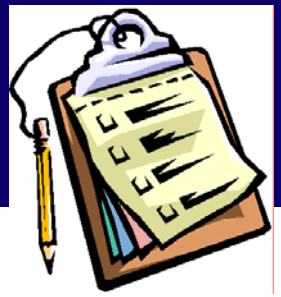
Resource Plan 2008



Agenda

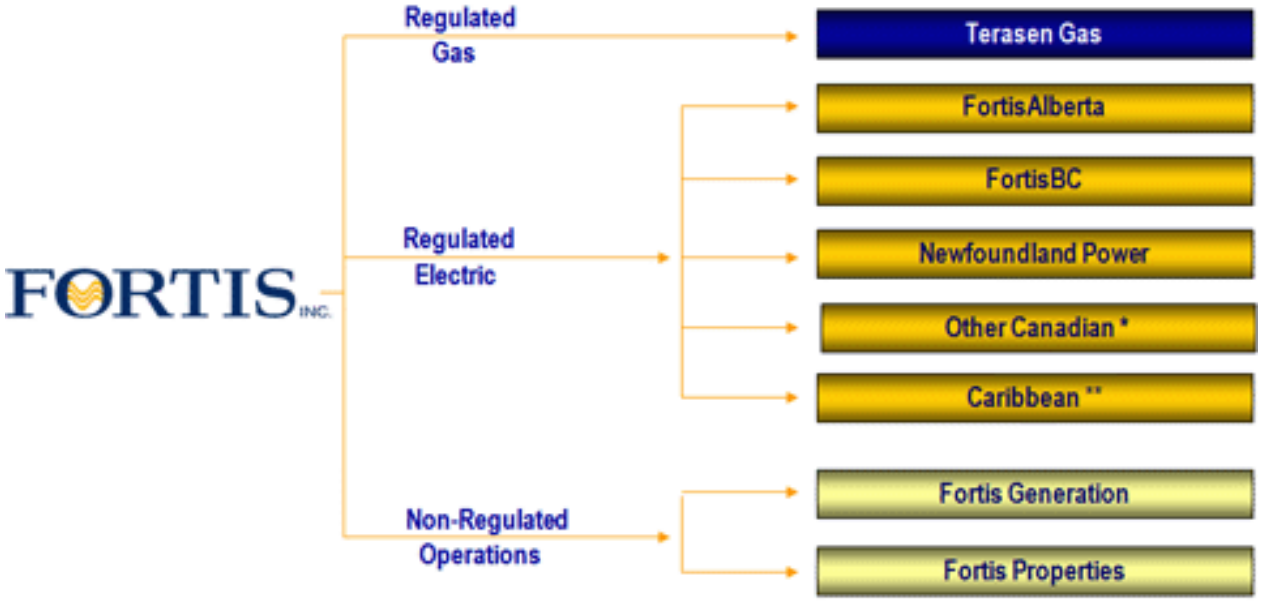
Burn blue. Save green.

Terasen Gas

9:00am	Introduction	
	Energy Issues and Challenges in BC	Doug Stout
	Resource Planning at Terasen Gas	Ken Ross
	Regional Resource Planning Issues	Cynthia Des Brisay
	Gas Portfolio Planning	Dave Bennett
	Trends and Issues in Natural Gas Demand	Greg Caza
	Delivering Comfort and Value	Rick Parnell
12:00pm	LUNCH (12:00 - 12:30)	
	Energy Efficiency & Conservation	Sarah Smith
	Clean & Green Energy Opportunities	Gord Doyle & Edmond Leung
1:45 pm	Summary, Feedback and Next Steps	Ken Ross

Fortis Inc.

- Gas and electrical distribution company
  - Peak electricity demand of 5,100 MW and peak gas demand of 1,400 TJ/Day
- Holds assets in Canada, US and Caribbean
- Owns hotels and commercial real estate in Canada



Terasen Inc. Group of Companies

Terasen Gas Inc.

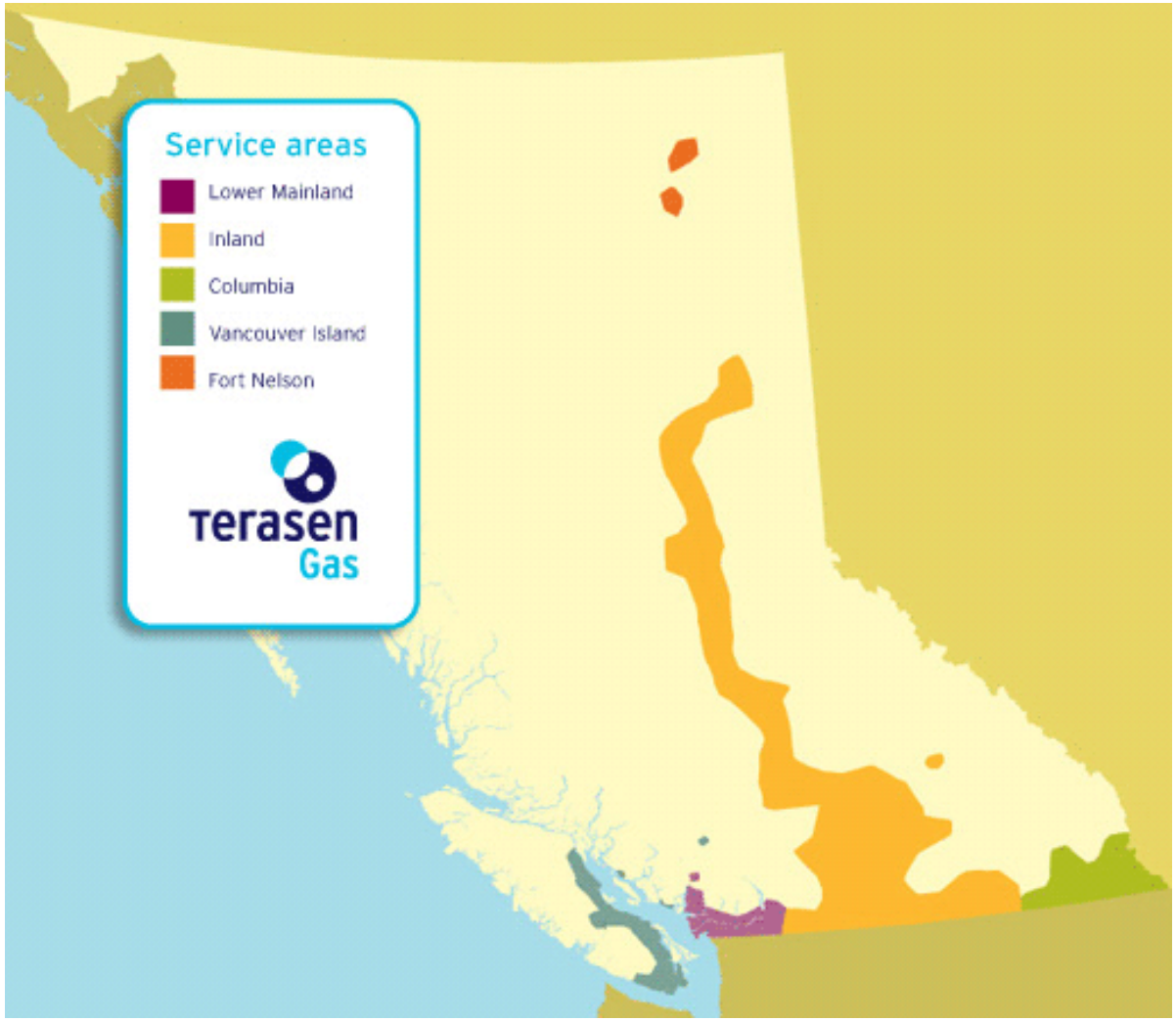
Terasen Gas Whistler

Terasen Gas Vancouver Island

Terasen Energy Services

- Corporate service
- Finance, legal, and tax

Terasen Gas Service Area



- Third largest gas utility in Canada
- Largest natural gas utility in the Pacific Northwest
- Rate base > $2.9 Billion Cdn.
- Employees >1,200
- Over 925,000 Customers

Energy Issues and Challenges in British Columbia

Doug Stout, VP
Marketing and Business Development

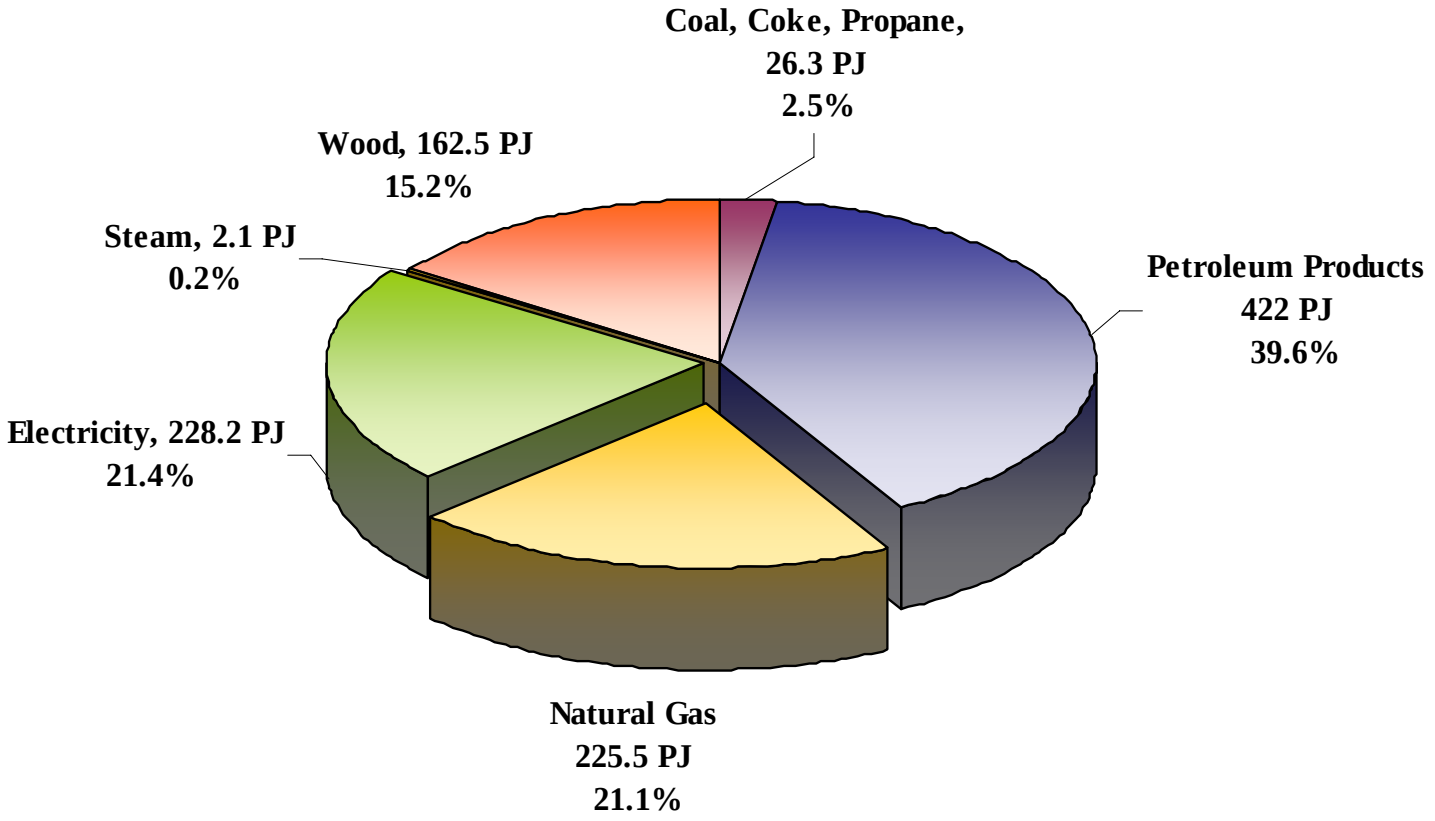
Overview

- BC Energy Picture
  - Gas and Electric
- Climate Change
  - GHG
- Natural Gas
  - Opportunities/Challenges
- Terasen “Actions”

BC Energy Use

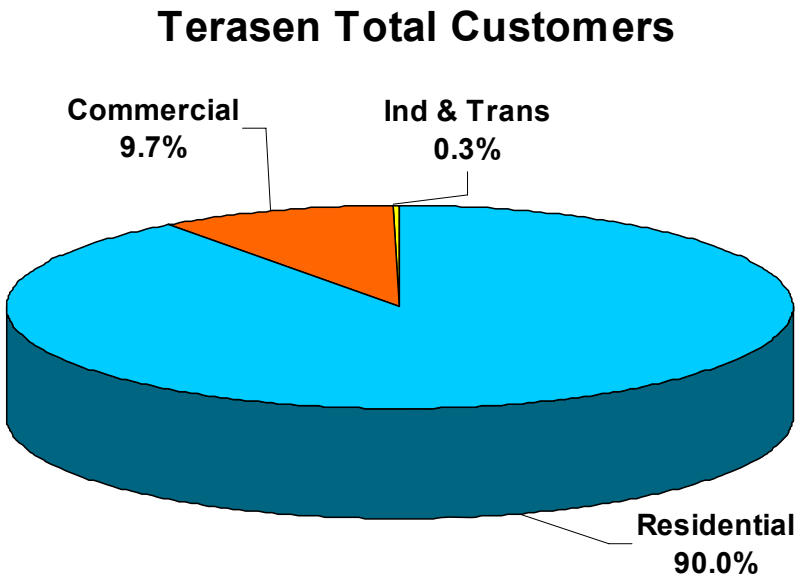
Background

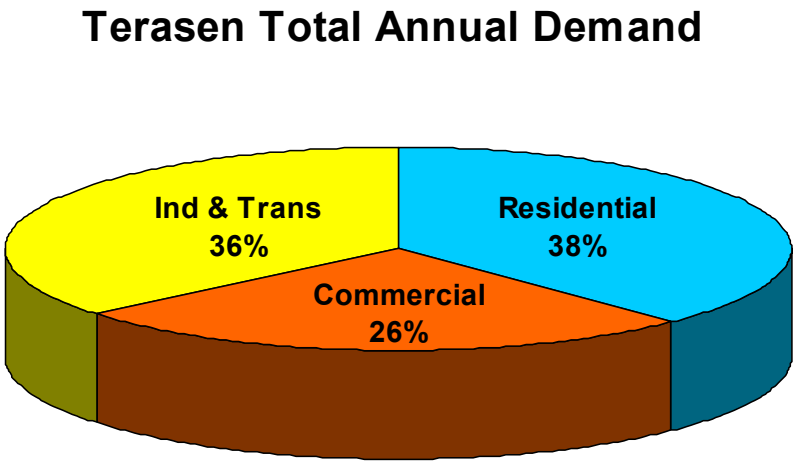
BC End Use Energy Mix in 2005



Source: NRCan 2005 Database

Customer Mix and Volume

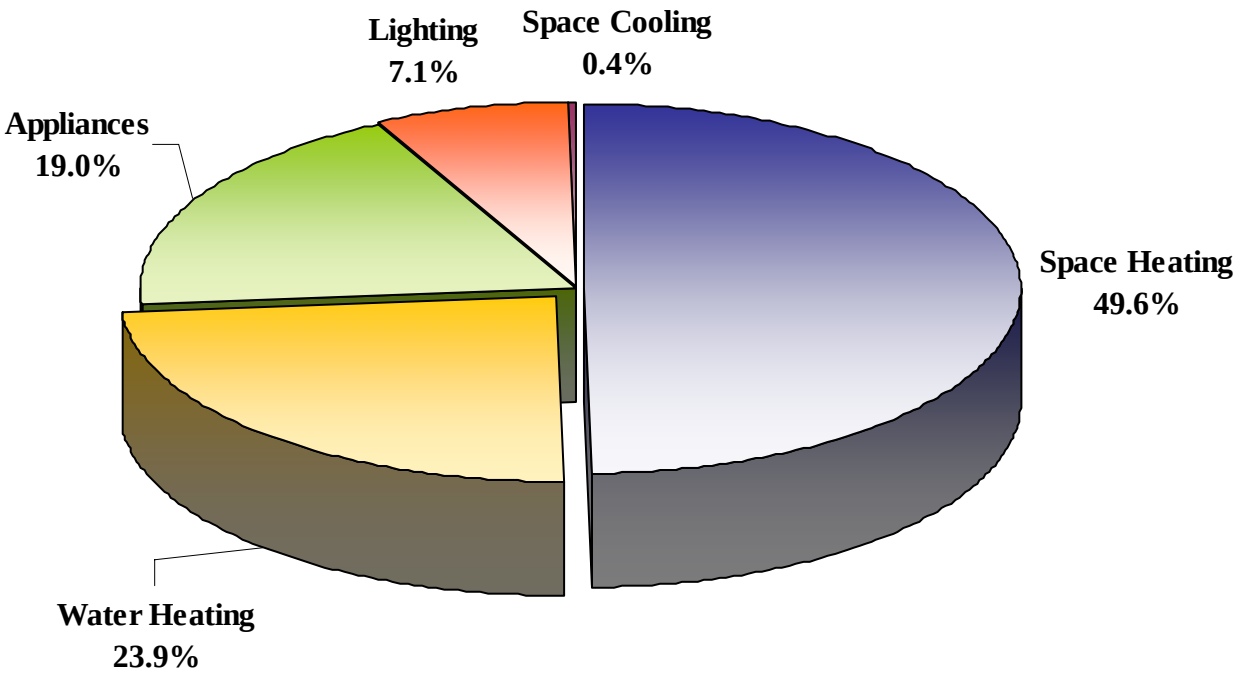




Total Customer ≈ 920K

Total Demand ≈ 215 PJ/yr

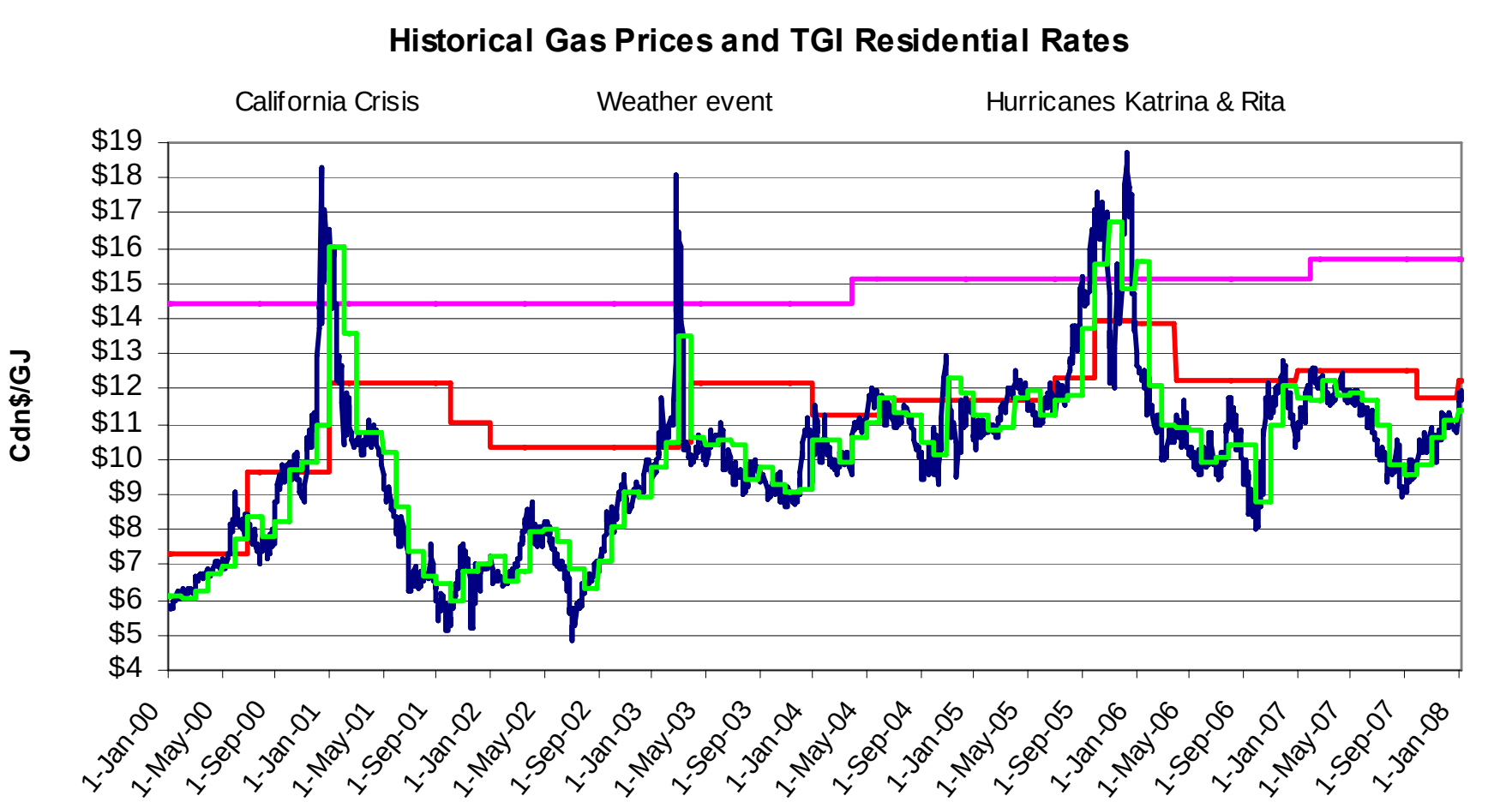
Residential Energy Use Profile



Natural Gas in BC

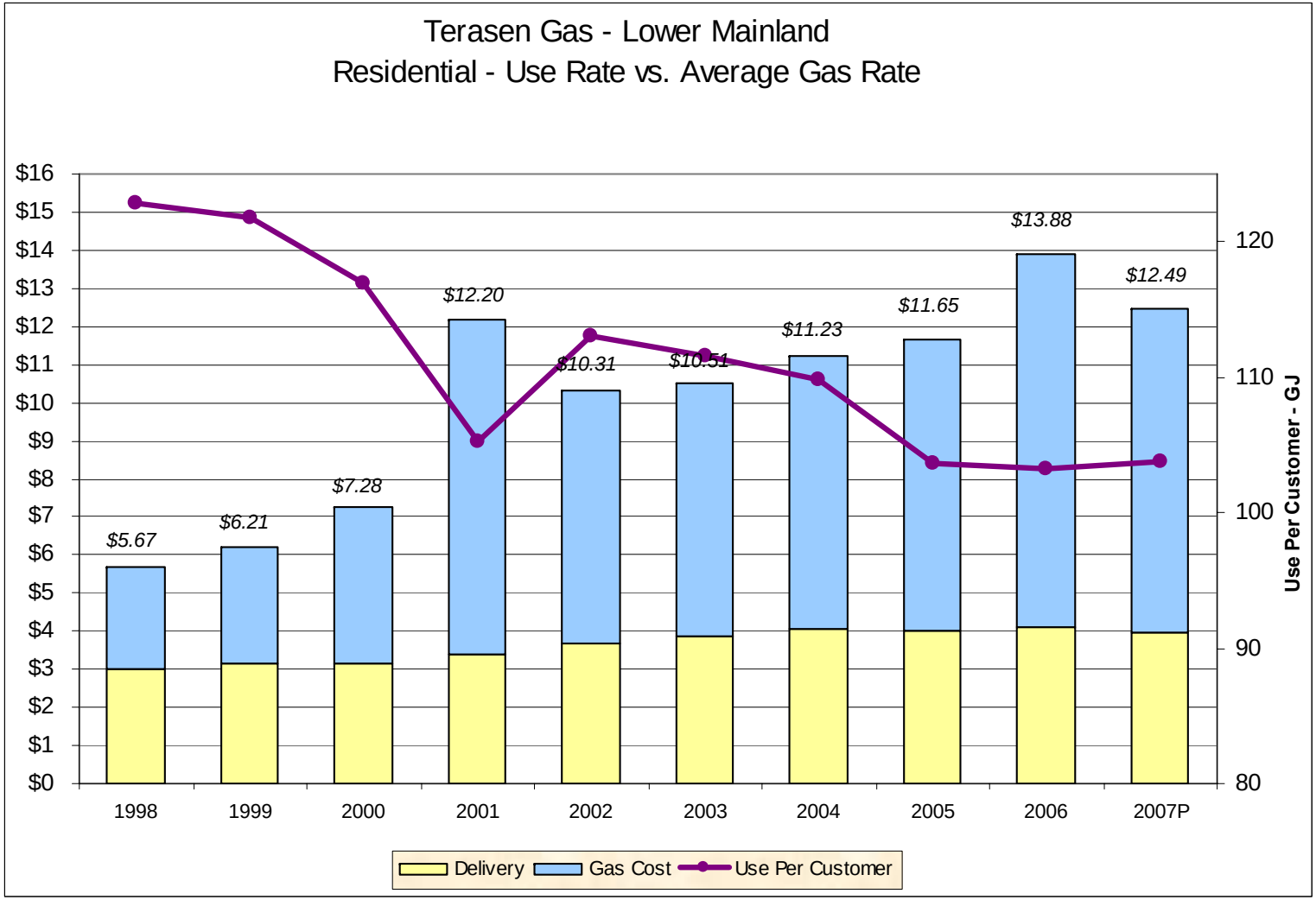
Background

Price: Market Based with Lag



Note: Aeco prices adjusted up by TGI fixed, basic & delivery and midstream charges for comparison purposes

