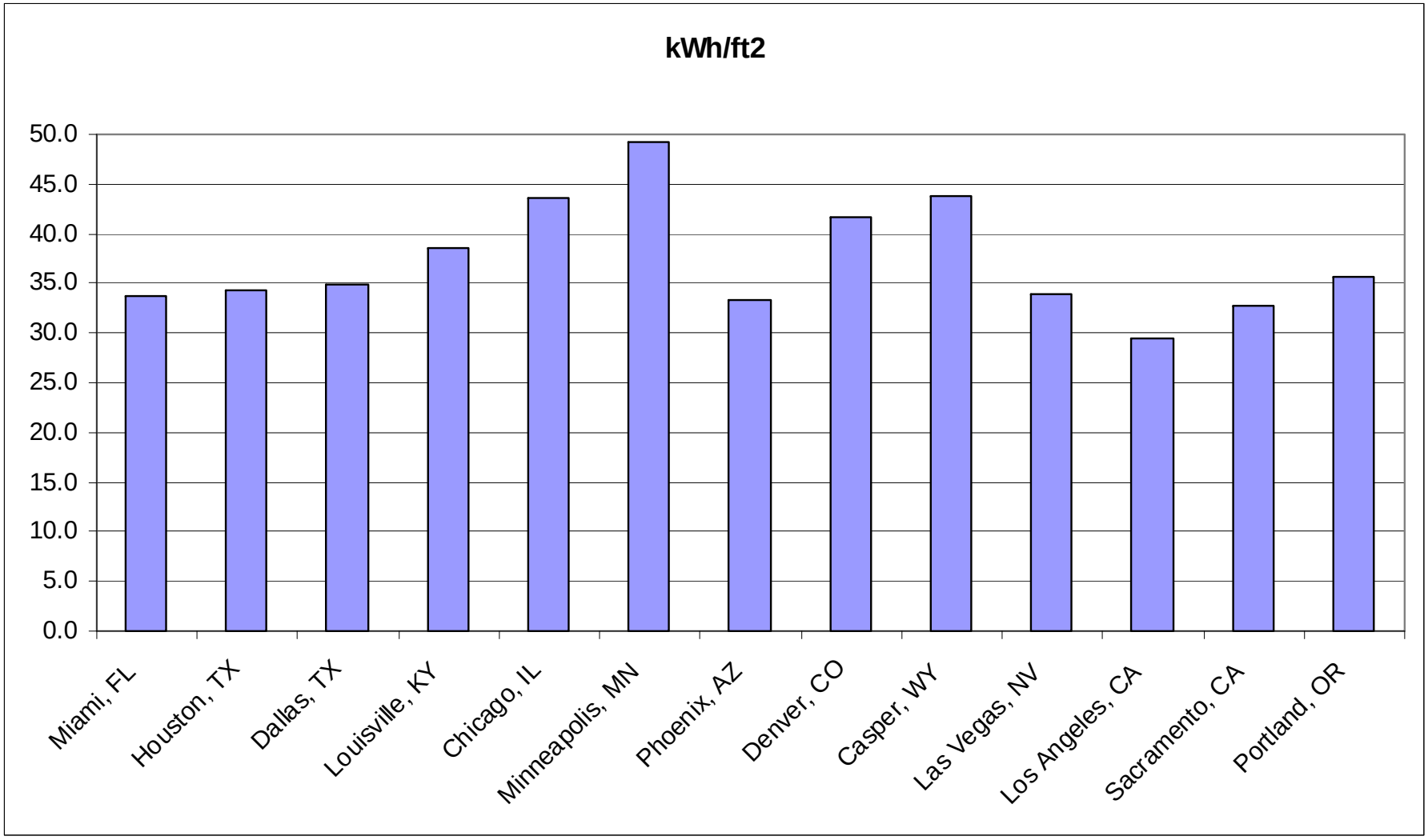


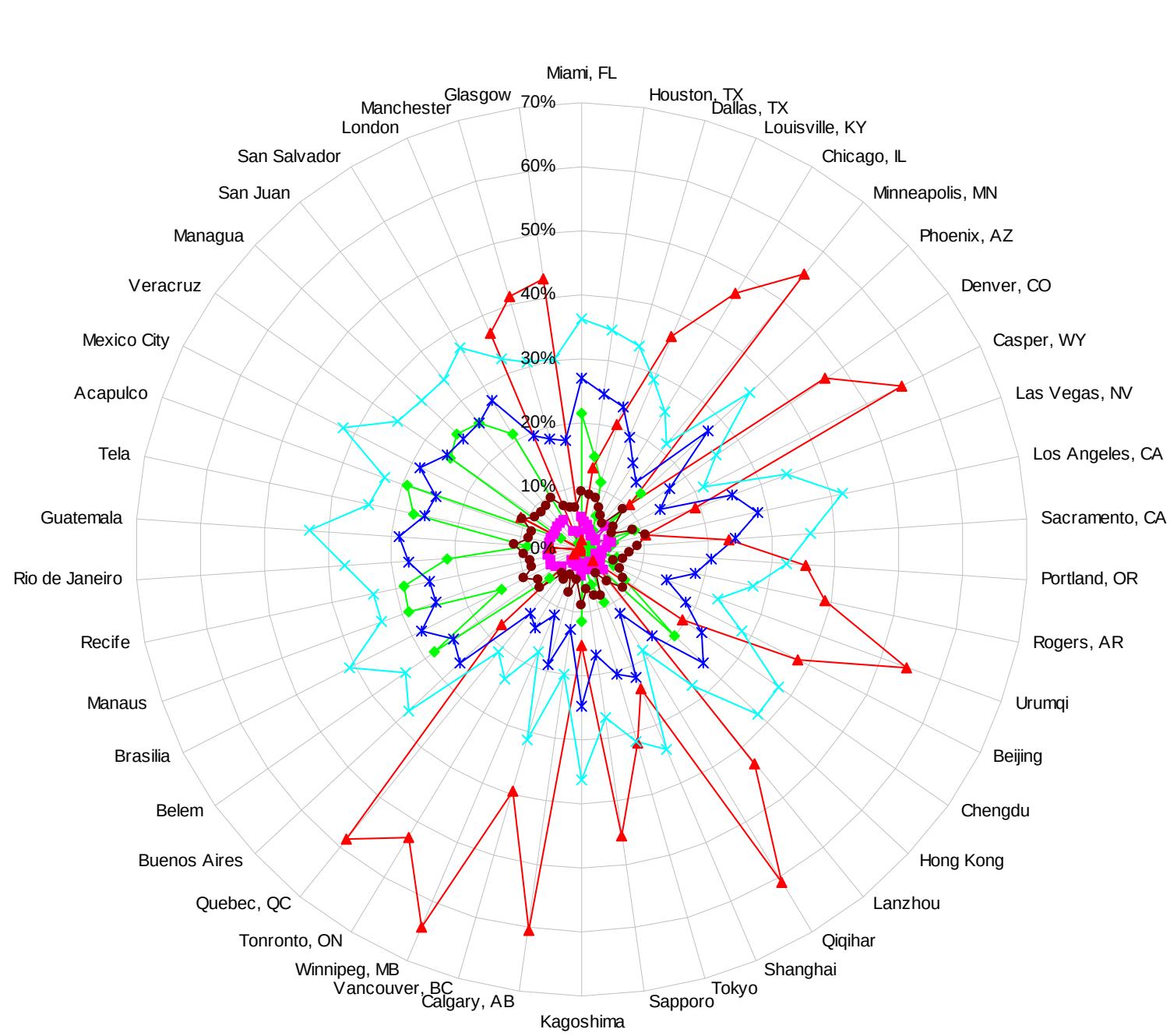
Model Energy Use Profile

Retailer Energy Alliance



Model Energy Use Profile




Miami, FL
Houston, TX
Dallas, TX
Louisville, KY
Chicago, IL
Minneapolis, MN
Phoenix, AZ
Denver, CO
Casper, WY
Las Vegas, NV
Los Angeles, CA
Sacramento, CA
Portland, OR
Rogers, AR
Urumqi
Beijing
Chengdu
Hong Kong
Lanzhou
Qiqihar
Shanghai
Tokyo
Sapporo
Kagoshima
Calgary, AB
Vancouver, BC
Winnipeg, MB
Tonronto, ON
Quebec, QC
Buenos Aires
Belem
Brasilia
Manaus
Recife
Rio de Janeiro
Guatemala
Tela
Acapulco
Mexico City
Veracruz
Managua
San Juan
San Salvador
London
Manchester
Glasgow
70%
60%
50%
40%
30%
20%
10%
0%
Cooling
Fans
Heating
Lighting
Refrigeration