Use Rates vs. Natural Gas Costs

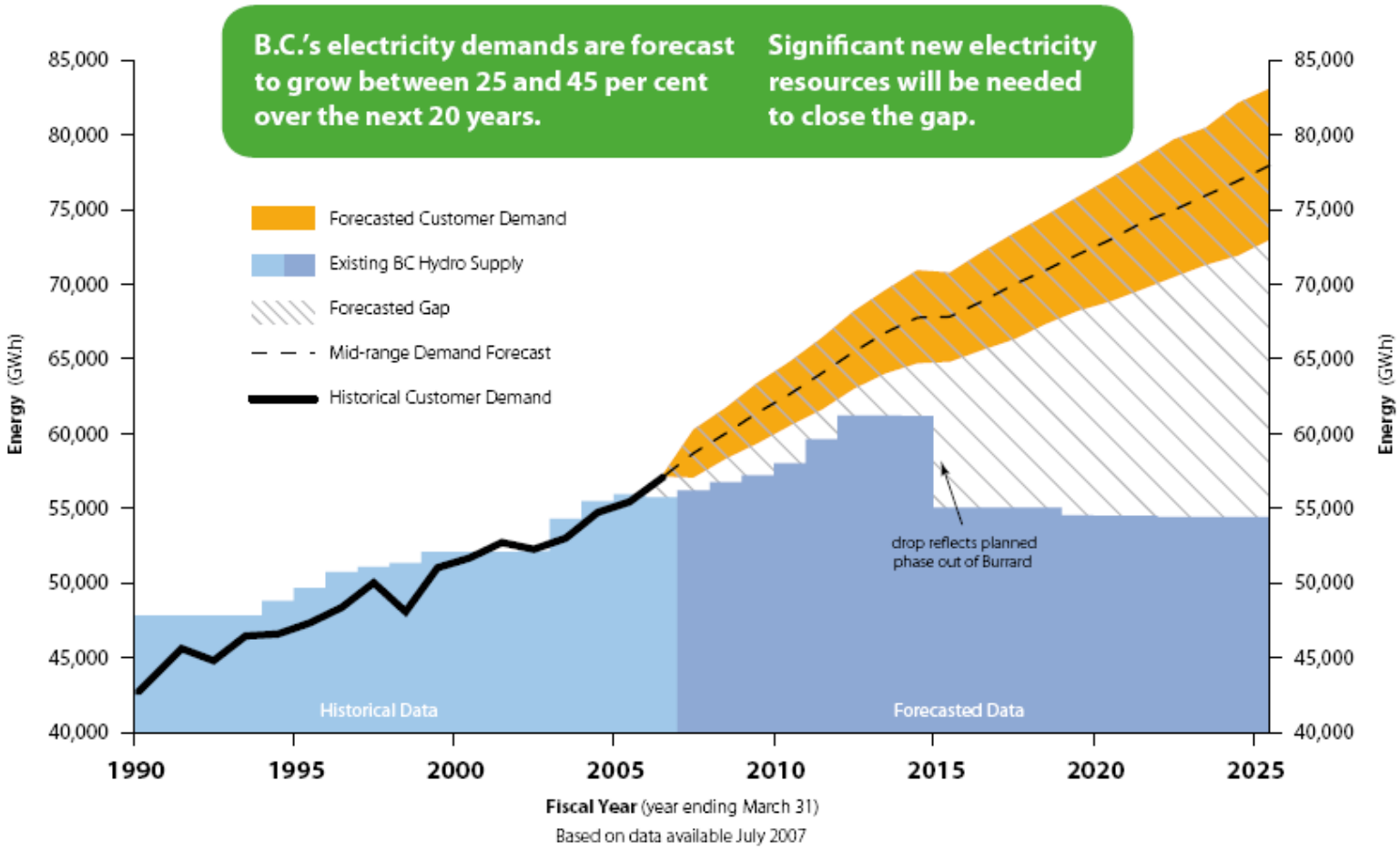


Electricity in BC

Background

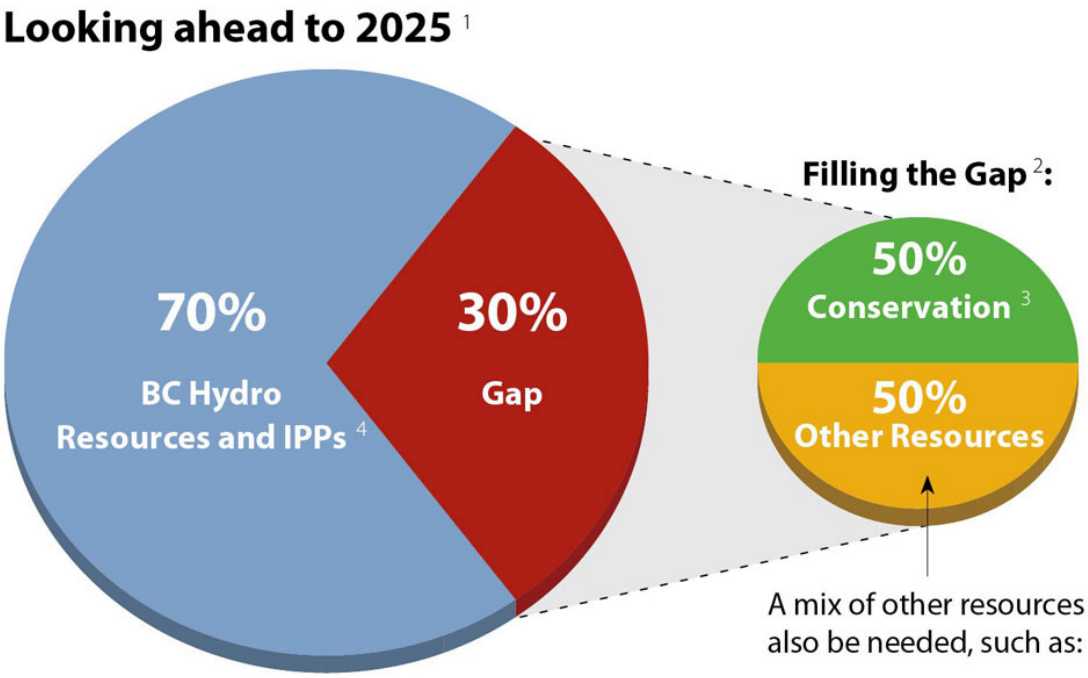
BC Hydro: Supply/Demand

BC Hydro's Electricity Gap



Source: BC Hydro Site C Stage 1 Summary Report, page 2

BC Hydro's Challenge?



Based on data available July 2007.

1 Forecasted electricity demand for 2025 is between 73,000 and 83,000 GWh. Current electricity supply is 54,000 GWh.

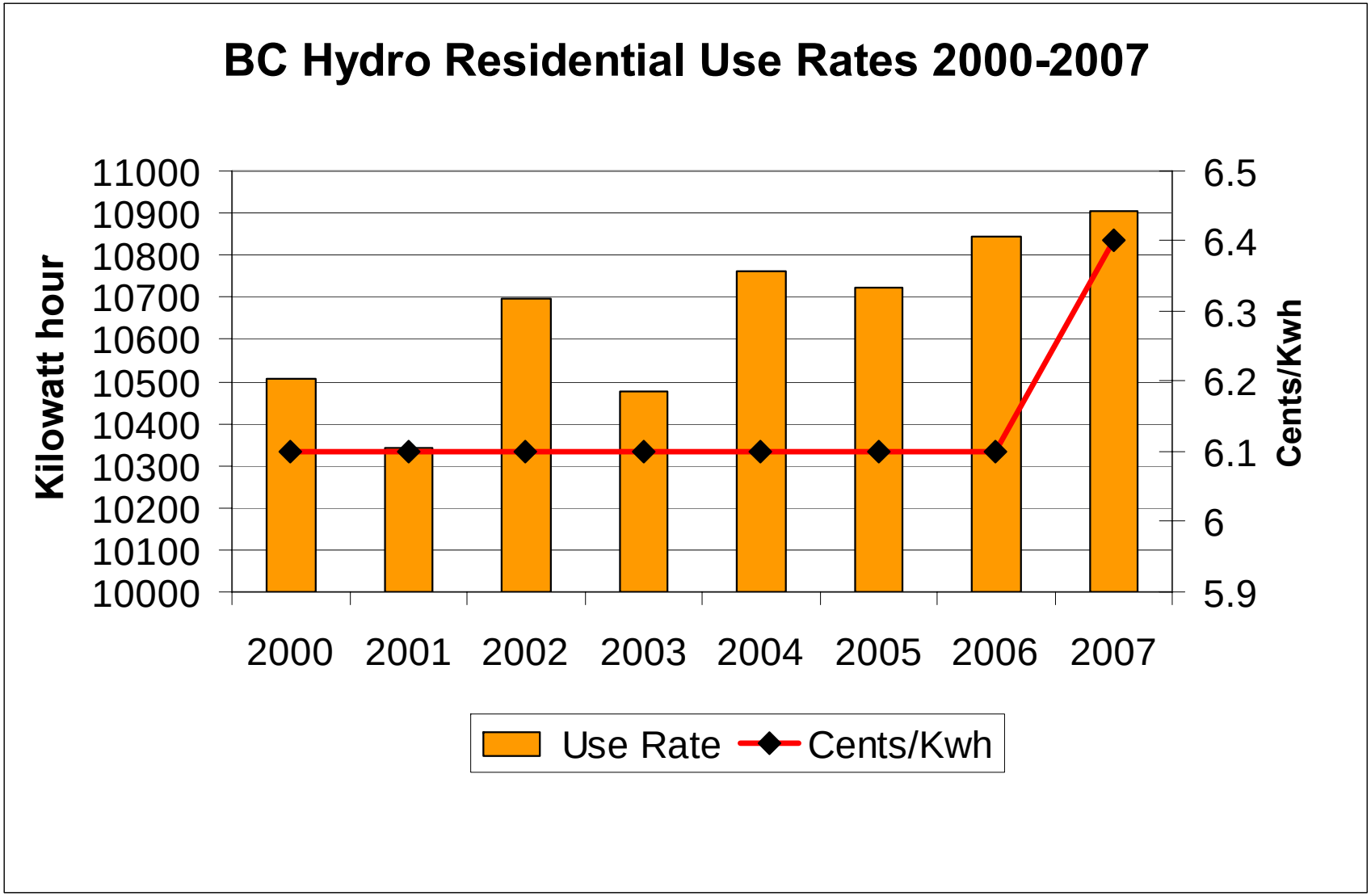
2 Approximately 19,000 – 29,000 GWh/year will be needed to close the forecasted gap.

3 The *BC Energy Plan* set a target to acquire 50% of BC Hydro's new electricity needs through conservation by 2020.

4 Includes BC Hydro heritage assets and contracted amounts with independent power producers (adjusted for attrition).

- **Resources Needed:**
  - **Low – 4 Site C**
  - **High – 6 Site C**
- **Site C: Produces 4600 GWh/year**
- **Estimated Cost is $5-$6.5 Billion for Site C**

BCH Use Rates



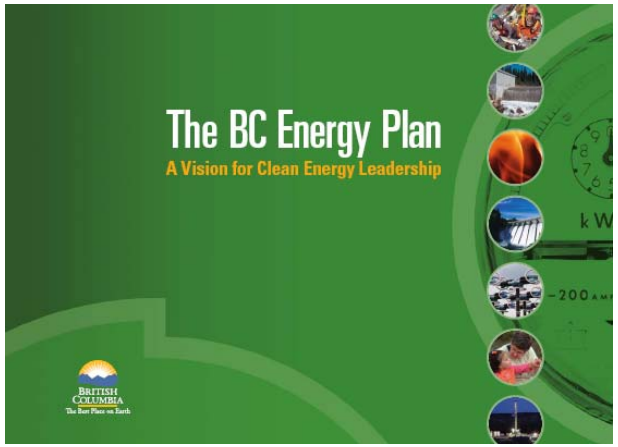
Provincial Landscape

Issues and Strategies

Changes in Energy Landscape in the Province

The BC Energy Plan 2007

A Vision for Clean Energy Leadership



Highlights:

- Energy Self-Sufficient
- Goals for BC Hydro
- Investment in Alternative Technology
  - "Innovative Clean Energy Fund"

Focus on environment and sustainability

- Greenhouse Gases, Climate Change and Air Quality

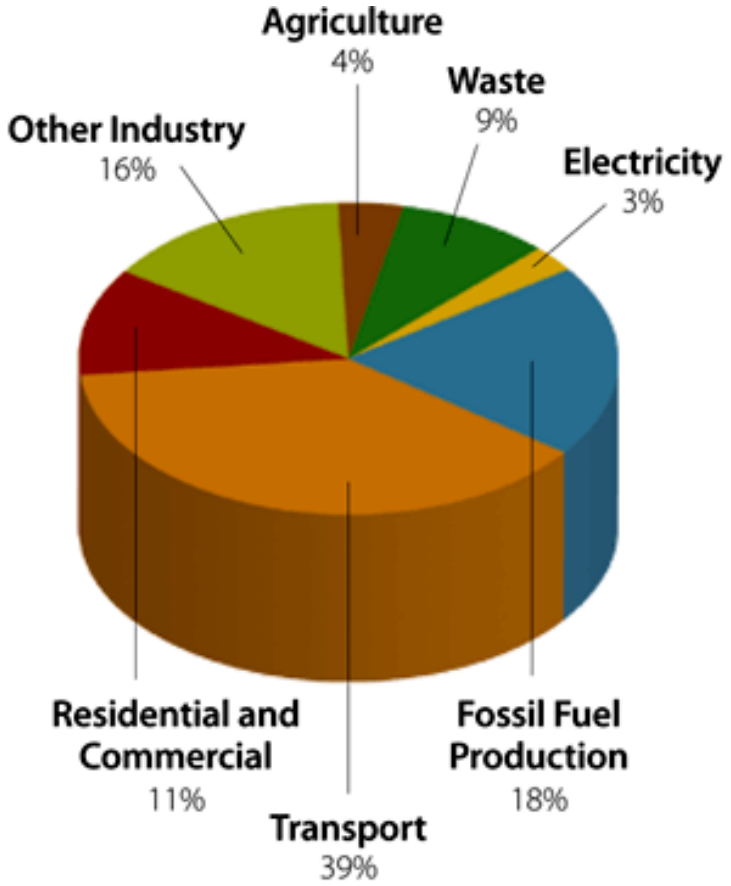
Maintain economic growth within BC

- Grow Oil and Gas sectors

Climate Change

Meeting the Challenge

BC Greenhouse Gas (GHG) Emissions



B.C. Greenhouse Gas Emissions by Sector

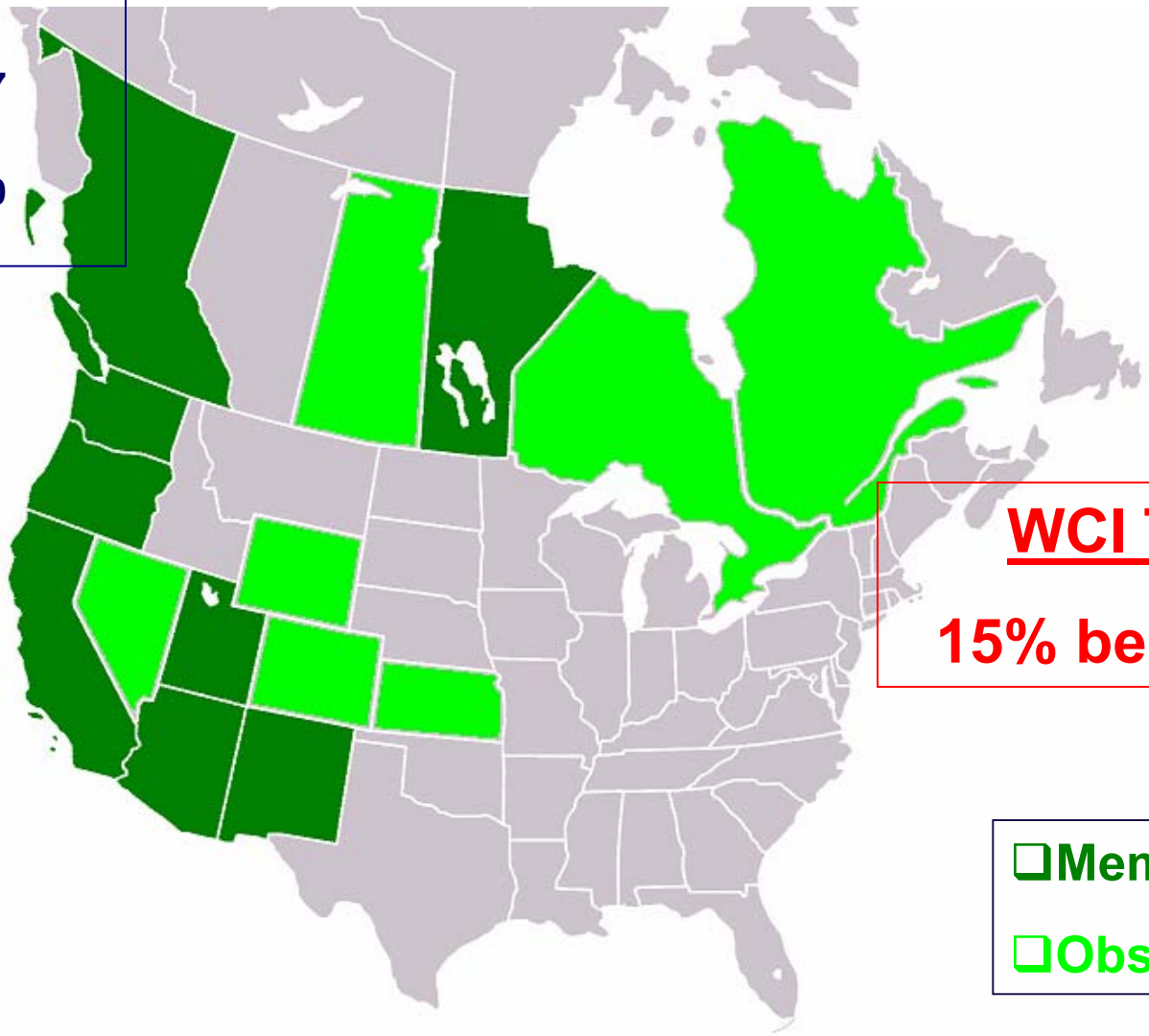
(Based on 2004 data)
Source: Ministry of Environment

- BC total 67 million tonnes (Mt)
- 11 million tonnes or 16% from natural gas consumption
- Terasen
  - Own use 0.15 million tonnes
  - Residential and Commercial customers - 6 million tonnes
  - Industrial customers - 4 million tonnes
- Canada total 747 million tonnes

Western Climate Initiative (WCI)

BC Target

- 33% below 2007 levels by 2020
- 10% below 1990 levels by 2020

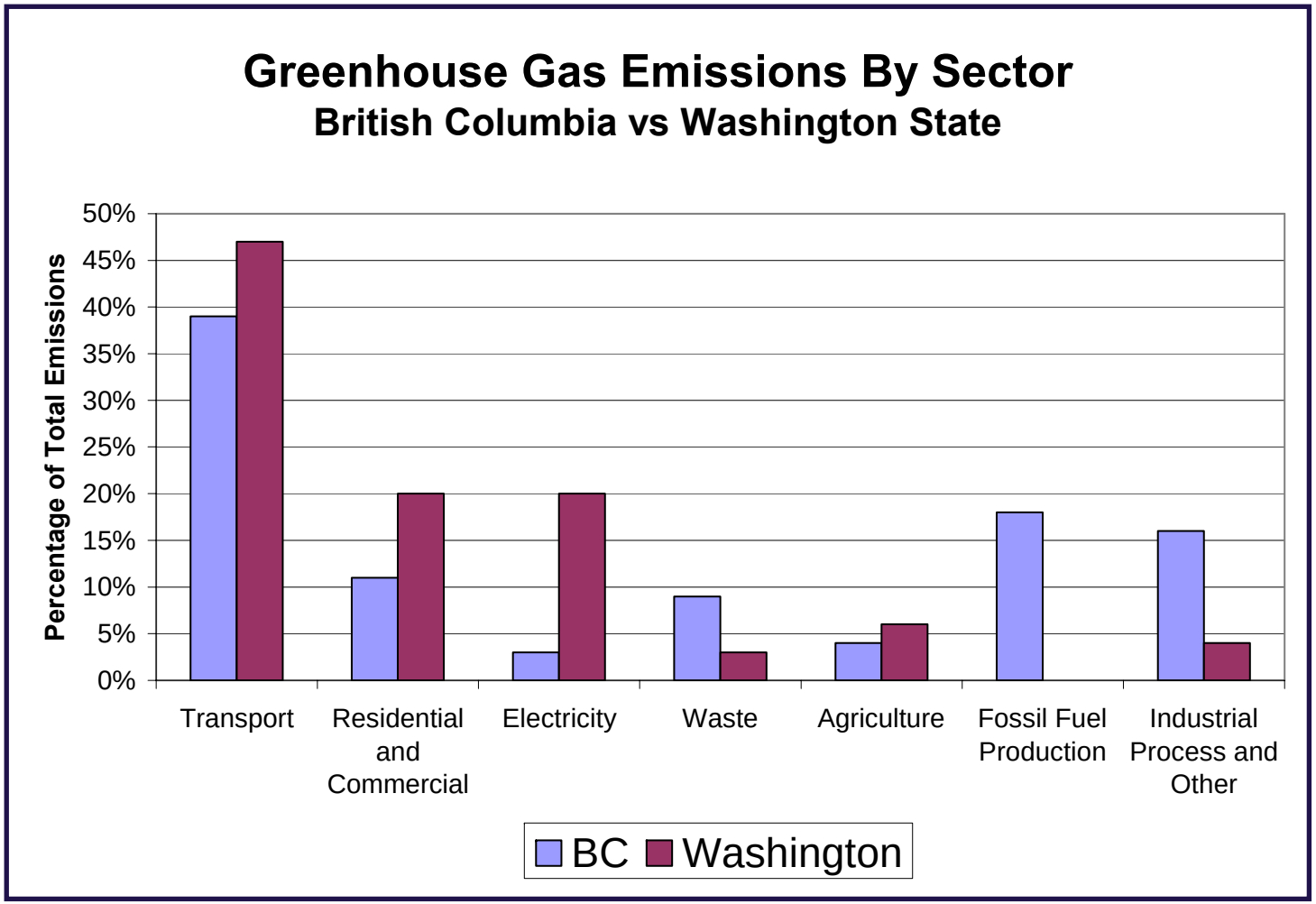


WCI Target

15% below 2005

- ❑ Member
- ❑ Observer

Greenhouse Gas Emissions
British Columbia vs. Washington State



Total Annual Emissions

BC

- **67 million tonnes per year**

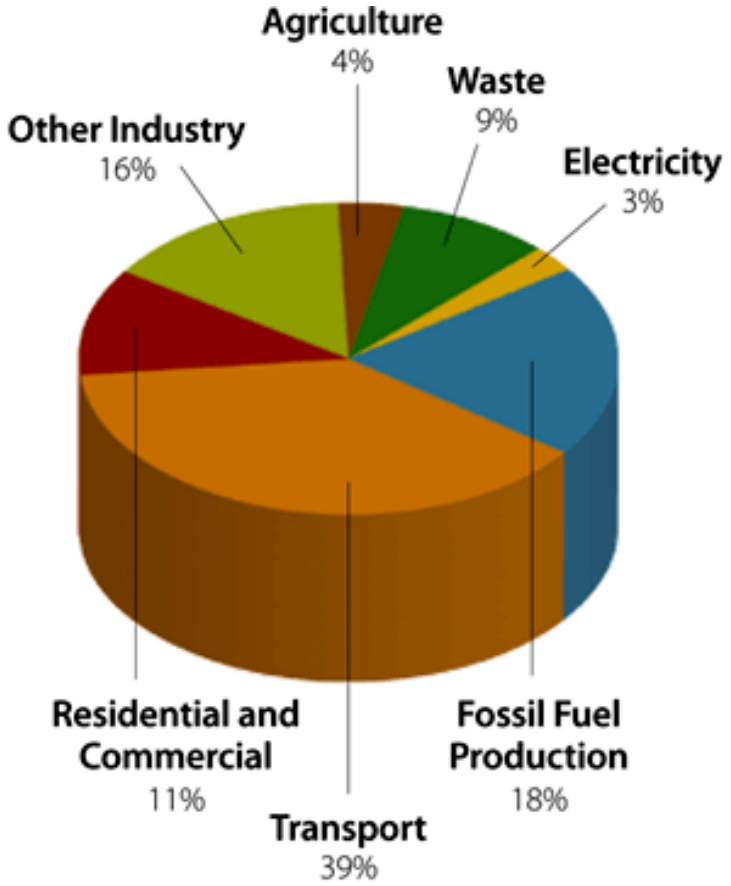
Washington

- **88 million tonnes per year**

Natural Gas

Opportunities and Challenges

Natural Gas: "Solutions to Reduce Footprint"



B.C. Greenhouse Gas Emissions by Sector

(Based on 2004 data)
Source: Ministry of Environment

Residential/Commercial

- Energy Efficiency and Conservation
- Metering
- Rates

Transport

- NGV
- Ports

Electricity

- Direct Use of NG for space and water heating

Waste

- Land Fill
- Waste Heat Recovery

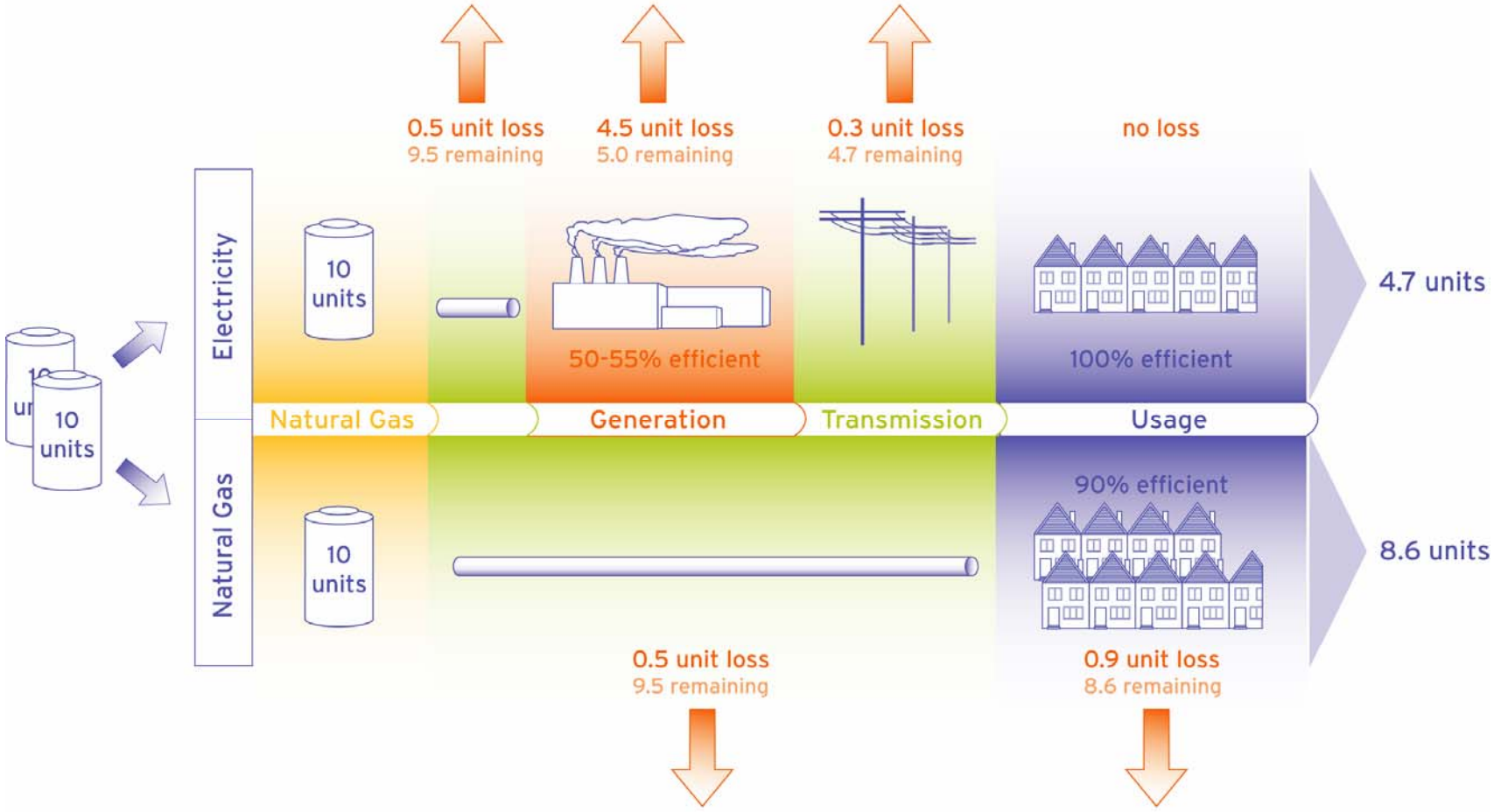
Agriculture

- Biogas

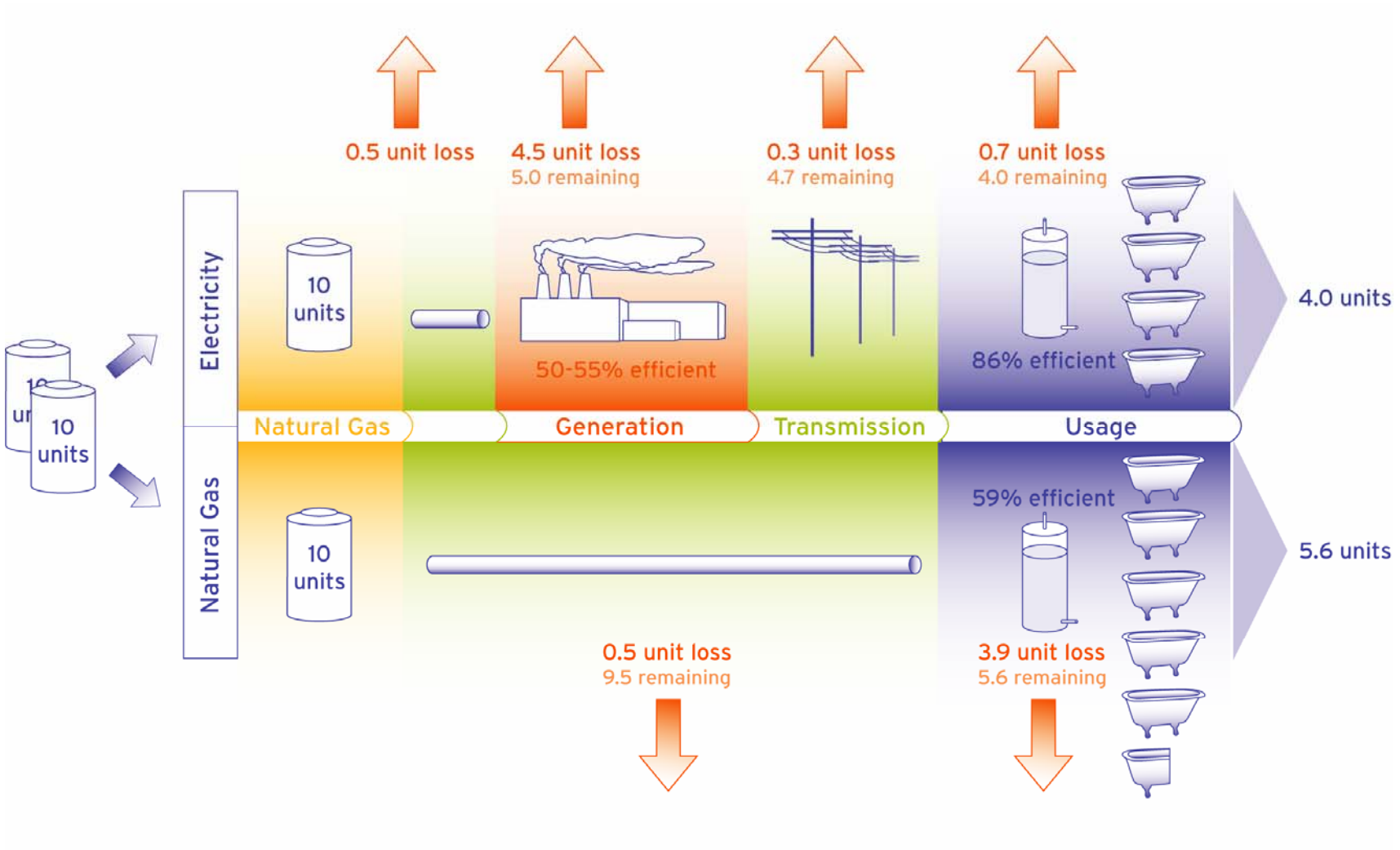
Comparative Emission Profiles to Produce Electricity

- **Coal (500 MW Super Pulverized Combined Combustion)**
  - 855 tonnes/GWH
- **Natural Gas (250 MW CCGT)**
  - 350 tonnes/GWH
- **High Efficiency Gas Furnace**
  - 180 tonnes/GWH

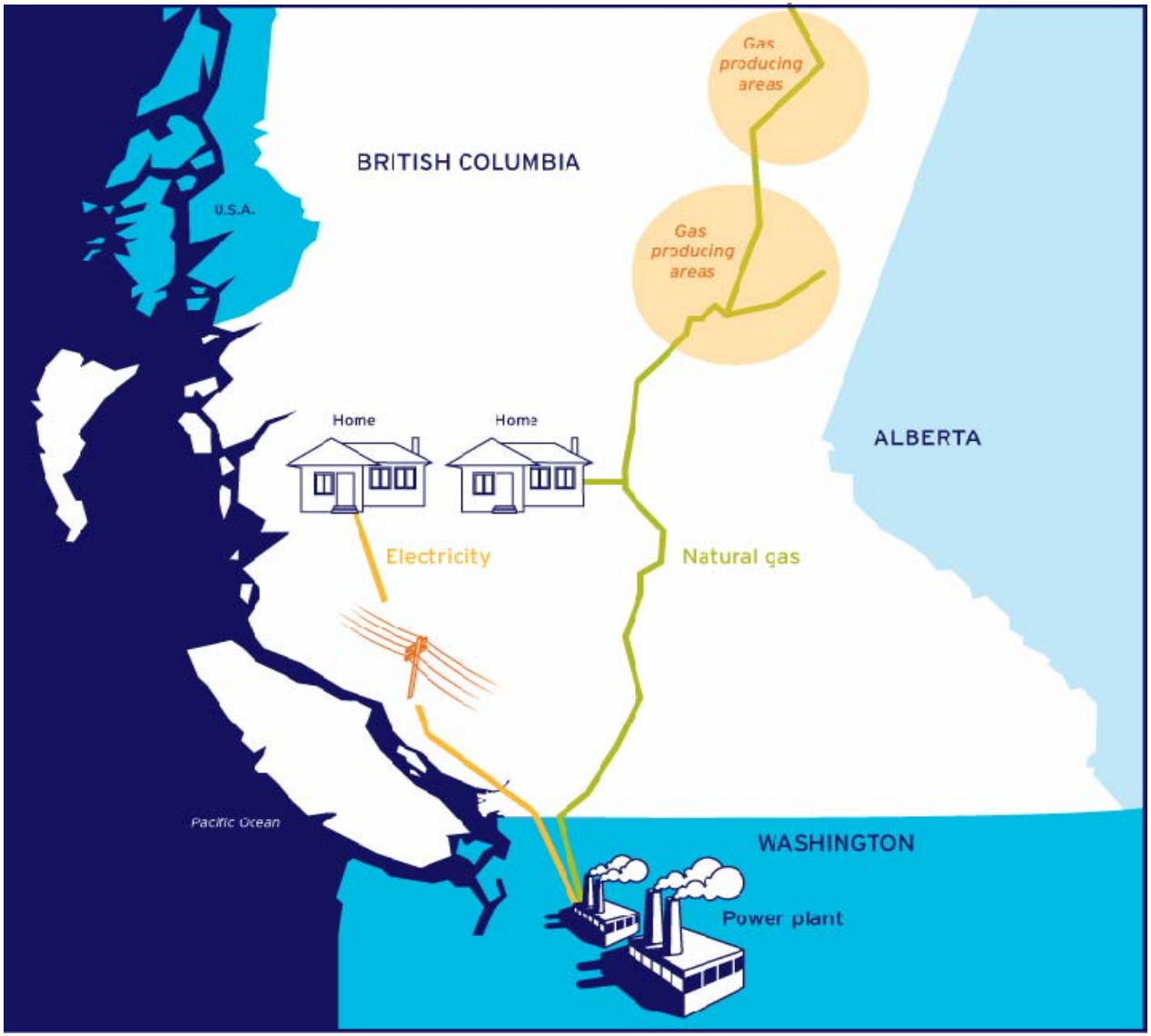
Heating Efficiency
Natural Gas vs. Electricity (New Demand)



Water Heating Energy Efficiency



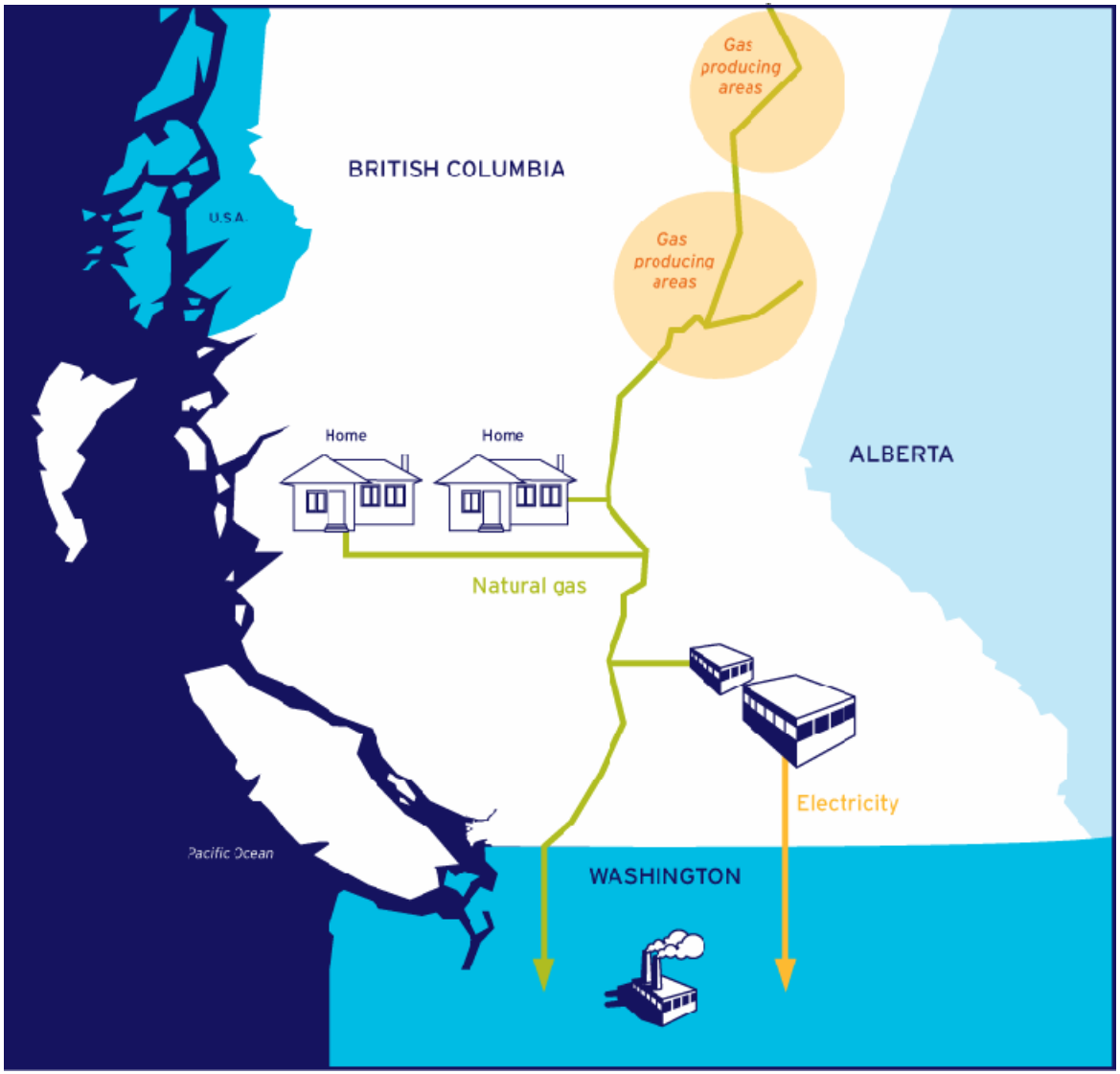
GHG Output Before Self Sufficient on Electric Production



Province has goal to be self sufficient by 2016

Direct use of natural gas for space and water heating makes this happen quicker and reduces regional GHG emissions

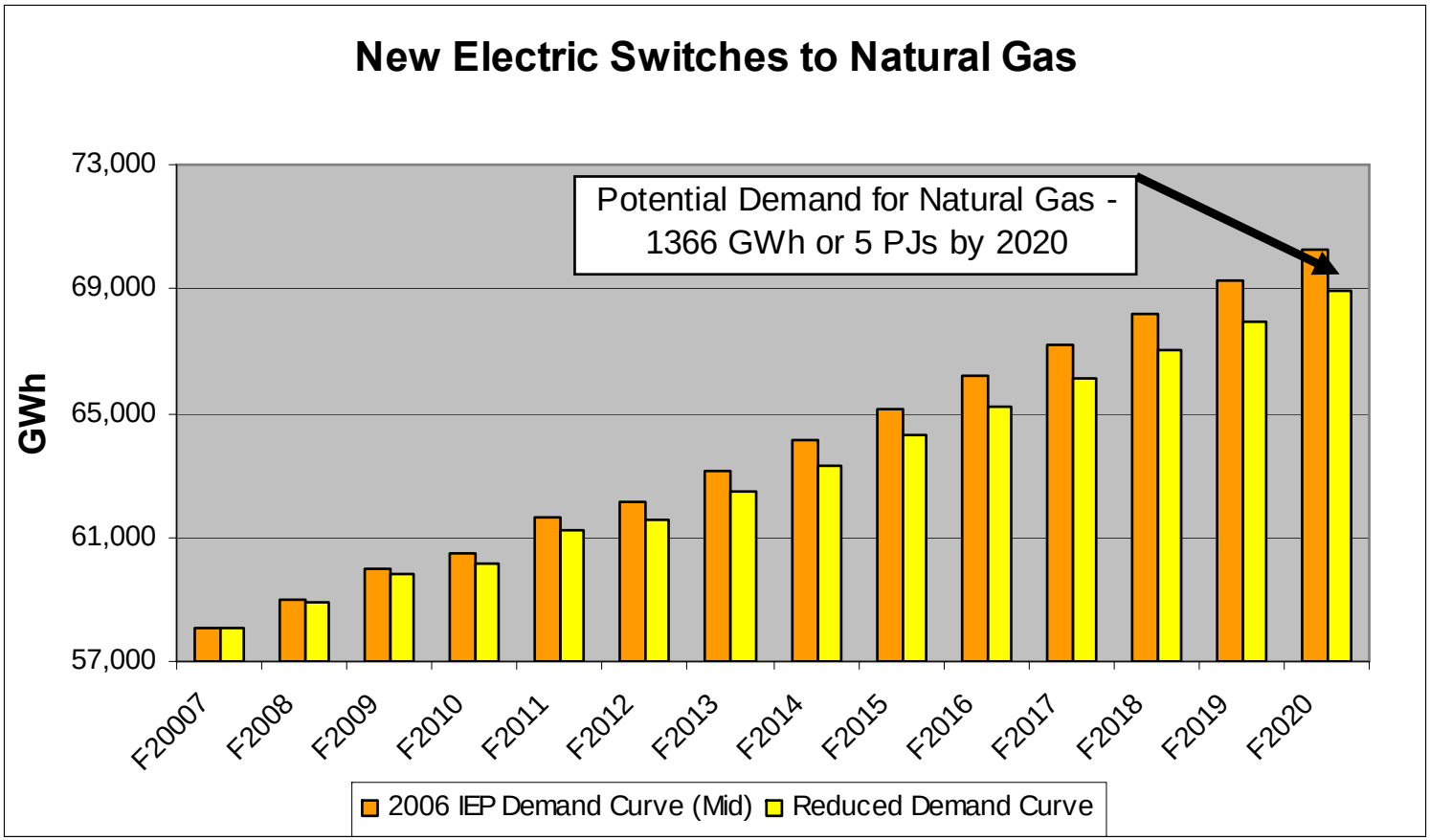
Less GHG for the Region once BC Self Sufficient



When BC becomes self sufficient on electric production and continues to use natural gas for space and water heating, BC will be able to export clean power that displaces electricity production from coal and natural gas in PNW

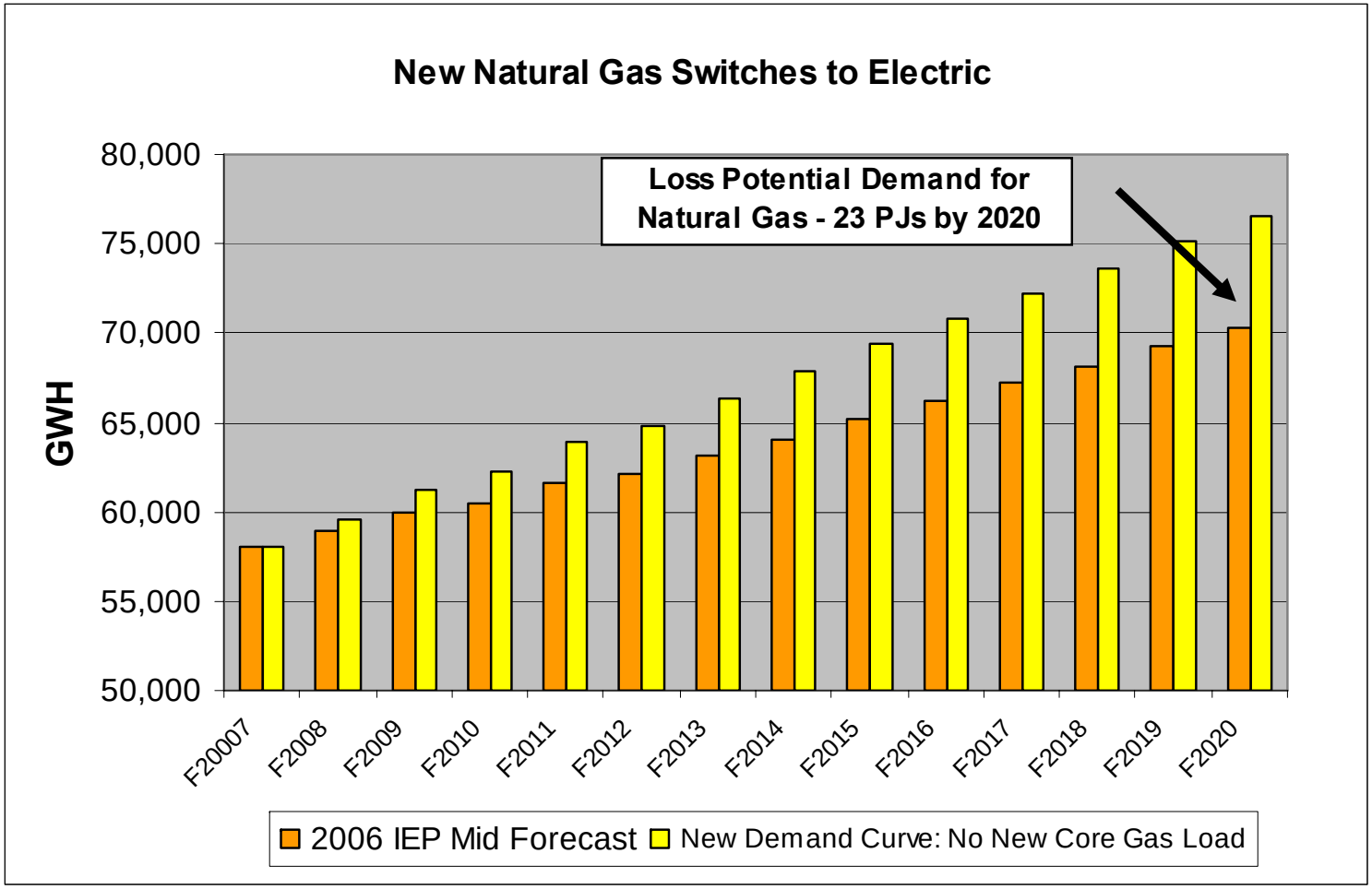
Direct use of natural gas for space and water heating reduces GHG emissions for the region now and in the future