Estimated (2005) kWh/ft²

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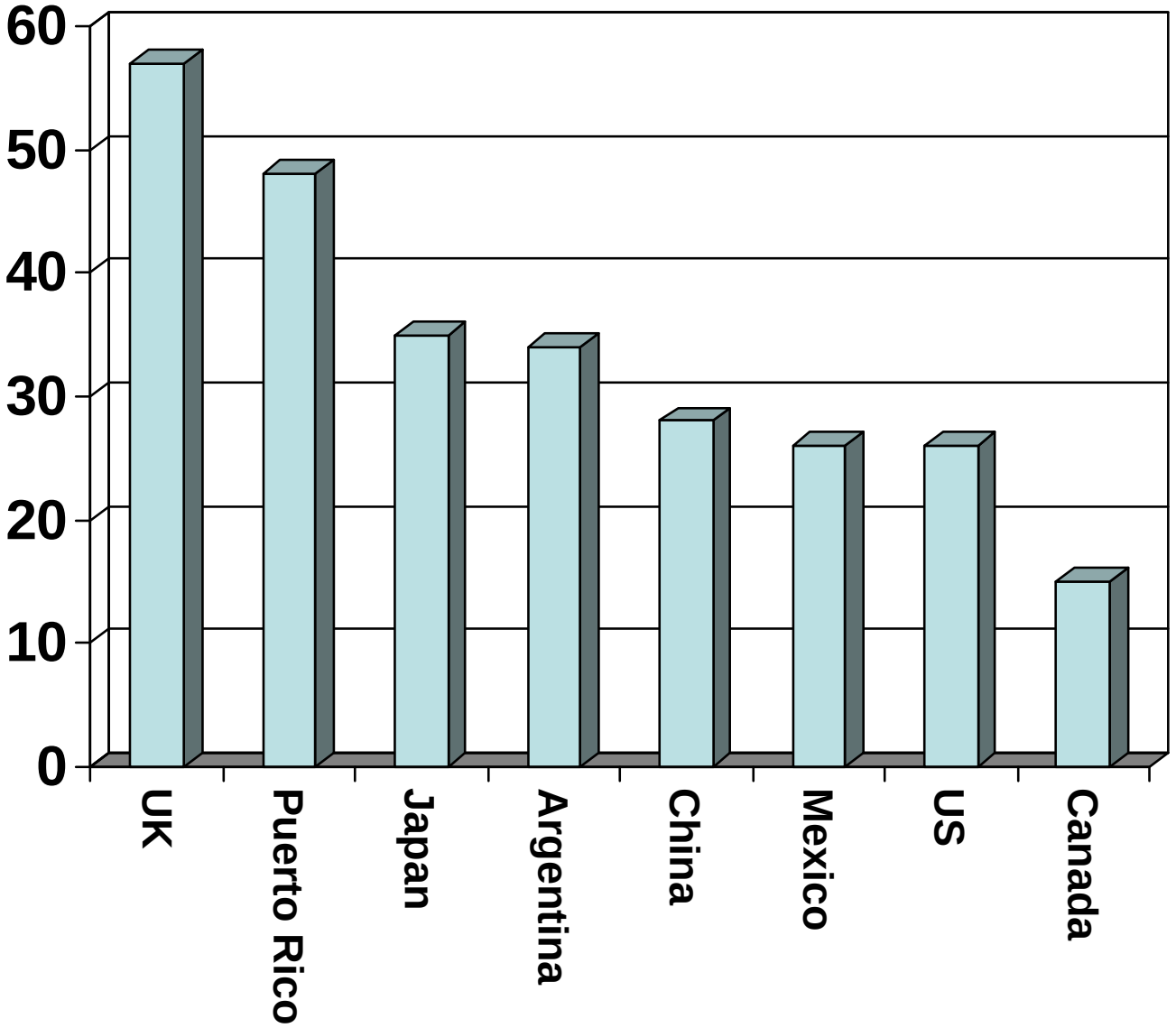
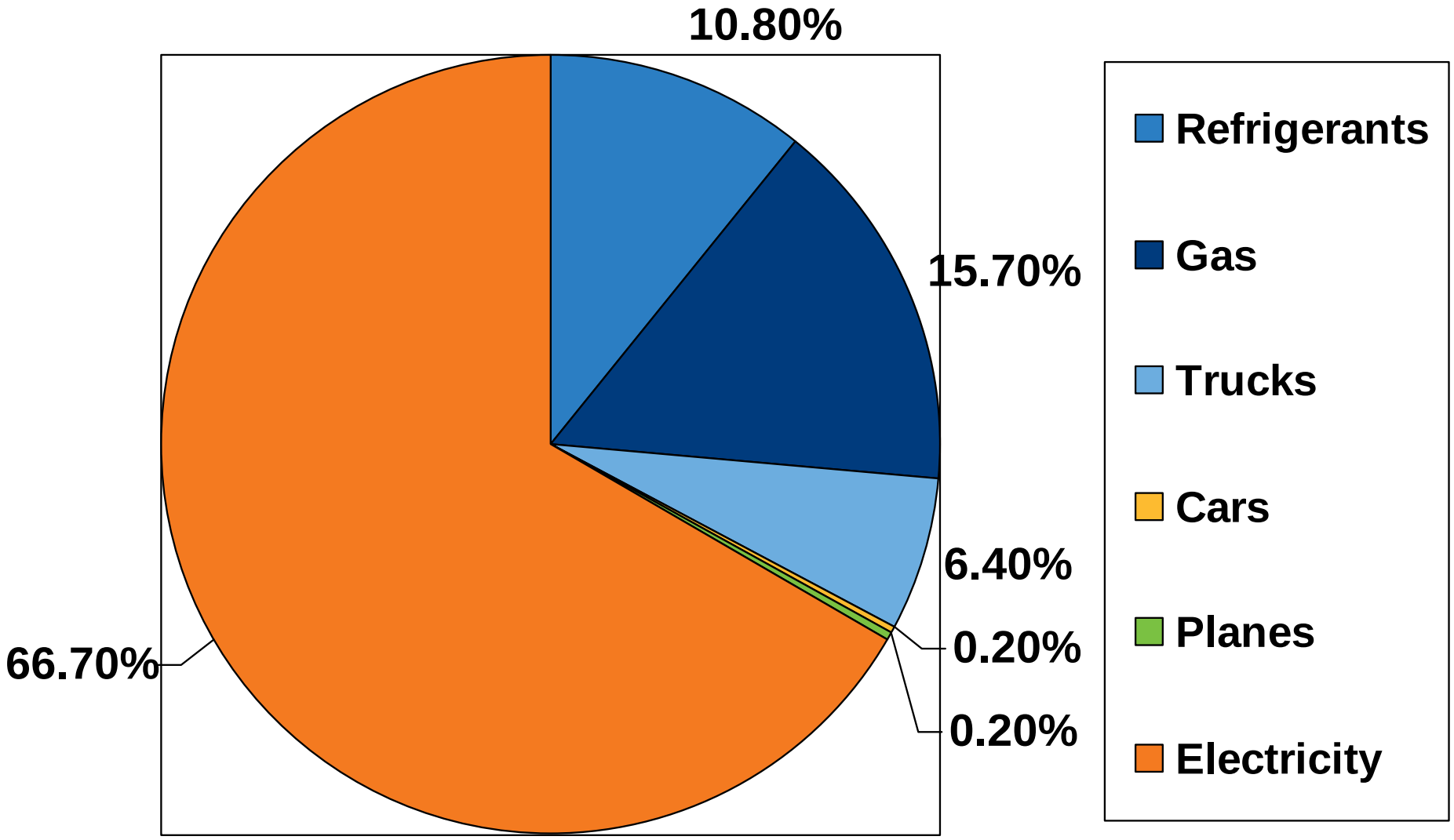