Reduced BCH 2006 IEP Demand Curve: No Electric for Space and Water Heating



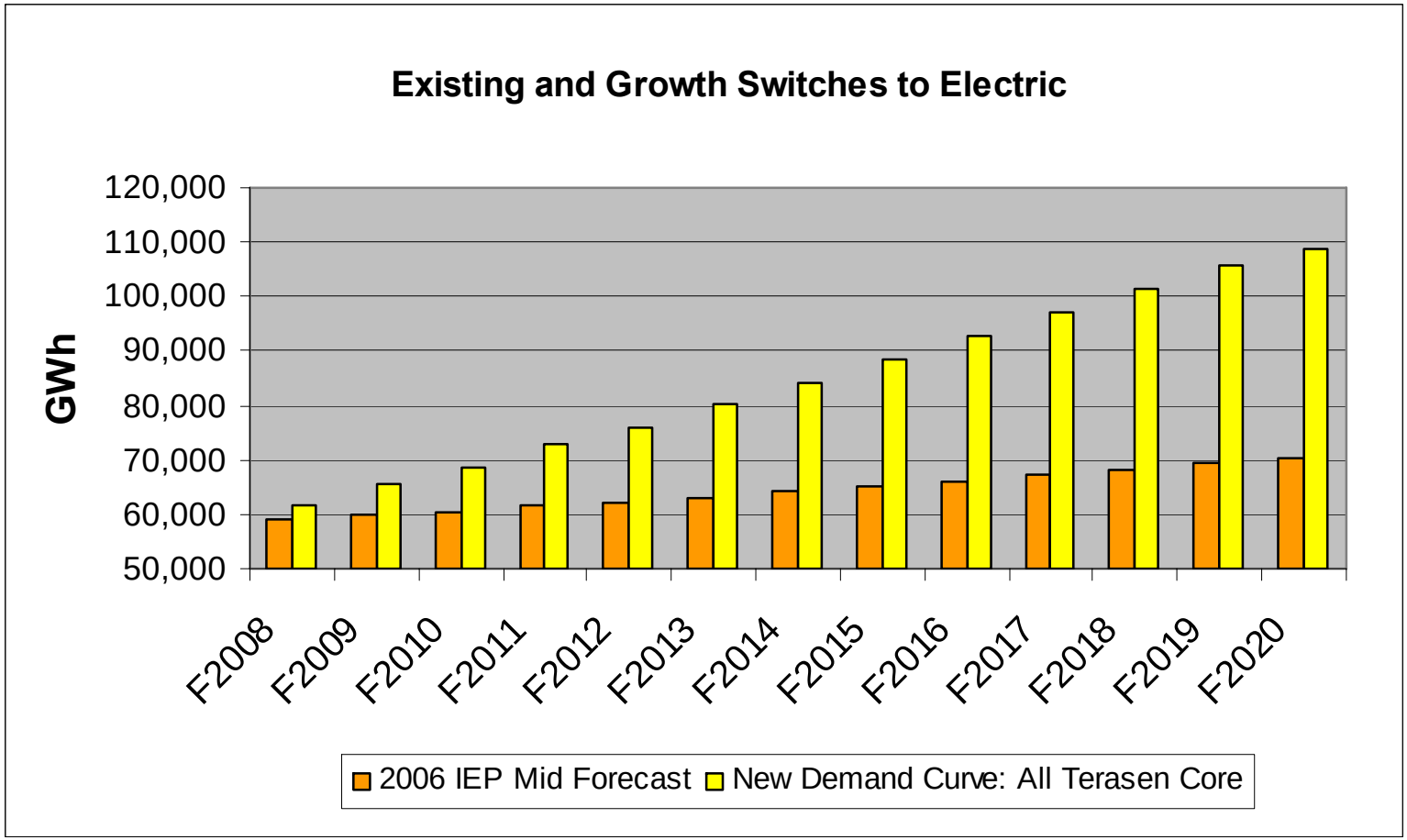
- **BCH Capture Rates**
- **20% for space heating**
- **35% for water heating**
- **Both capture rates go to zero**
- **1366 GWH is 30% of Site C annual output**

No New Gas Load:
Needs Served by Electricity



- **Adds 6,213 GWh to BC Hydro Demand in 2020 (> 1 Site C)**

Existing Gas Load and Growth to Electric



- **Add 38,473 GWh to BCH demand in 2020 (7 to 8 Site C)**

Terasen Actions:

Serving Our Customers in the New Environment

Solutions

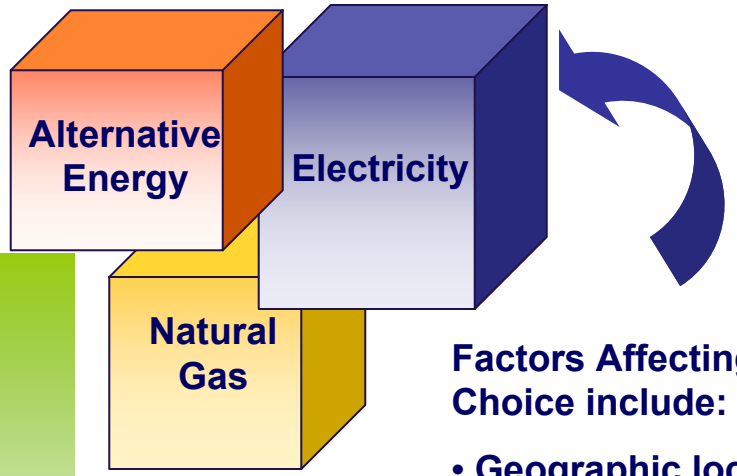
- Cost Signals
  - Consumers make informed decisions
- Measurement
  - Consumers understand what they are using
- Incentives and Information
  - Bridge technology costs and information gaps
- Alternatives
  - New energy options available and economic

Summary

Energy Solutions
Natural Gas Part of Solution

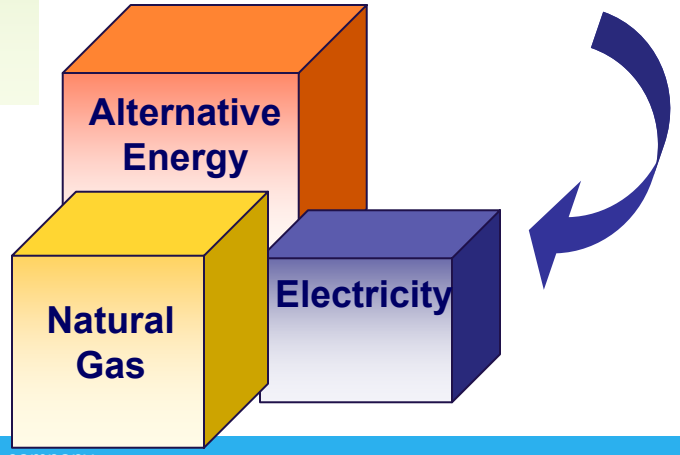
Energy Uses

- **Space and Water Heating**
- **Cooling**
- **Lighting, Computers, Appliances**
- **Cooking**



Factors Affecting Energy Choice include:

- **Geographic location**
- **Reliability/Infrastructure**
- **Costs and economics**
- **Environmental impact**



Questions or Comments?

Resource Planning at Terasen Gas

Contact Information

Ken Ross
Resource Planning Manager

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Fax: (604) 592-7620
E-mail: ken.ross@terasengas.com
www.terasengas.com

Resource Planning at Terasen Gas

A long-term plan for the acquisition of resources to meet forecasted customer needs.

- 20-year planning horizon with 4-year Action Plan
- Section 45 of the Utilities Commission Act

"Resource Planning is intended to facilitate the selection of cost-effective resources that yield the best overall outcome of expected impacts and risks for ratepayers over the long run."

- BCUC Resource Planning Guidelines, 2003

TGI (Mainland) TGVI (Vancouver Island) TGW (Whistler)

Current Resource Plans – TGI 2006

Action Item	Status
Monitor and Evaluate Customer Demand - trends and technologies in residential, commercial, vehicles and gas transport	Examined / improved processes Implemented information system improvements
Existing and New DSM Initiatives	Existing programs continued. New application imminent
Pursue Partnering Opportunities in Energy Efficiency	We have built on existing and developed new partnerships
Examine funding opportunities for marketing initiatives - building efficient load	Customer choice, television and radio campaigns and more.
Monitor Capacity Requirements – Coastal Transmission System	Completed as part of the Mt. Hayes Storage Facility Application
Examine Feasibility of Mt. Hayes LNG	Project Approved Nov. 2007

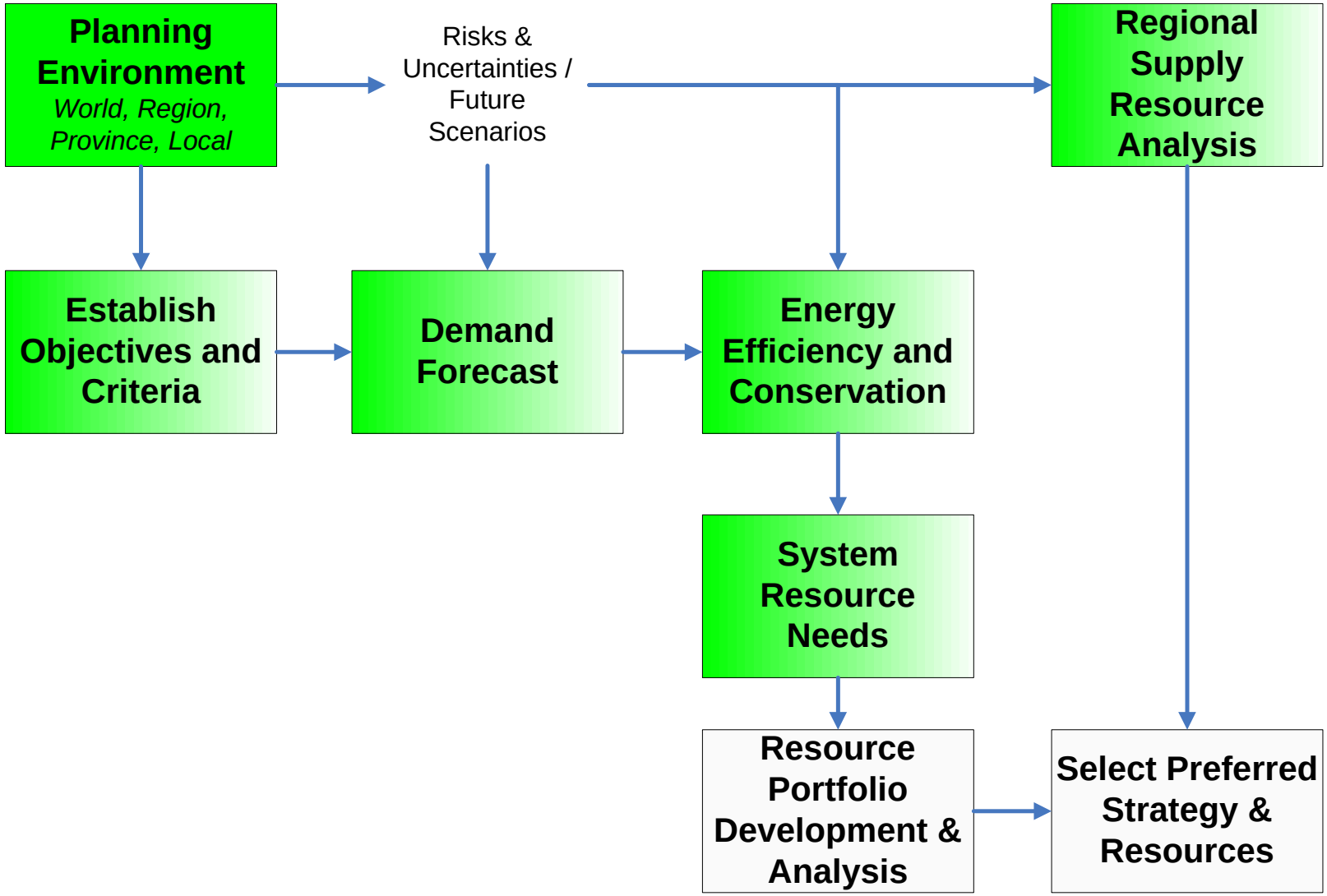
Current Resource Plans – TGVI 2006

Action Item	Status
Existing and New DSM Initiatives	Existing programs continued. New application imminent
Pursue Partnering Opportunities in Energy Efficiency	We have built on existing and developed new partnerships
Extend Service to Whistler	Squamish to Whistler pipeline under construction
Work with BC Hydro regarding transportation service to ICP & participate in 2006 IEP process	Long-term TSA approved / Participated in IEP Regulatory Review
Retain and Upgrade Texada Compressor	Retention effective Jan. 1st 2008
Examine Feasibility of Mt. Hayes LNG	Project Approved Nov. 2007

Current Resource Plans – TGW 2005

Action Item	Status
Seek approval for natural gas service to Whistler and conversion of the existing propane system	Application approved and construction underway.
Manage the capacity of the existing propane system through bridging facilities	Application for bridging facilities approved and implemented
Examine demand side opportunities to help bridge the propane system until natural gas service is in place	Continuing to monitor requirements
Support Whistler's Sustainable Energy Strategy	Propane to natural gas conversion Supporting natural gas bus program
Monitor potential for new development / load additions along the Sea to Sky corridor	Continuing to monitor

Resource Planning Process



Resource Plan Evaluation Criteria

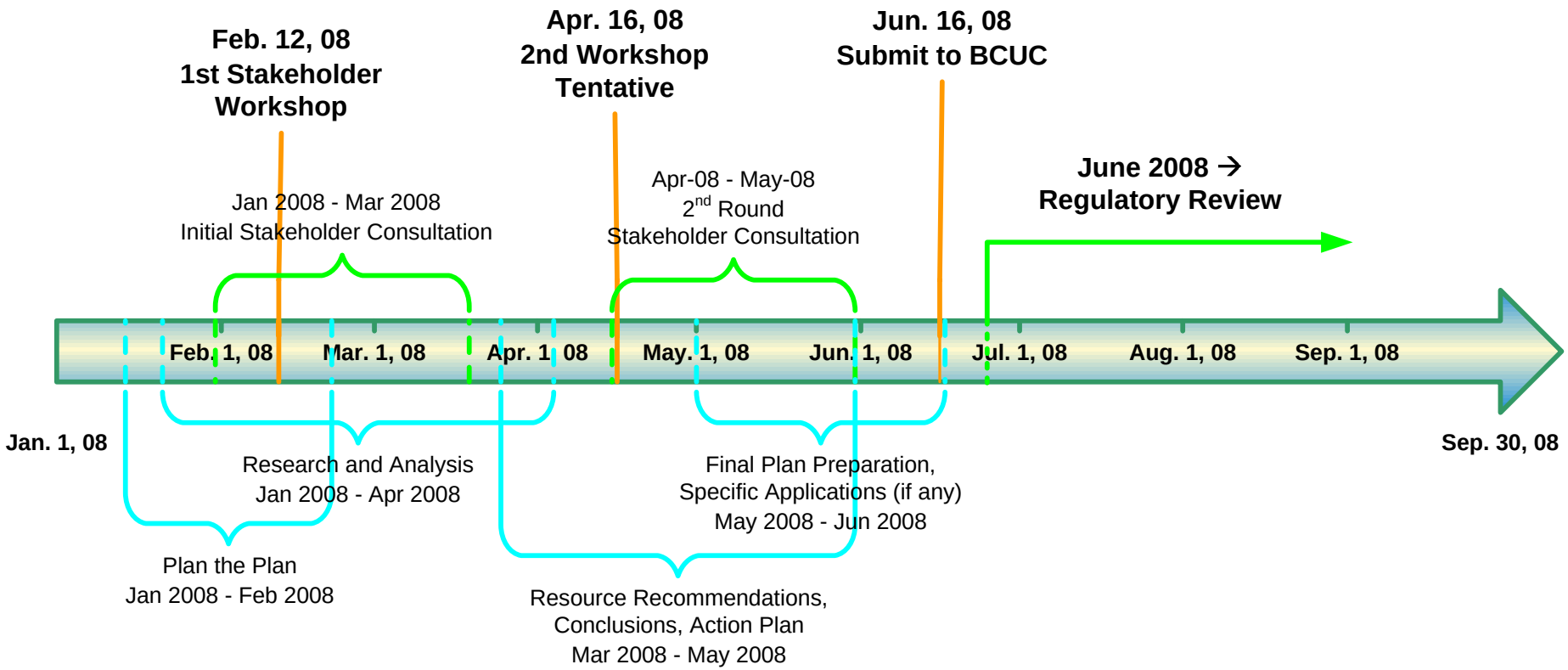
Objectives from 2006 Resource Plan will be reviewed and updated to reflect current planning environment

2006 TGI Resource Plan Objectives

Objective	Attribute	Measure
Ensure reliable and secure supply.	▪ System reliability ▪ Security of supply	▪ Risk of outages ▪ Gas supply diversity
Provide service to customers at least delivered cost.	Financial evaluation of supply side and demand side resources	▪ Net Present Value ▪ Total Resource Cost (TRC) ▪ Ratepayer Impact (RIM)
Reduce rate volatility.	Expected rates	▪ Risk trade-offs
Balance socio-economic and environmental impacts.	Social costs / benefits including: ▪ Local emissions ▪ Greenhouse gas ▪ Land use impacts ▪ Employment/local economic impacts ▪ Stakeholder consultation	 ▪ Air pollutants ▪ Quantity of CO_2 equivalent ▪ Area impacted ▪ Jobs created ▪ Stakeholder input

2008 Resource Plan / Timeline

- One Submission for All Three Utilities



Stakeholder Consultation

Are Seeking Input From:

- First Nations
- Provincial Government
- BCUC
- Customers
- NGO's
- Other Energy Utilities in BC and the Region
- Municipalities
- Business Associations

Other Consultation Opportunities:

- Other Submissions and Applications
- Customer Advisory
- Community Relations and Events

Feedback from Today's Session

- Taking Notes and Recording Questions

Contact:

Ken Ross
Resource Planning Manager
Terasen Gas
604-576-7342 / ken.ross@terasengas.com

Please submit any written comments you may wish to provide by: February 25th, 2008

16705 Fraser Highway
Surrey, BC V4N 0E8

(feedback forms and mail in information provided)

Regional Resource Planning

Contact

Cynthia Des Brisay
Director, Business Development & Resource Planning

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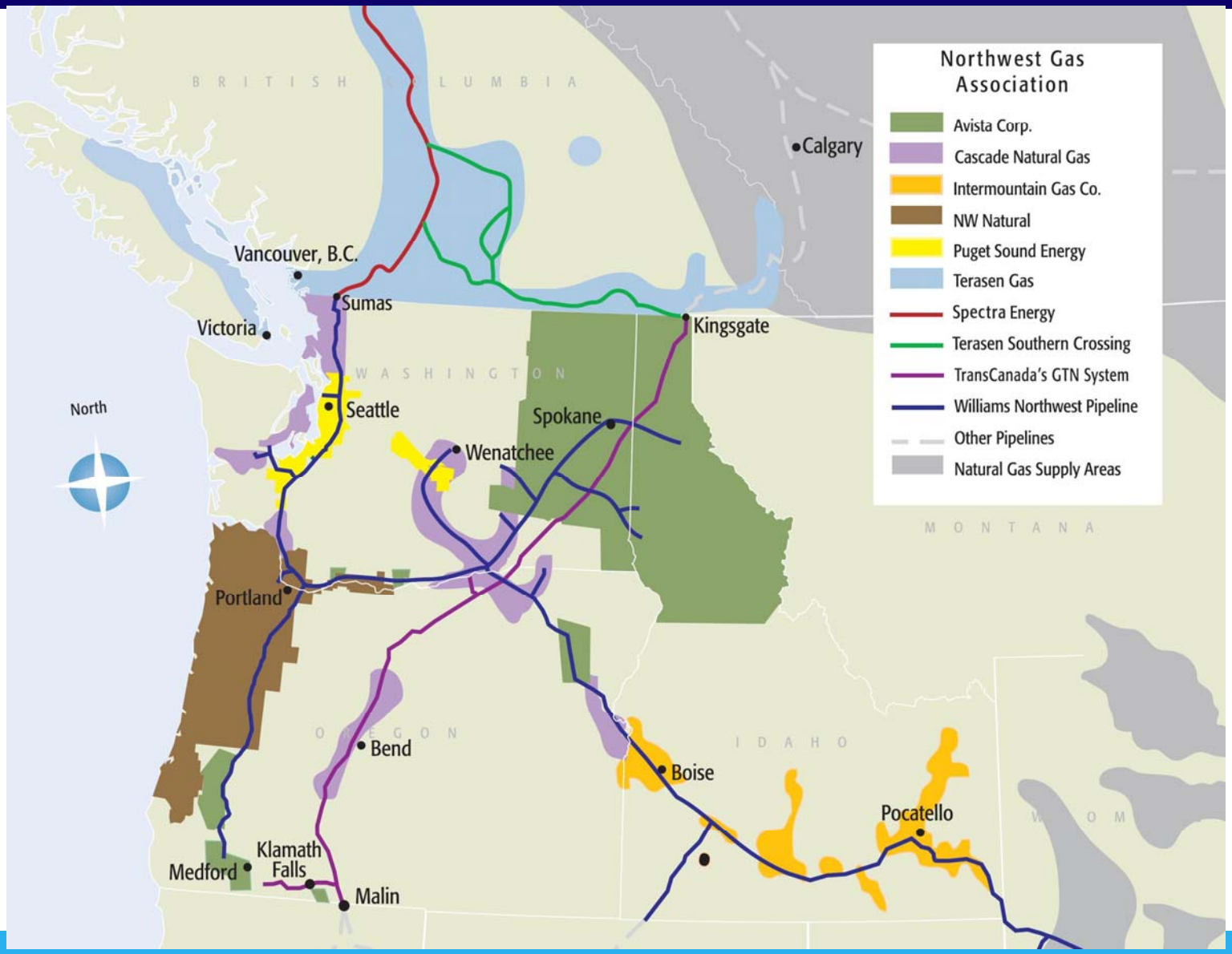
www.terasengas.com

Regional Resource Planning



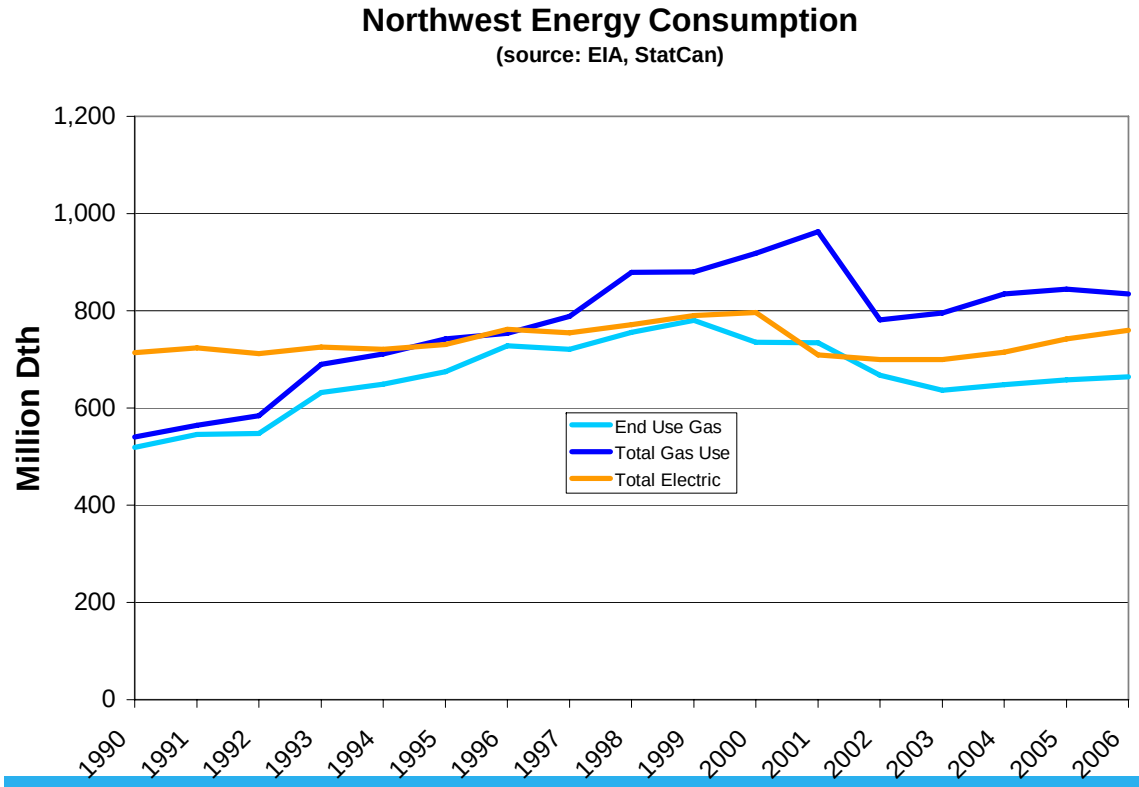
Regional Role of Natural Gas

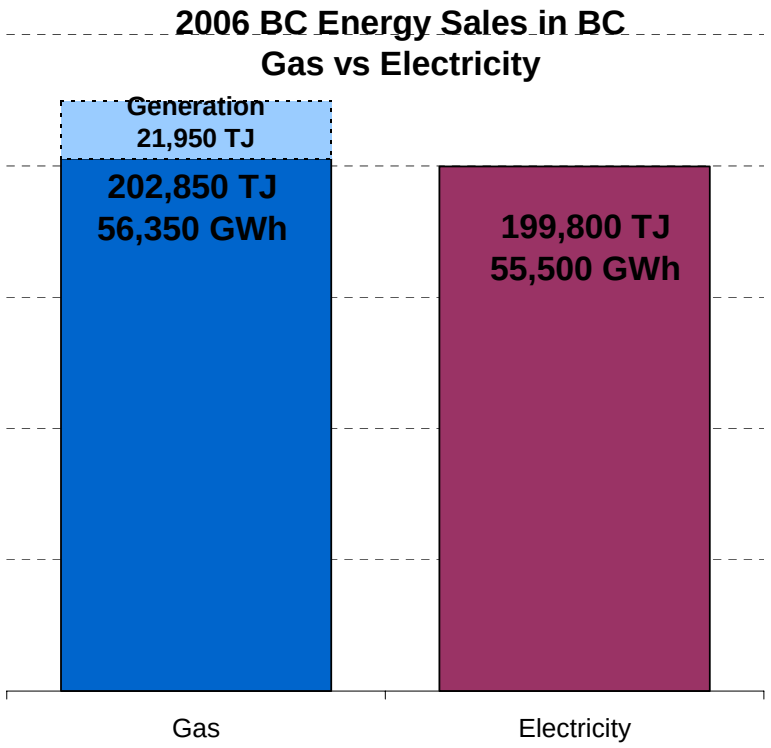
Regional

- 40% of total end use energy
- 50% including generation
- 25% of annual generation

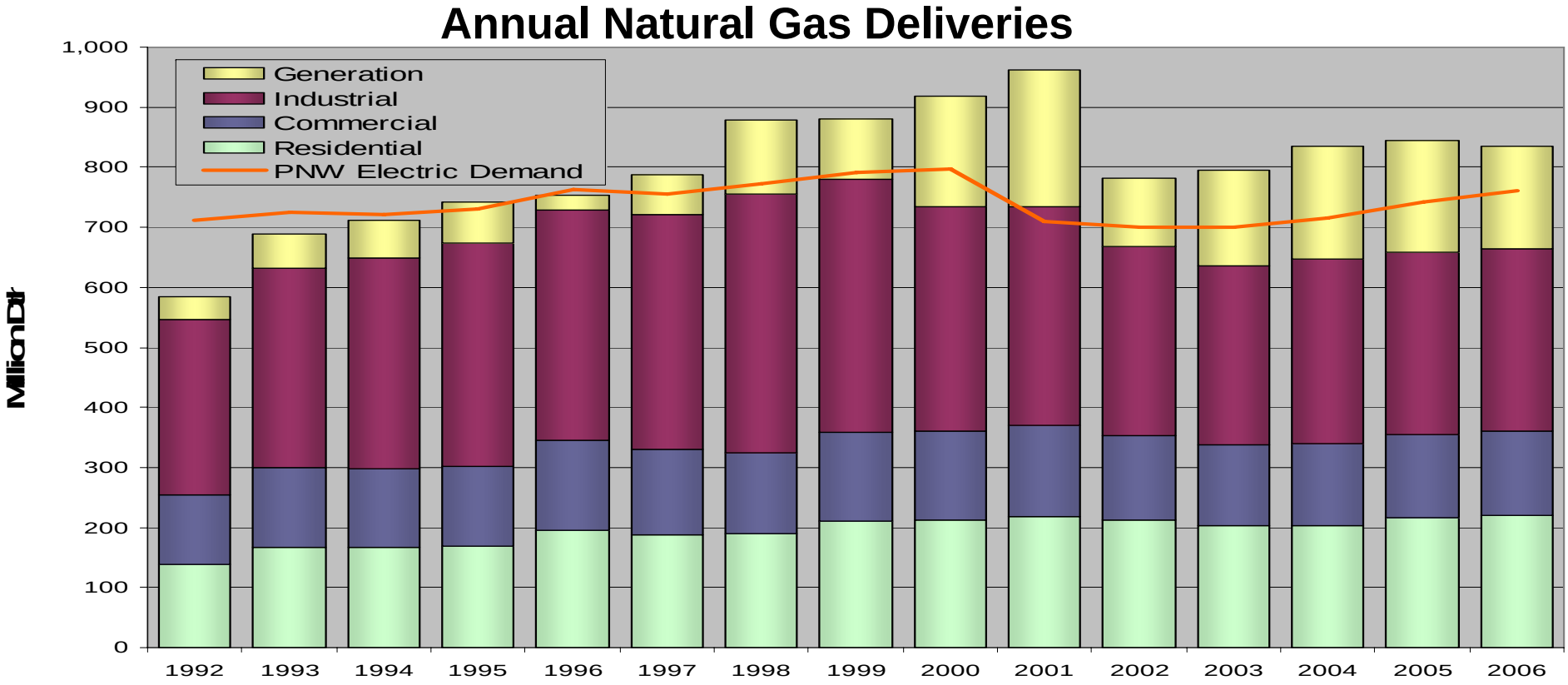
British Columbia (2006)

- Natural Gas End-Use Sales match electricity sales
- < 10% of annual generation





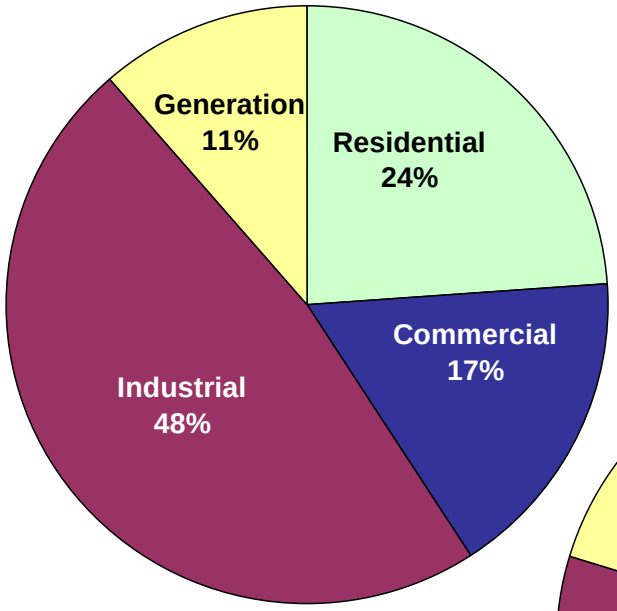
Regional Energy Market Outlook



- Economic Recovery from 2000/2001 energy crisis
- Permanent reduction in industrial demand
- Current growth driven by generation and residential demand

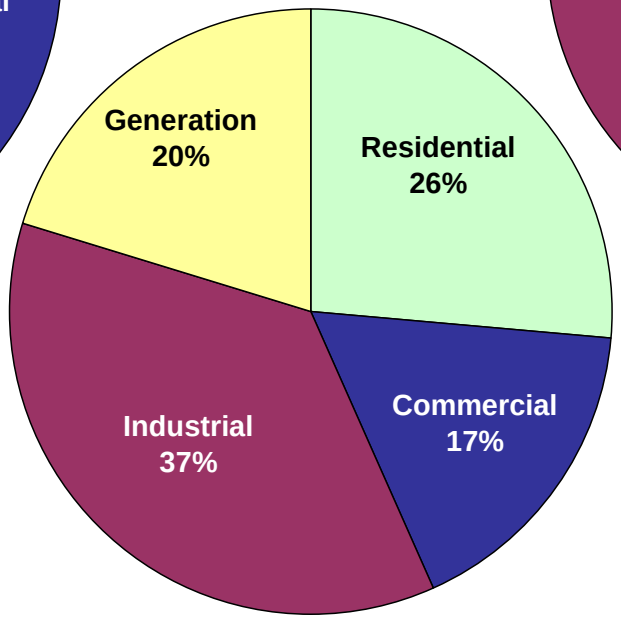
Generation & Residential Driving Growth

Share of Load by Sector, 1999



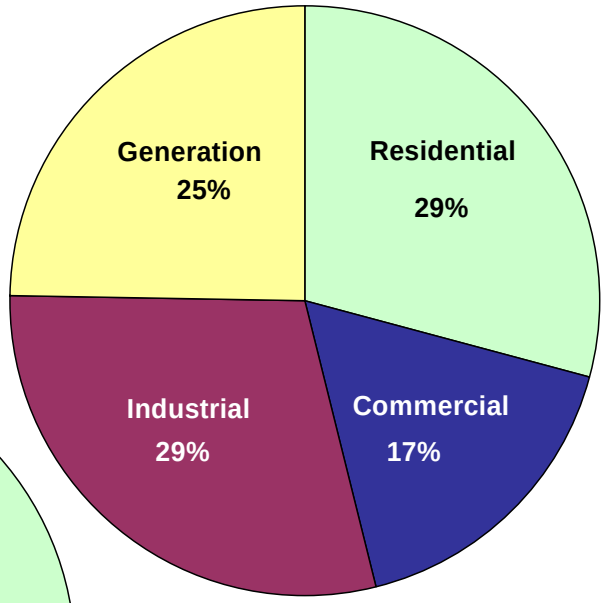
928 PJ

Share of Load by Sector, 2006



881 PJ

2011-12 Projected



914 PJ

Source: EIA, StatCan, NWGA

Regional Electricity Planning Issues

- Energy Self-Sufficiency
  - Province to be electricity self-sufficient by 2016
  - Target is 3,000 GWh “insurance” in critical water year
  - Trade activities continue to optimise value of Heritage Resources
  - Continued commitment to IPP development
- Energy Conservation & Efficiency
  - 50 per cent of demand met through conservation by 2020
- Emissions Standard
  - Zero net greenhouse gas emissions by 2016
  - Zero greenhouse gas emissions from any coal-fired generation
  - Clean or renewable generation to account for 90 per cent of total

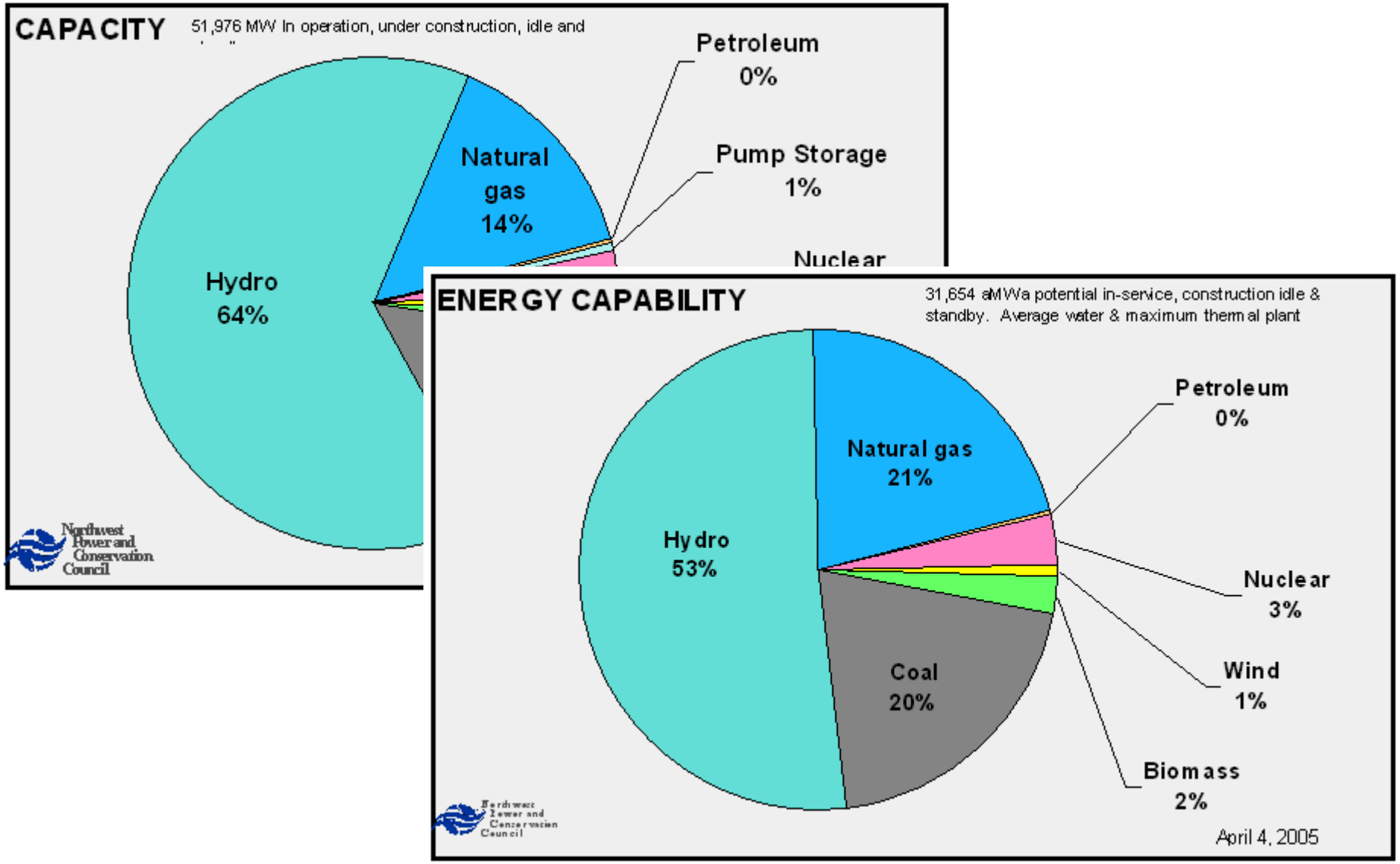
Regional Electricity Planning Issues

Pacific Northwest & California

- Increasing emphasis on conservation and renewables
- Conventional resources are expected to be required to provide firming capacity
- Natural gas fired generation part of the solution

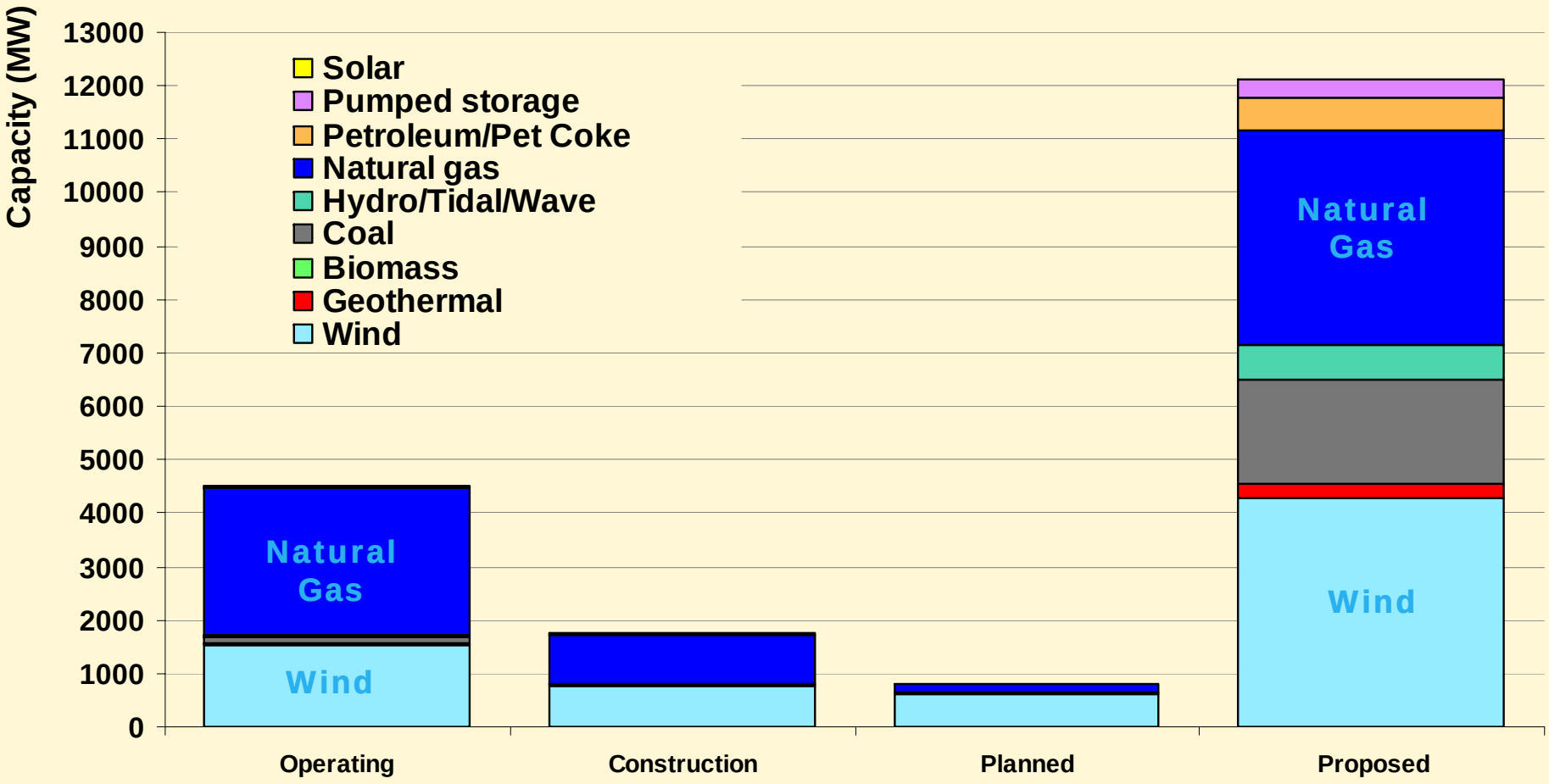
	Renewable Portfolio Standard	GHG Emissions Standards
Washington	– 15% by 2020	– 500 tonnes per GWh (Gas Fired CCGT Standard)
Oregon	– 25% by 2025	– Net 305 tonnes per GWh – CO2 offsets to meet standard
Montana	– 15% by 2015	– 50% CO2 sequestered for Coal Fired Plants
California	– 20% by 2010 – Goal - 33% by 2020	– 500 tonnes per GWh (Gas Fired CCGT Standard)

PNW Generation Resource Stack



PNW Power Plant Development 2002 - 2007

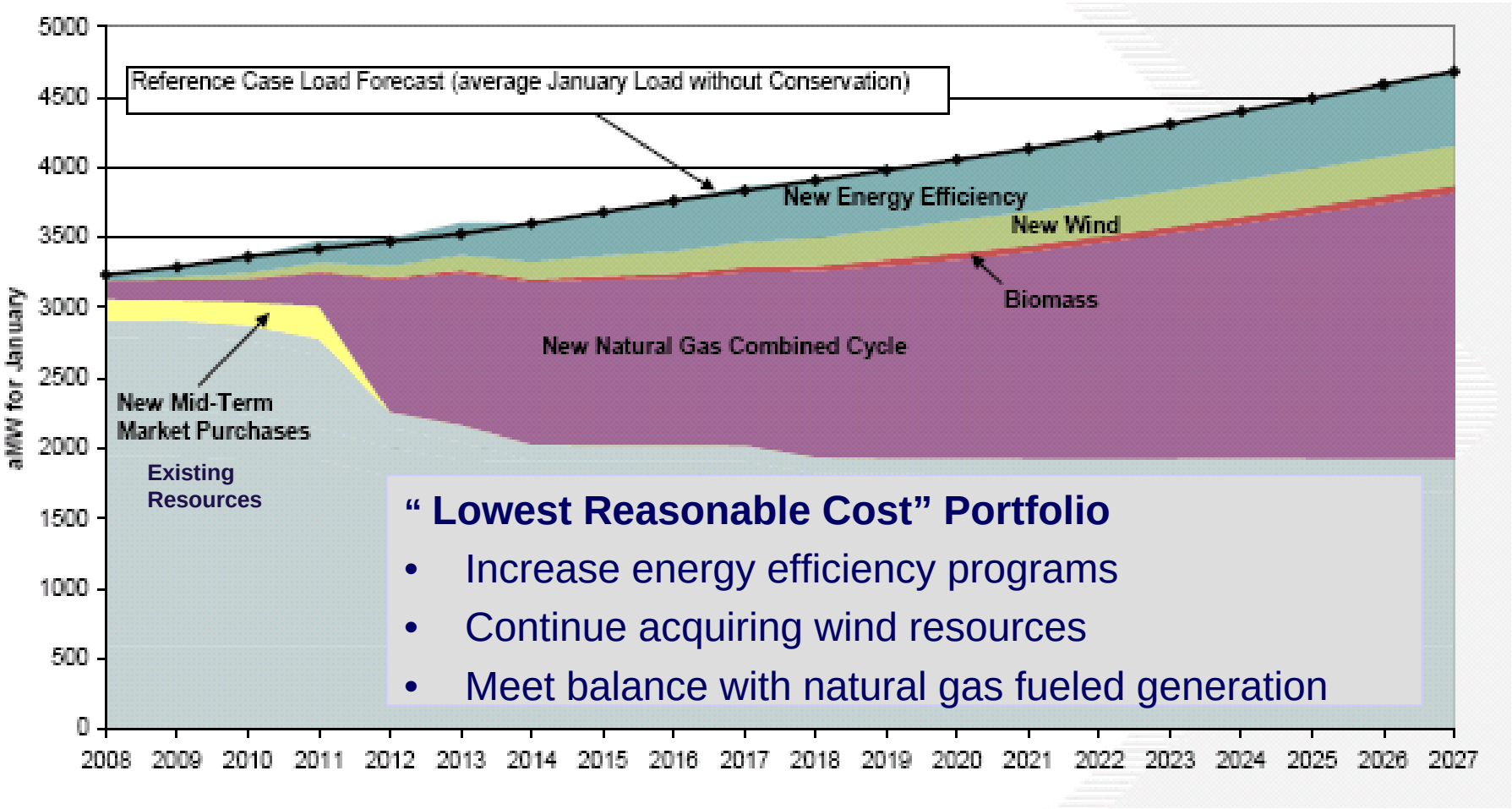
Generating Project Development Activity in the Northwest