Global CO_2 Footprint (2005)

- 80% Bldg Energy
- 90% Bldg Systems



WAL★MART

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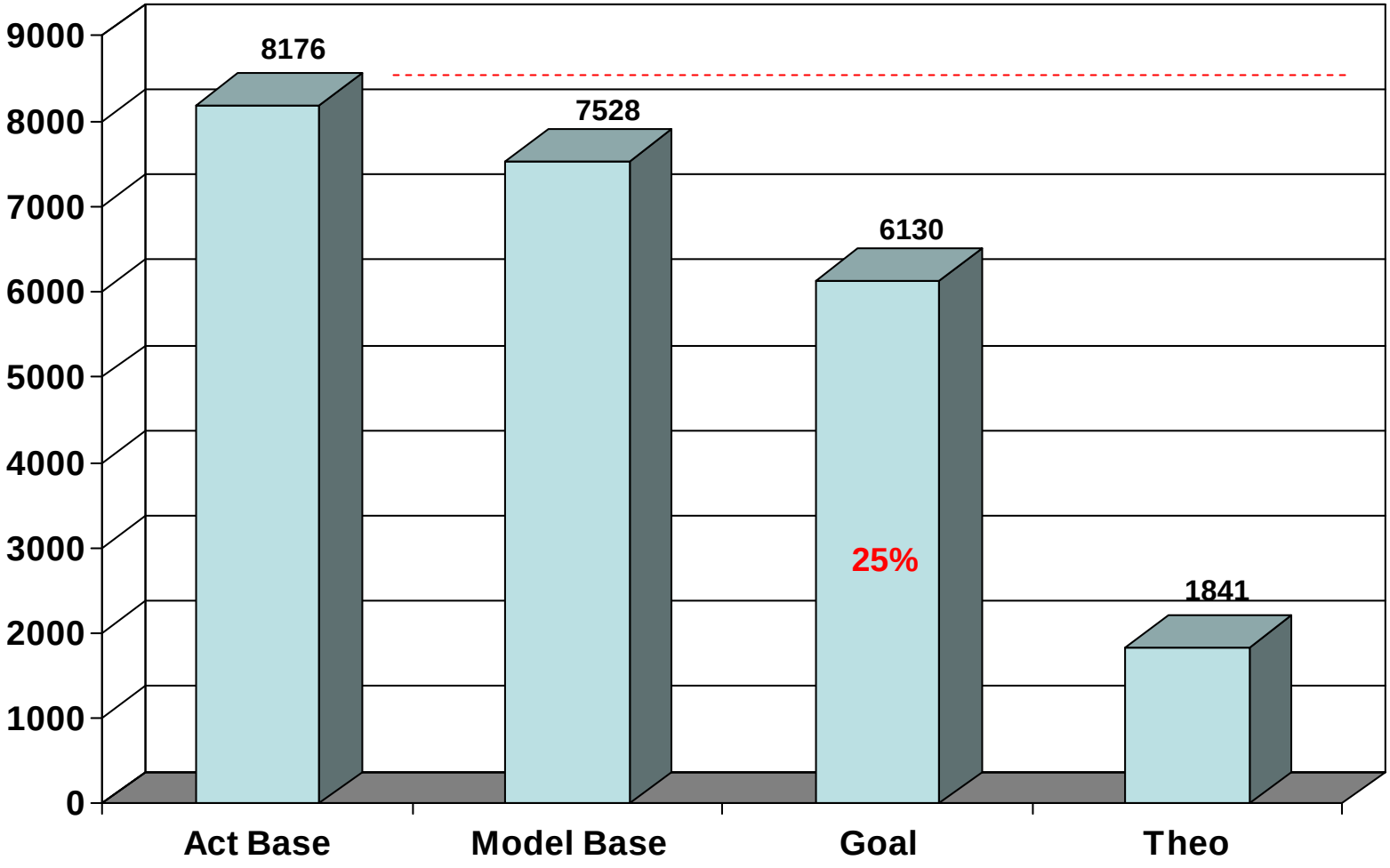

Goals: What's the Limit?