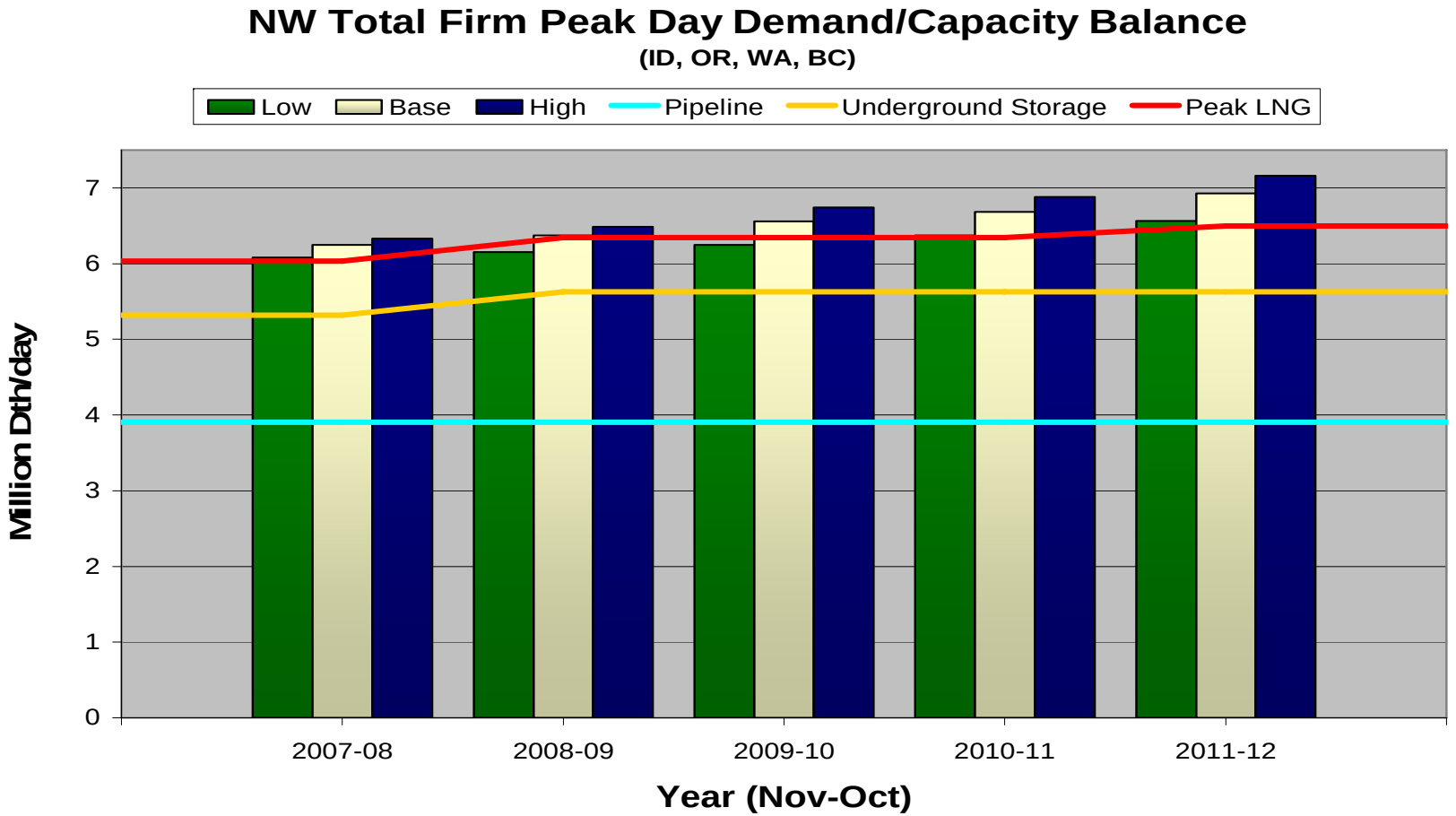
Northwest Power and Conservation Council

Includes OR, WA, ID, MT
Updated November 2007

Puget Sound Energy
2007 Integrated Resource Plan



Regional Energy Market Outlook

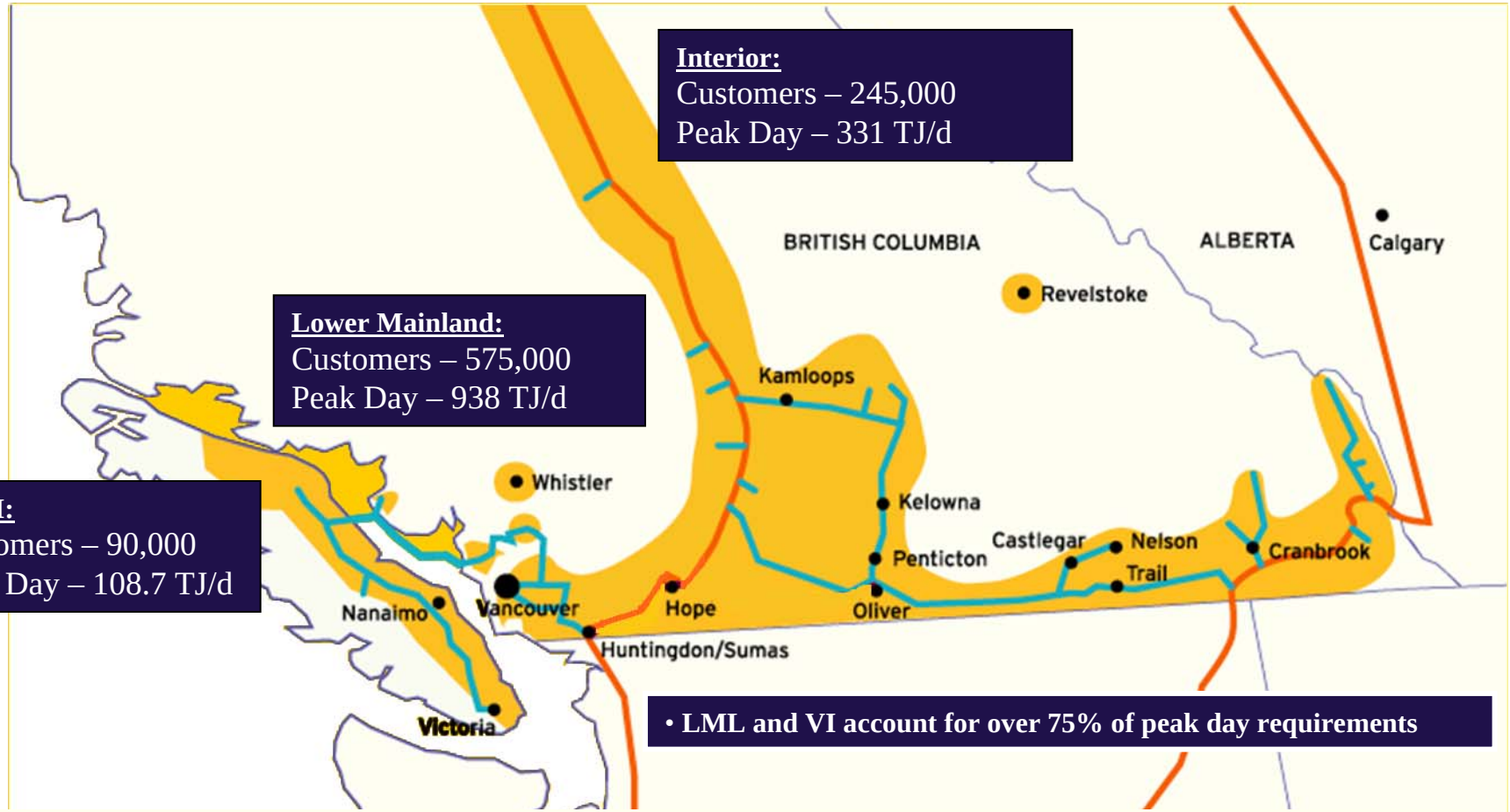


- Growth of generation and residential demand resulting in greater peaking requirements
- Current resource adequacy dependant on availability of resources

Gas Supply Portfolio Planning

Dave Bennett, Director
Energy Management Services

Terasen System Overview



Gas Supply Portfolio Planning

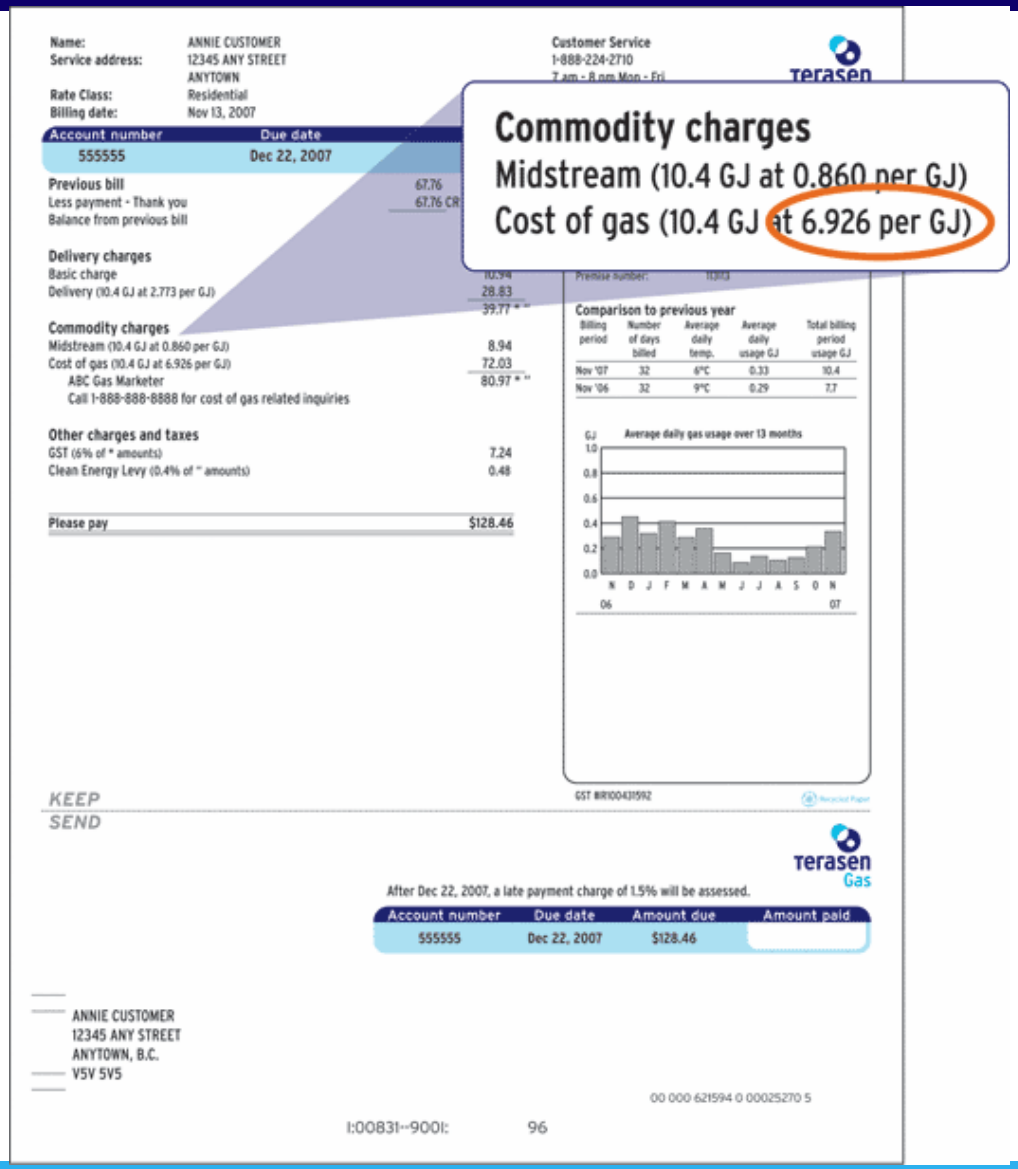
Objective

- To meet 100% of firm customer demand
- To do so in as cost effective manner as possible

How?

- Annual Contracting Plan (Annual – 1 to 2 year horizon)
- Resource Plans (Bi-annual – 20 year horizon)
- Regional Resource Plans (Annual – regional view)
  - NWGA Outlook Study

Why is it important?



Cost of Gas + Midstream = 2/3 bill

<u>TGI Commodity Charges</u>

117 PJ – Normal Demand

18 PJ from marketers

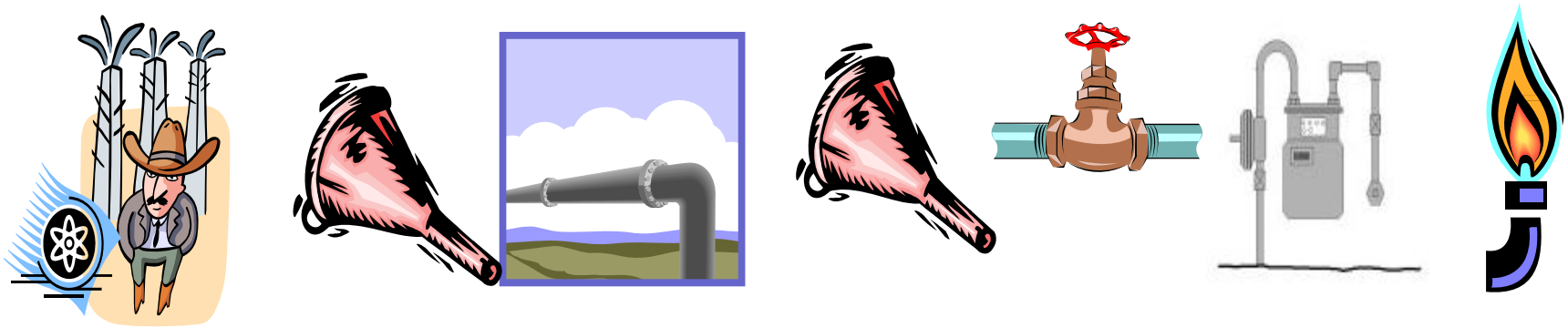
$1 billion

<u>TGVI Commodity Cost</u>

12 PJ – Normal Demand

$100 million

Utility Business Model



Commodity Purchases

For Terasen Standard Rate Offering & Gas from Marketers

Supply Hub
- AECO
- STN #2
- SUMAS

Midstream Infrastructure
- Pipeline Capacity
- Storage Capacity
- Peaking & Balancing
- Resource mgt & Optimization

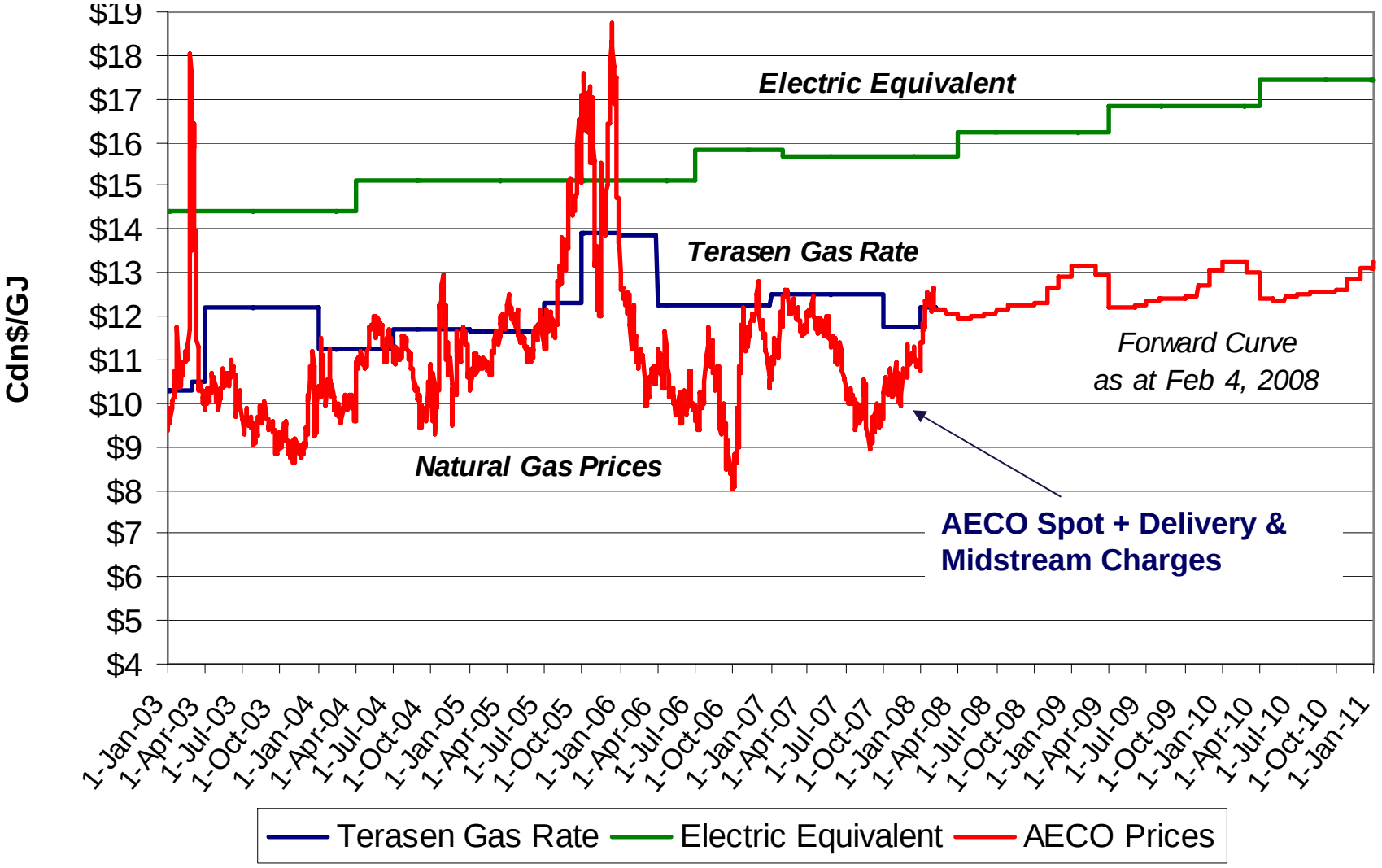
LDC Interconnect

Utility Delivery System
- Terasen Owned Assets
- Distribution & Transmission

Meter

Consumer

Gas Price Risk Management



How do we get gas to our customers?

t's News

AD | courier-journal.com

TODAY, IN 1902

President Theodore Roosevelt became the first U.S. chief executive to ride in an automobile, in Hartford, Conn.

A2

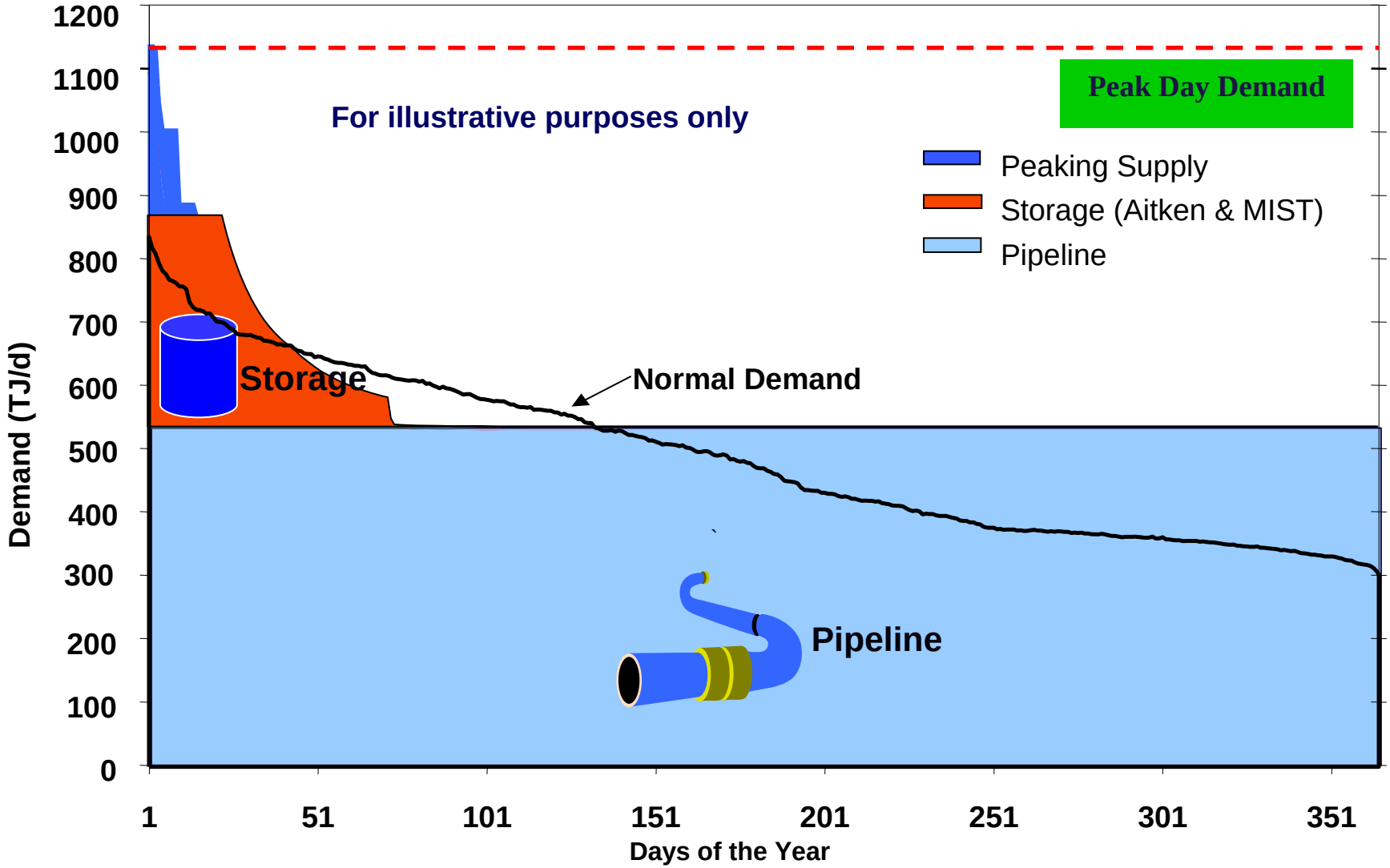
MONDAY
AUGUST 22, 2005

Stealing natural gas in China

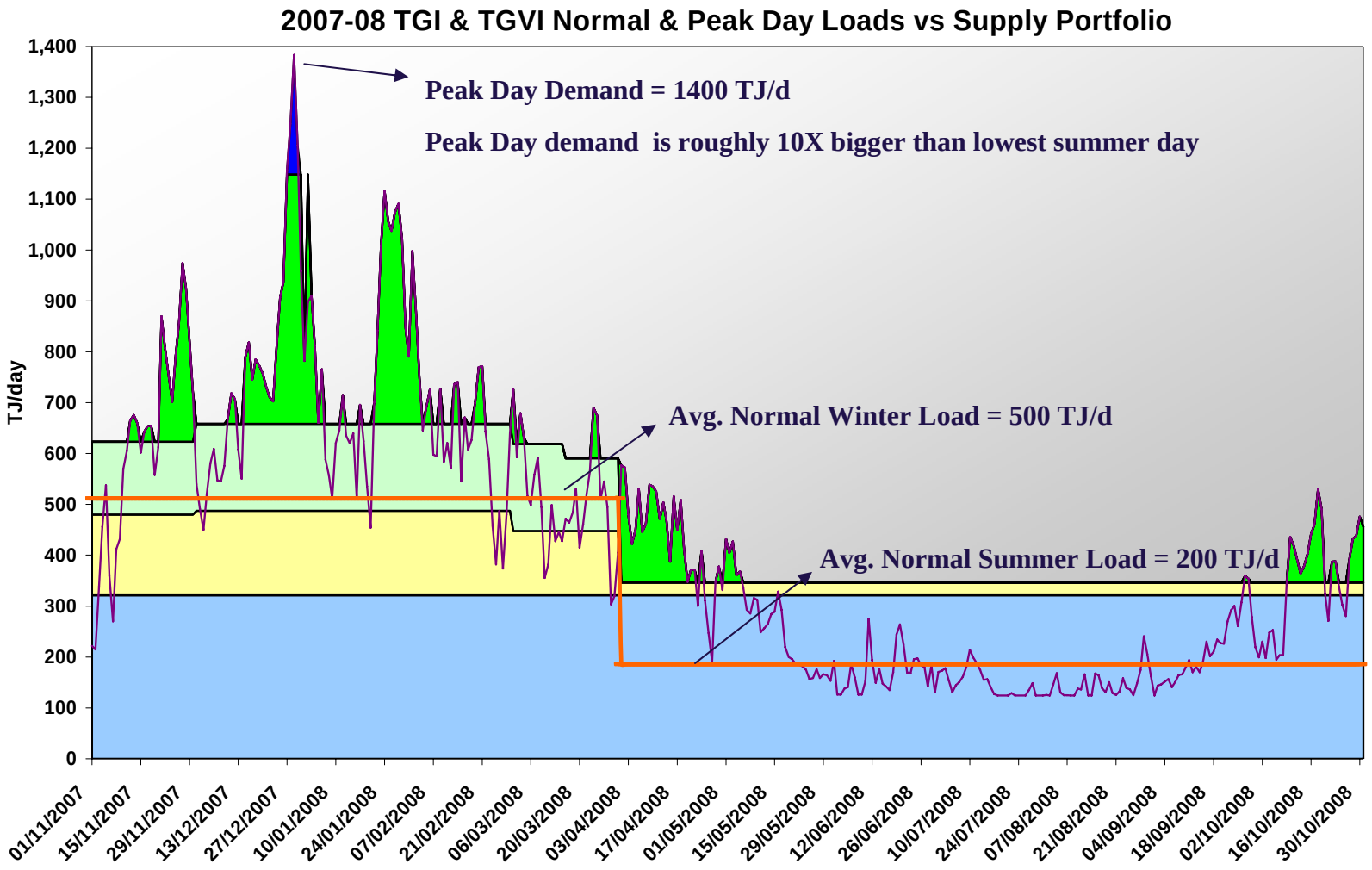
Two women carried a plastic bag containing natural gas siphoned from a well in Puheng Town, in central China's Henan province. Local peasants have been illegally taking natural gas from oil wells. Each bag can last a household for up to two weeks, but they are dangerous.