Current EEMs in Place:

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- New Prototype:
  - Integrated design approach
  - Water source heat pump
  - 100% fridge heat reclaim
  - Radiant floors for heating and cooling
  - Indirect evaporative processes
  - LED case lighting, exterior and parking lots, product
  - Controls….????

- Retrofits:
  - Variable-frequency drive applications
  - HVAC upgrades
  - Lighting retrofits…LED
  - EB commissioning
  - Controls….????

The Opportunity; A Business Case

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- WMT; Largest Private Energy Consumer in the US.
  - < 1%
  - ~ $2 B
  - > 1/2 B ft^2
- REA Factor;
  - Will exceed 3 billion ft^2
  - You do the math…
  - $100s Millions of Energy Savings Potential
- Retail Is a Strategic Point of Injection
  - Prototype based for quick penetration
  - Scale factor bridges technology and commercialization gaps quickly
  - Natural migration path to other building sectors
- New Industry and Business Opportunities Will Emerge

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Inhibitors:

- Integrated Solutions
  - Not mutually exclusive…
- Understanding and Acknowledging the Business Case
  - Has to be a line of sight toward a ROI
  - Energy, operation and maintenance…VOEs
- Do Your Homework:
  - Identify the right application; does it address a need, does it work…
  - Identify energy savings budget; best case, worst case…
  - Build economic case with real sensitivities…
  - Product/system development strawman…
  - Market acceptance/transformation strategy…

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Energy Use by Technology: Lighting

- Areas of Need or Focus:
  - Integrated design
  - LED solutions; product, parking, ambient
- Current Technologies Employed:
  - Interior lighting; HET8 with daylight harvesting
  - Solid-state sighting; LED exterior signage, LED cases, LED jewelry
  - Controls; open loop
- Industry/Supplier Focus – R&D focus:
  - Identify the need
  - LED applications; ambient, parking, product, CRI

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Energy Use by Technology: HVAC

- Areas of Need or Focus
  - Integrated design
  - Drop conventional barriers
  - EER → 8760
  - Integrate-embed control functionality into design and fabrication
    - Load-capacity matching
- Current Technologies Employed:
  - Unitary packaged equipment; RTUs, WSHPs, AHUs, etc
  - New prototype; water-based systems: IDEC, radiant…
- Industry/Supplier Focus – R&D Focus:
  - Identify the need

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Energy Use by Technology: Refrigeration

- Area of Need or Focus
  - Integrated design…no longer a silo industry
  - Modular design and fabrication
  - Integrate-embed control functionality into design and fabrication

- Current Technologies Employed:
  - Secondary loops; Glycol & CO_2
  - Variable-frequency drive compressors and fans
  - High-efficiency motors; cases and walk-ins
  - Dynamic LED case lighting

- Industry/Supplier Focus – R&D Focus:
  - Identify the need…
  - Control: intelligent, dynamic, open

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Energy Use by Technology: Water

- Areas of Need or Focus
  - Modular, scalable reuse technologies; rain, storm,…
  - Treatment, quality
- Current Technologies Employed:
  - Urinals: from 1.0 to 0.13 gpf;
  - Toilets: from 1.6 to 1.28 gpf;
  - Lav's: from 2.2 to 0.5 gpm;
- Industry/Supplier Focus – R&D Focus:
  - Identify the need

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Energy Use by Technology: Envelope

- Roof:
  - 195 prototype, ~200,000 ft^2
    - Roof to Walls = 5:1

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Energy Use by Technology: O&M

- Maintenance-free battery
- Diminishing skill set and resource base
- Modular, prefab, plug and play
  - High-quality manufacturing
  - Low failure/warranty
  - High reliability, low service requirement

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Prioritize:

- Integrated Solutions
  - Not mutually exclusive…no silo applications
- Understanding and Acknowledging the Business Case
  - Has to be a line of sight toward a return
  - Energy, O&M…volatile organic compounds
- Do Your Homework:
  - Identify the right application; does it address a need, does it work…
  - Identify energy savings budget; best case, worst case…
  - Build economic case with real sensitivities…
  - Product/system development strawman…
  - Market acceptance/transformation strategy…
- REA: Strategy Point, Leveraging Point, Scale Factor

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Thank You