EyePress, via the Associated Press

Gas Supply Portfolio Planning



Demand is Highly Variable



Options for Getting Gas to the Terasen System

Supply

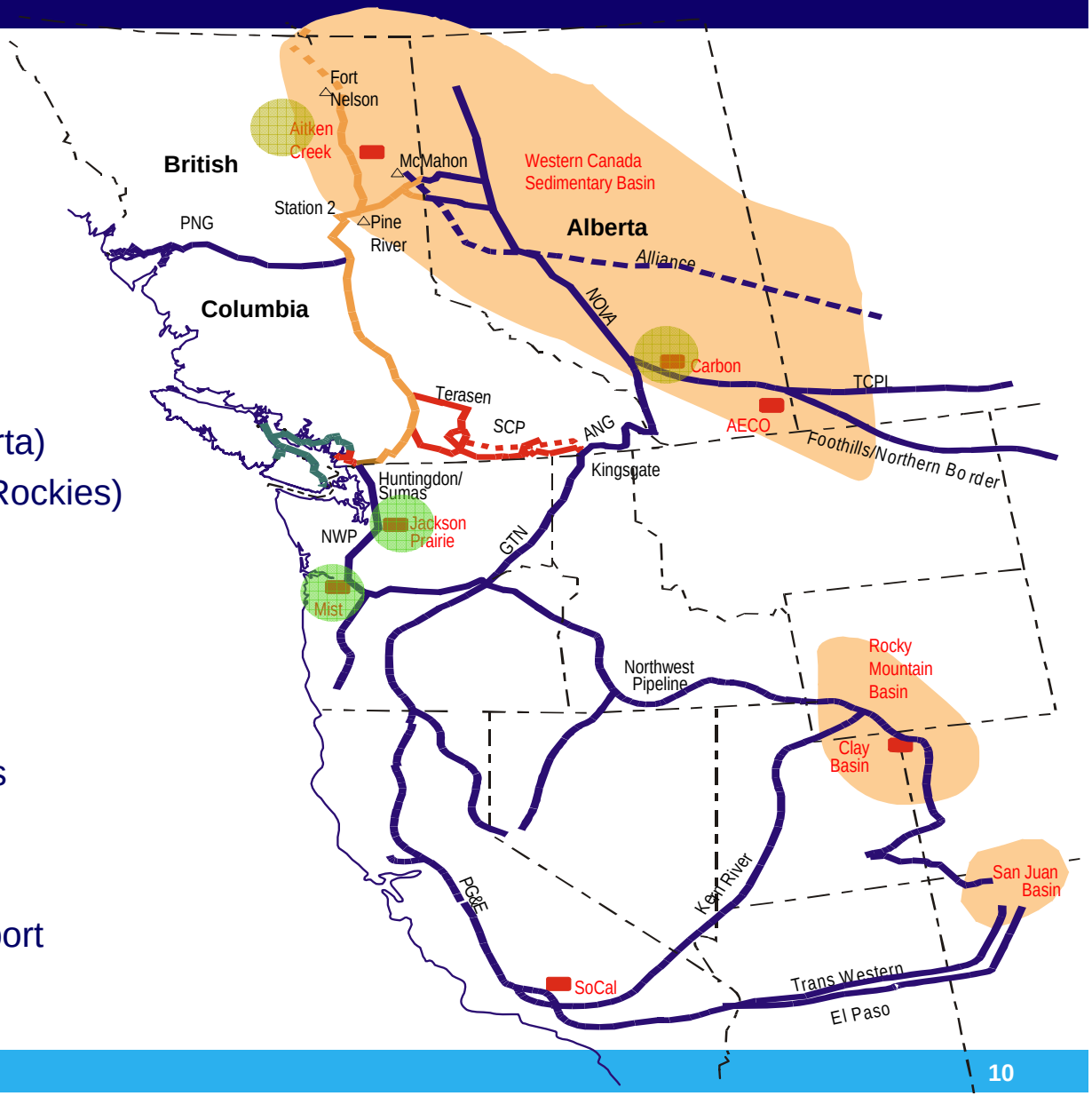
- NE BC
- Alberta
- US Rockies

Pipelines

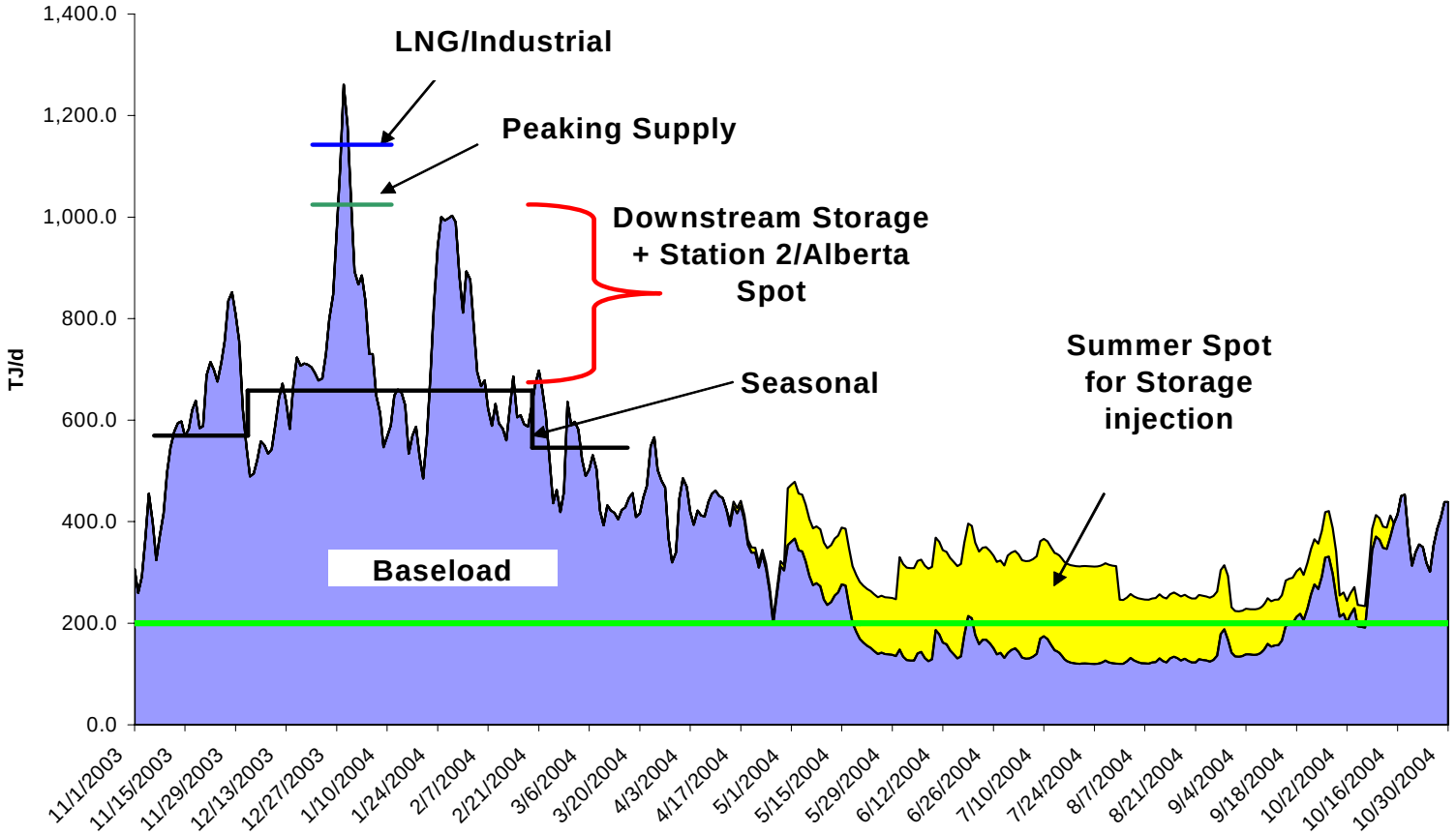
- Spectra Westcoast (BC)
- Terasen Southern Crossing (Alberta)
- Williams Northwest Pipeline (US Rockies)

Storage

- **Producing areas**
  Aitken Creek, AECO, Carbon
- **Market –** Underground Reservoirs
  Jackson Prairie, Mist
- **Service Area –** LNG
  Tilbury, Plymouth, Portland, Newport



Portfolio (ACP)



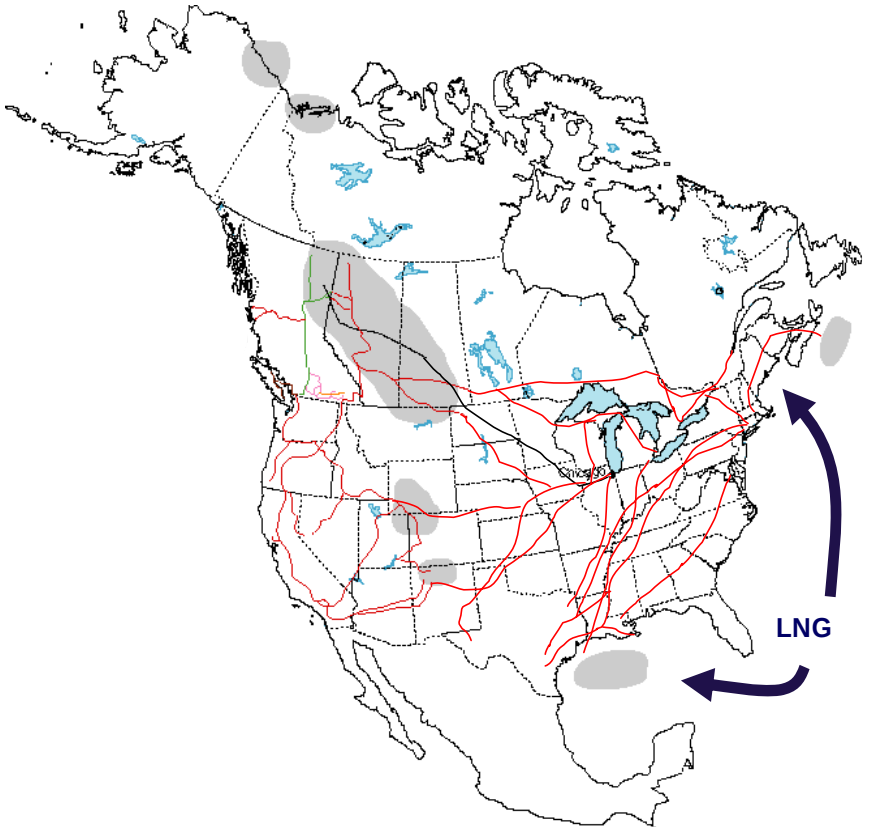
Gas Supply Planning
Criteria / Managing Risks (Balanced Approach)

- Supply reliability and security
  - Infrastructure disruption
    - Compressors, plant, gas wells, pipeline
  - Supplier failure
- Least delivered cost portfolio
  - Remain competitive with alternate forms of energy (electricity, oil)
  - Balance least delivered cost with other objectives
- Reduce rate volatility
  - Absolute price
  - Price volatility

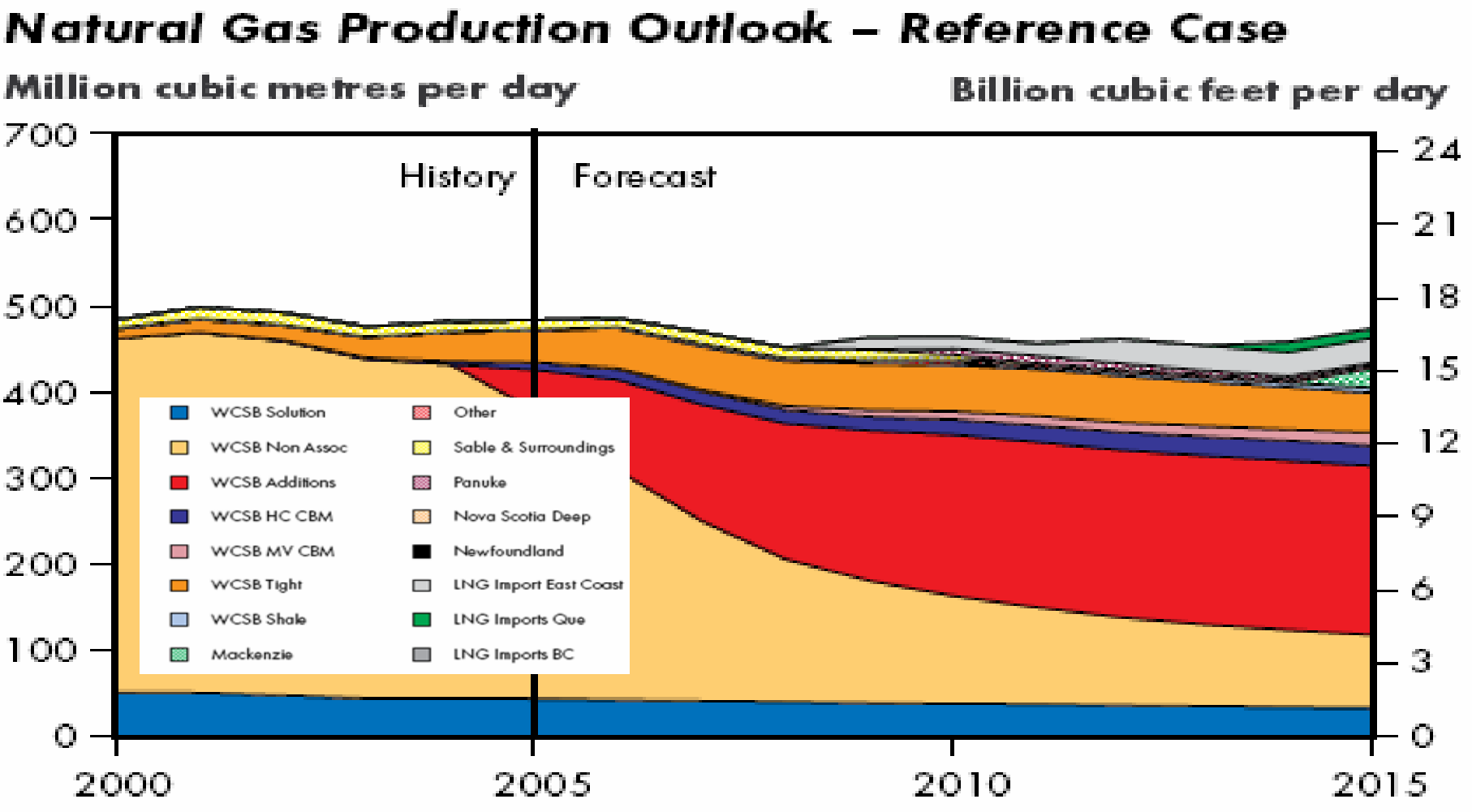
Issues

North American Supply is Sufficient

- Proved reserves (inventory)
  7 -10 years supply
- Total North American resource 70+ years of supply
  - Includes coal-bed methane, unconventional gas
  - Does not include imported LNG
- Migration to new supply areas is taking place



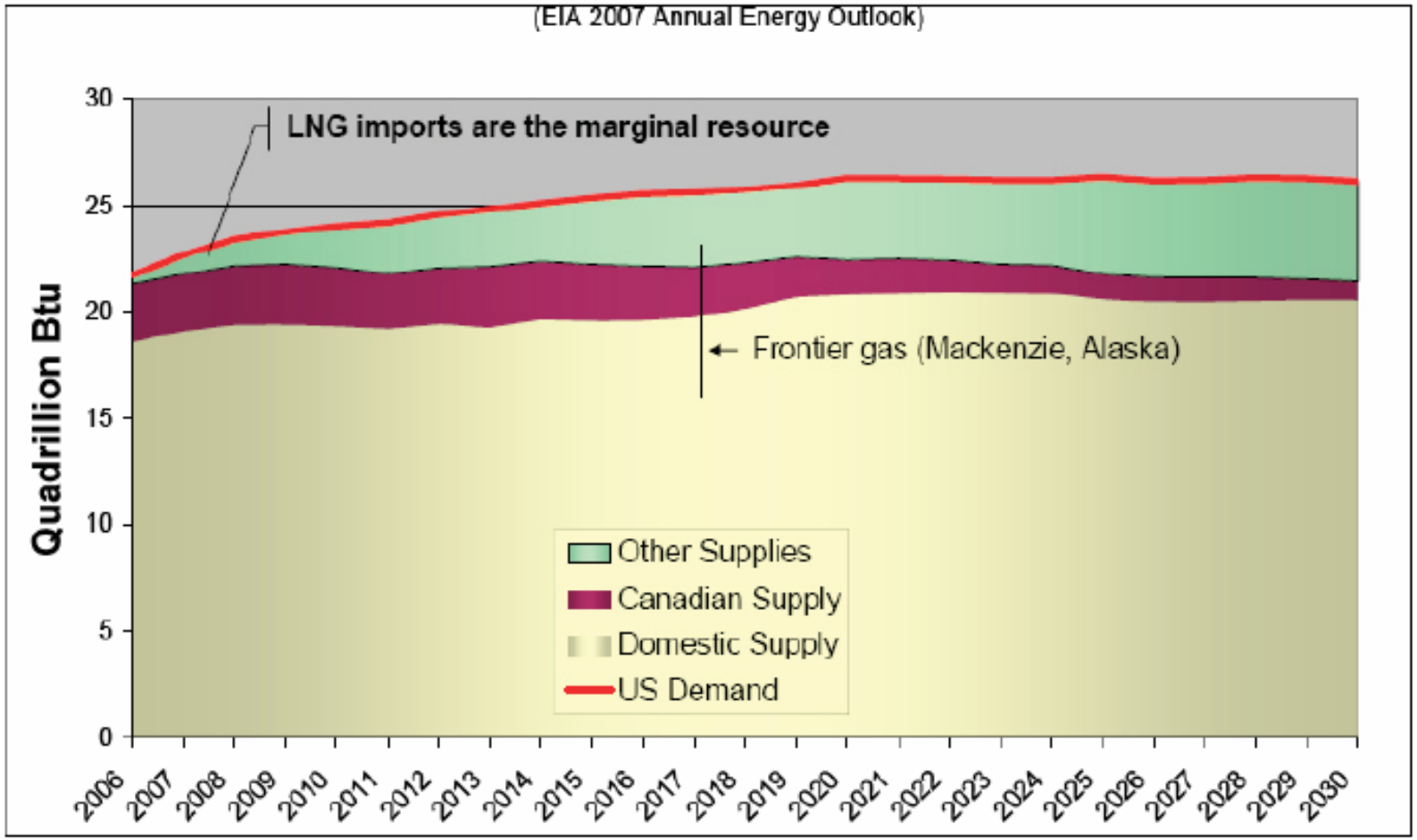
Canadian Production Levels Maintained



Source: NEB 2007 Energy Futures

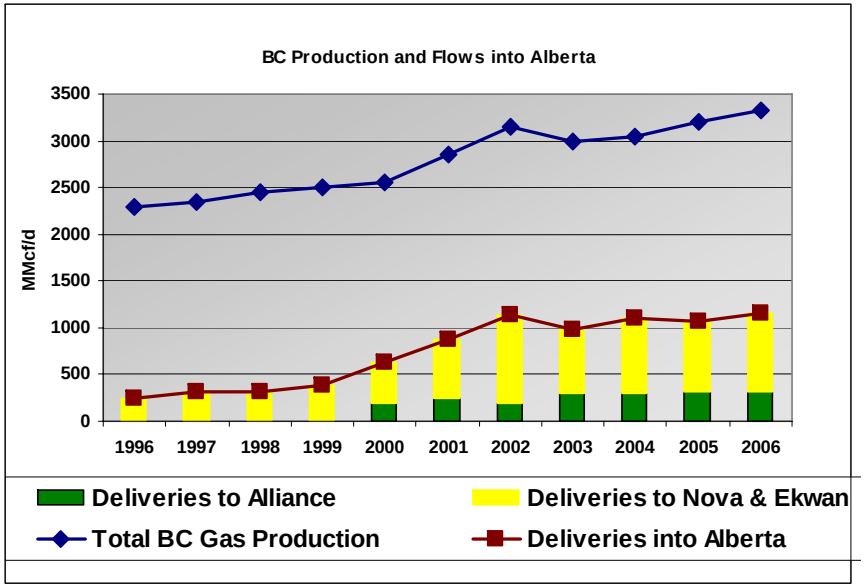
The US Expects LNG Imports to Fill the Gap

FIGURE 10. PROJECTED MIX OF RESOURCES NEEDED TO MEET FUTURE DEMAND



LNG (green area) will play a vital role in serving future U.S. demand as cumulative U.S. and Canadian supplies grow only slightly or hold steady. Alaskan gas will provide much-needed domestic supply boost after 2017.

Potential changing gas flow

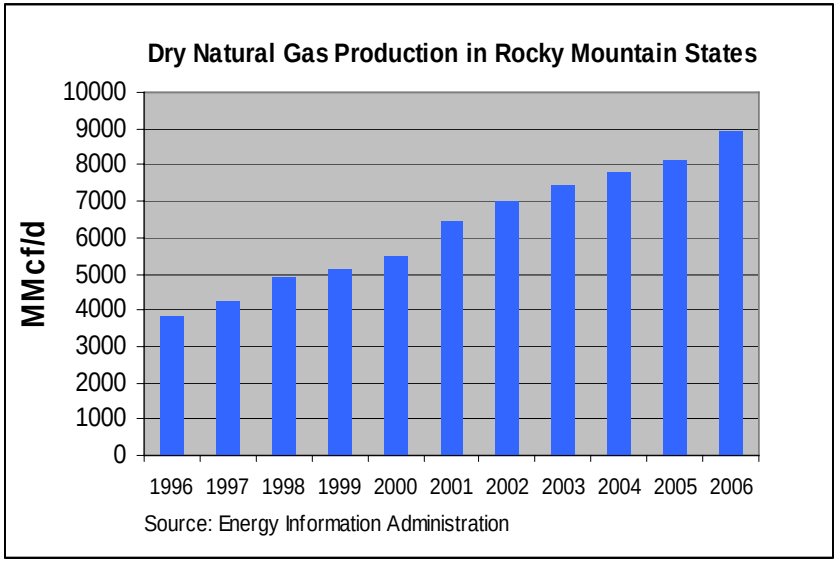


BC Production is being drawn into Alberta

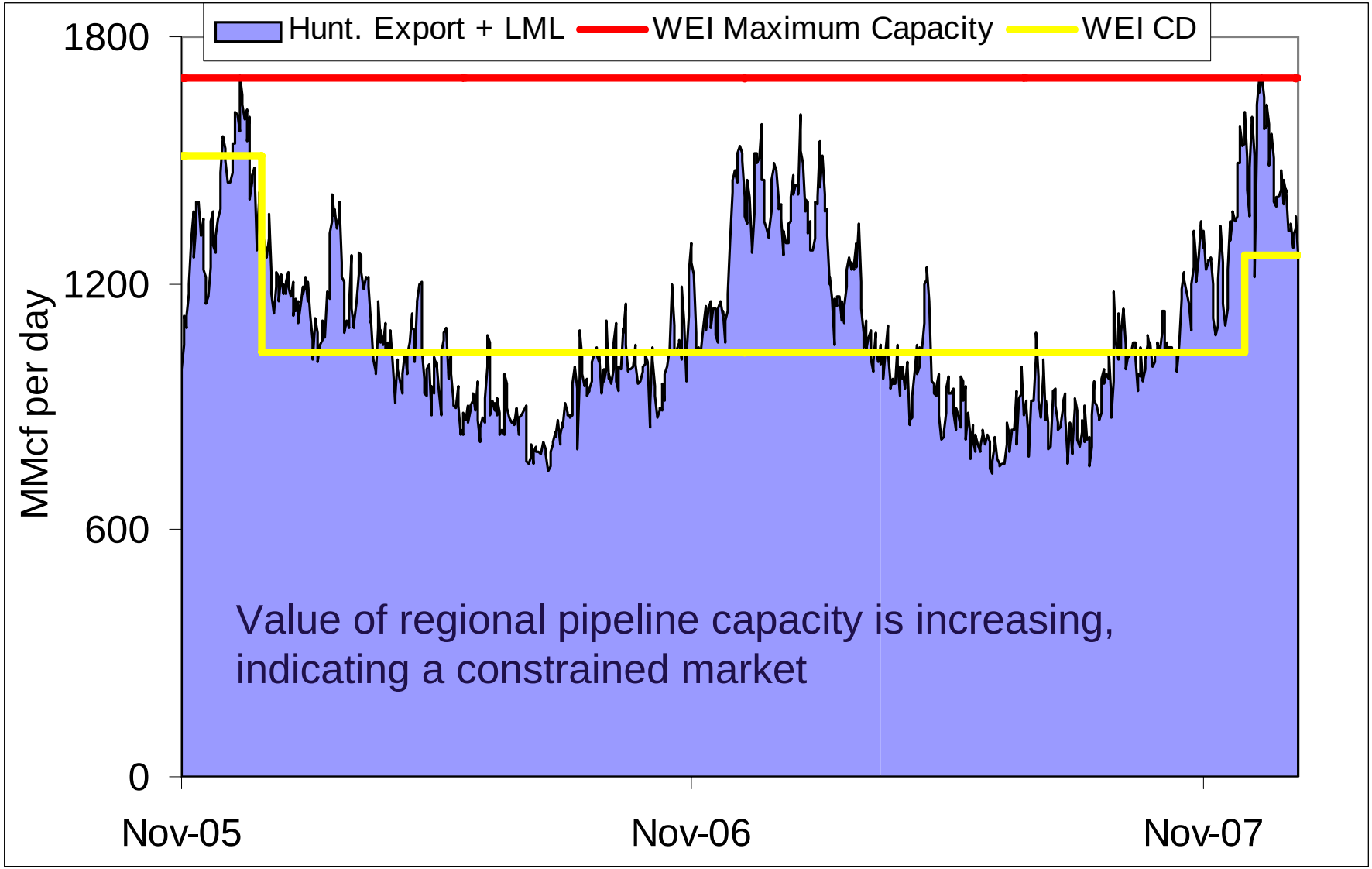
- Higher demand from oil sands plants
- Flat to declining production in Alberta

Rockies Supply has Grown Substantially

- PNW is looking to the Rockies for new supply
- This could potentially impact the flow of supply at Huntingdon



Pipelines are Full when Weather is Cold



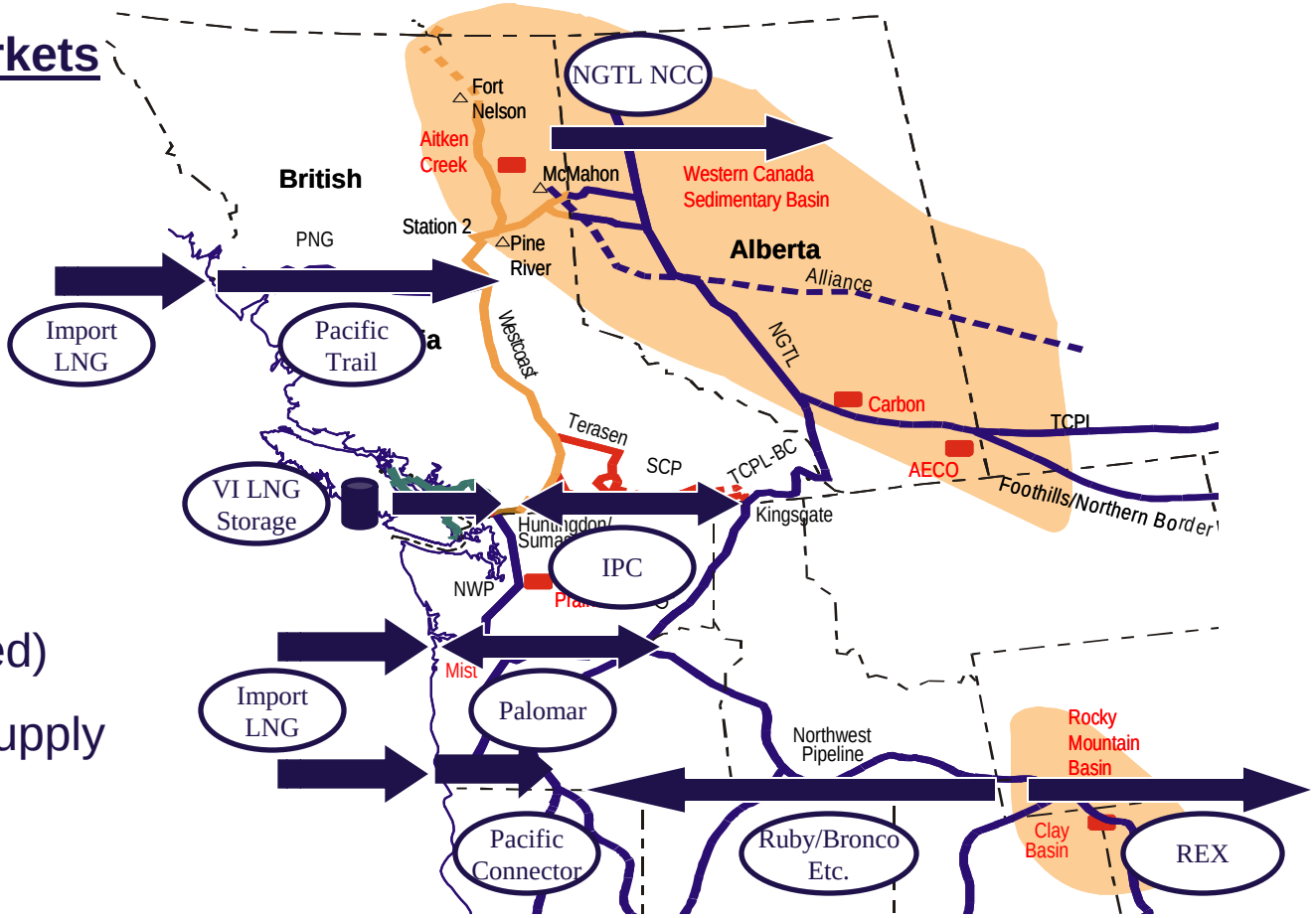
Regional Projects

Supply Issues for Markets

- Access to supply
- Diversity of supply
- Changing load shape

Types of Projects

- New supplies
  - Import LNG
  - Unconventional (new basins, coalbed)
- New connections to supply
- Storage development



Summary

- Goal is to provide reliable, cost effective resources
- Long term supply is sufficient
- Natural Gas represents good value relative to other fuels
- Terasen actively supports planning initiatives, both locally and regionally
- Infrastructure must be planned
  - Long lead times for new projects
  - Cost to the economy of supply shortfalls is high
  - Terasen will need to continue to add both pipeline and storage resources to its portfolio over time

2008 Resource Plan

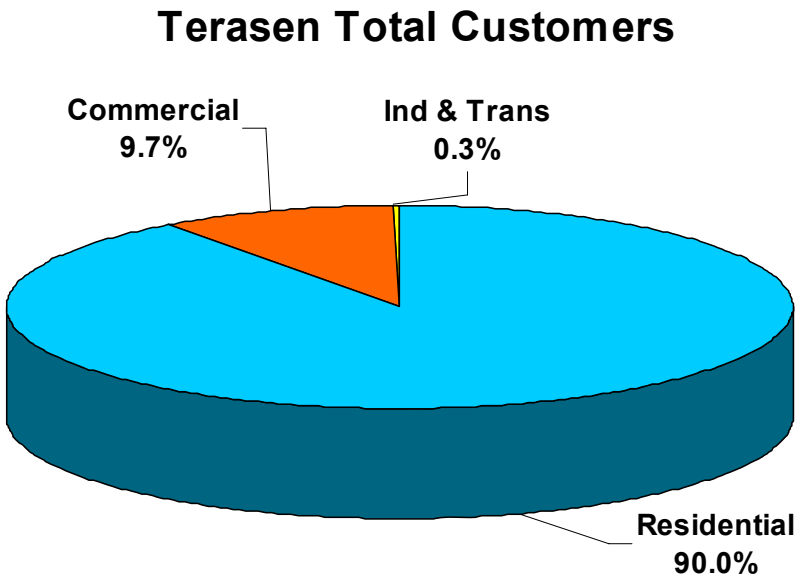
Trends and Issues in Natural Gas Demand

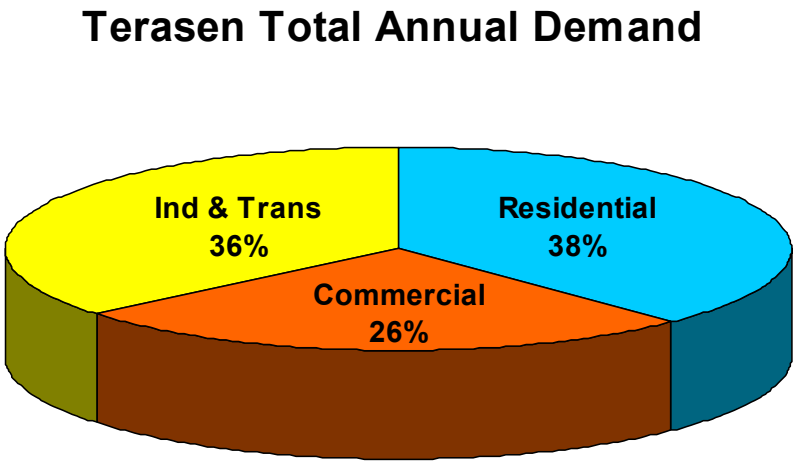
Demand Forecast

Trends and issues that affect:

- Customer account additions
- Use rates
- Design day demand

Terasen at a Glance





Total Customer ≈ 920K

Total Demand ≈ 215 PJ/yr

Drivers of Demand

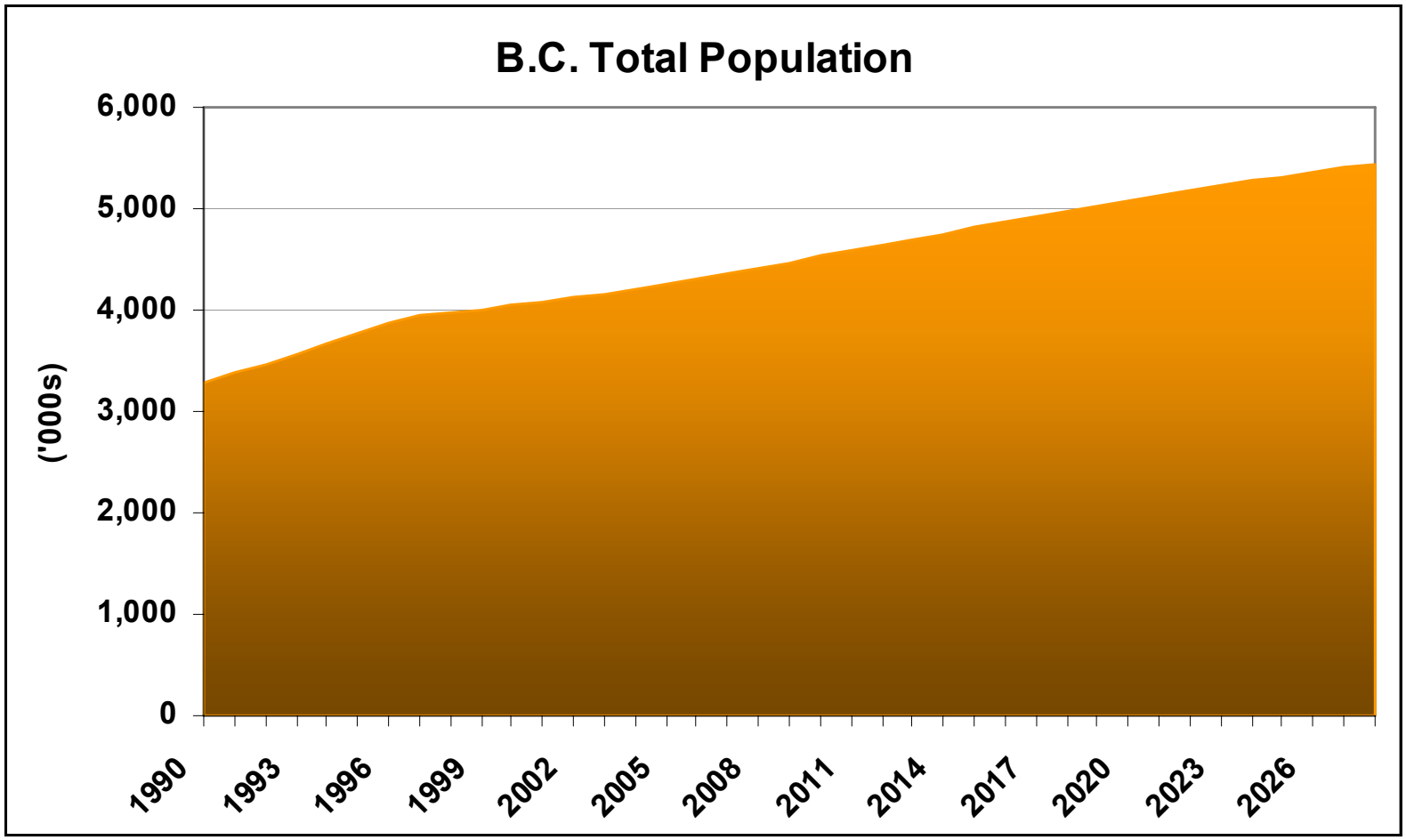
New Customers

- New Home Construction
- Housing Type
- Choice of Appliances
- Appliance Energy Choice
- Appliance Efficiency

Existing Customers

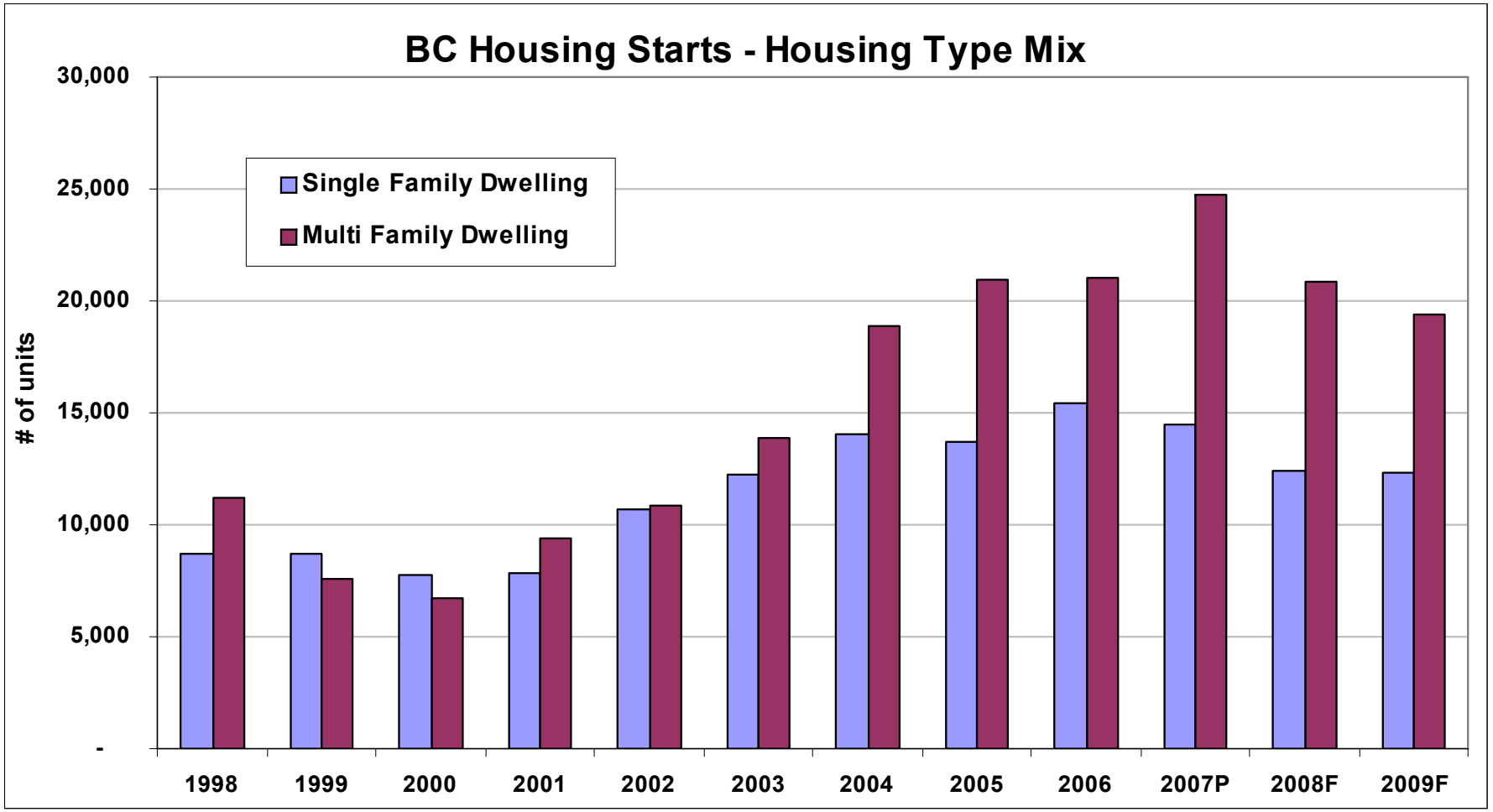
- Choice of Appliances
- Appliance Energy Choice
- Appliance Efficiency

Long-Term Growth in Population



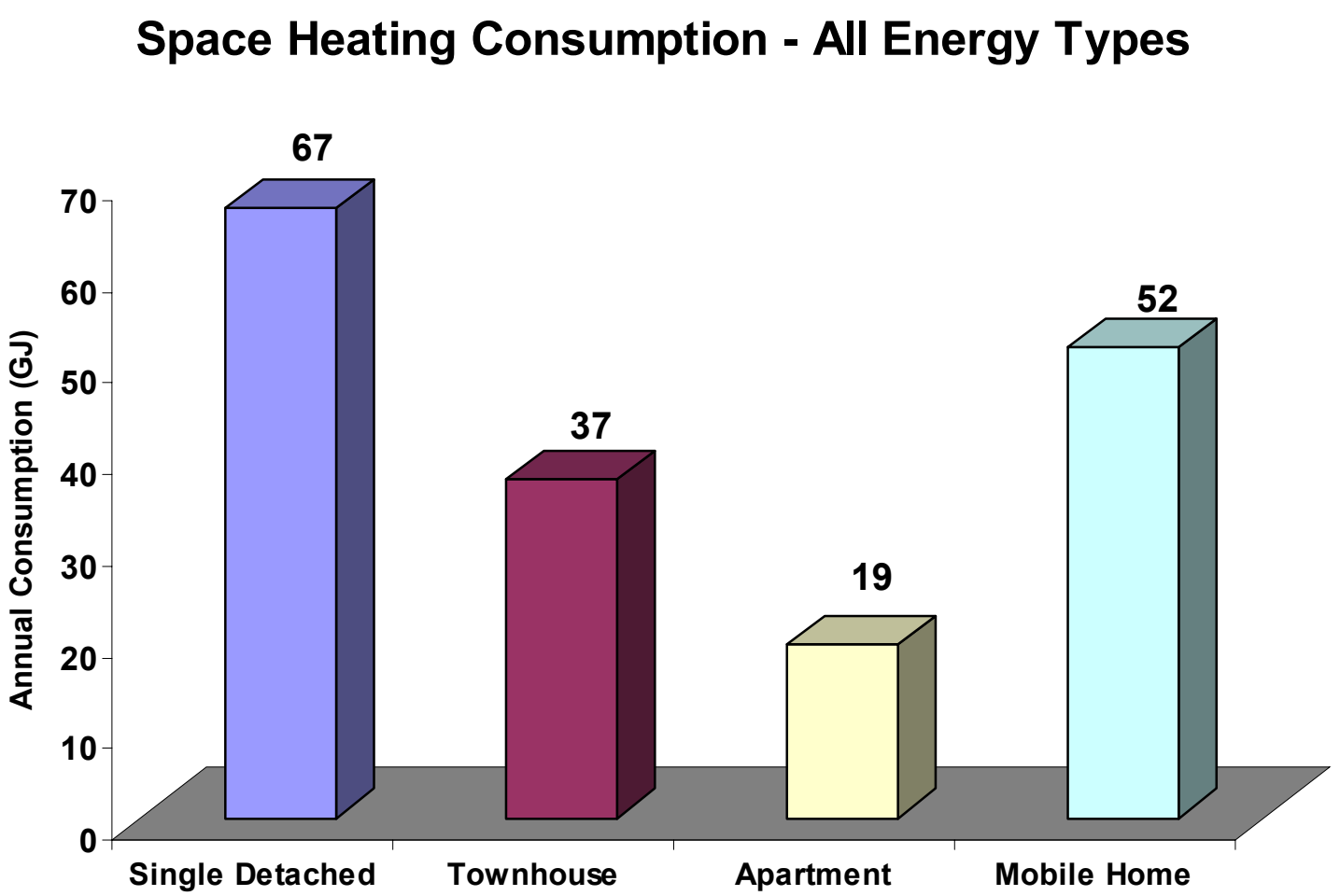
Source: BC Stats

Shift Towards Multi-Family



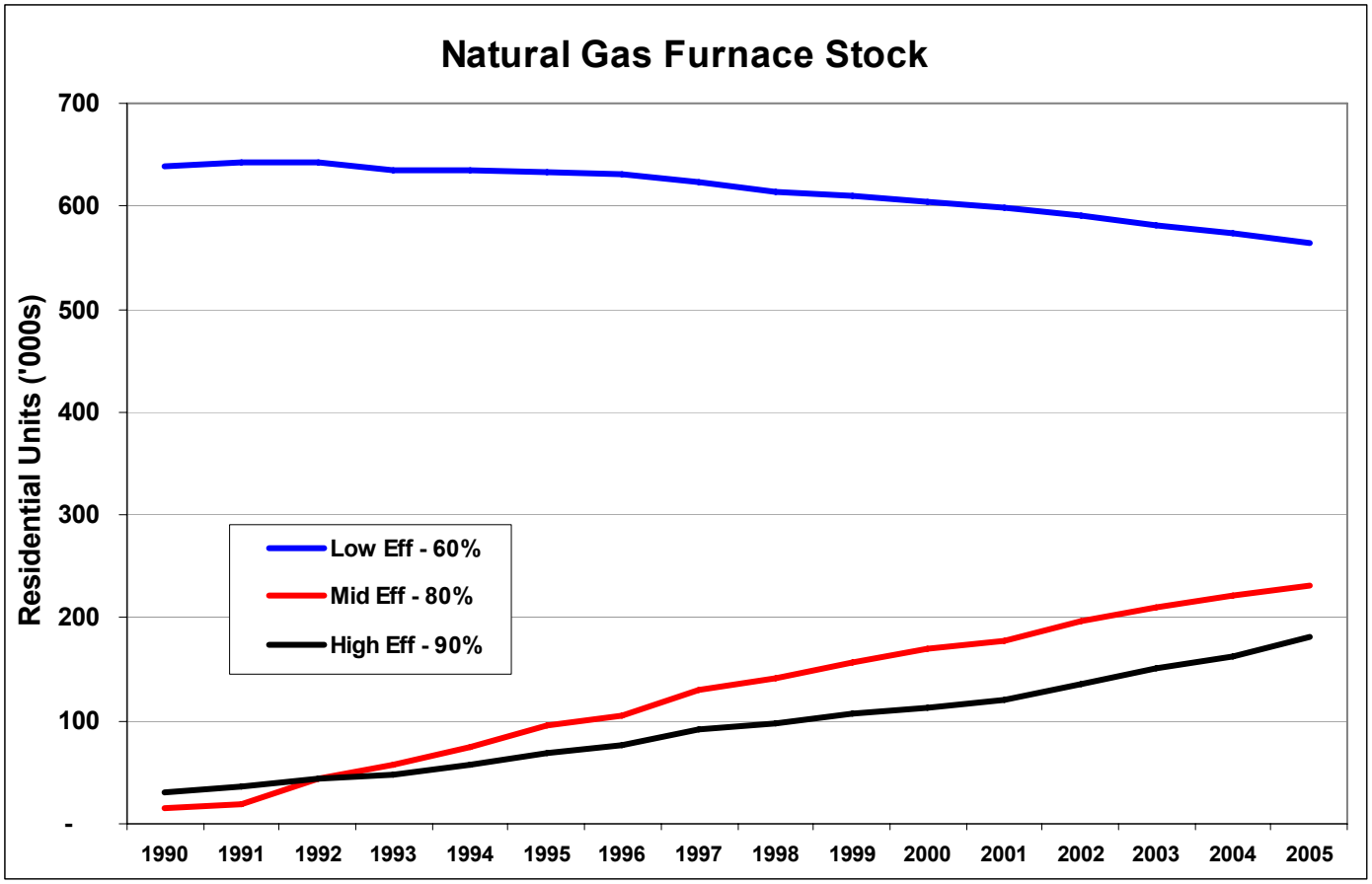
Source: CMHC

Housing Type Consumption Patterns



Source: NRCan – B.C. data

NG Space Heating Increasing Efficiency

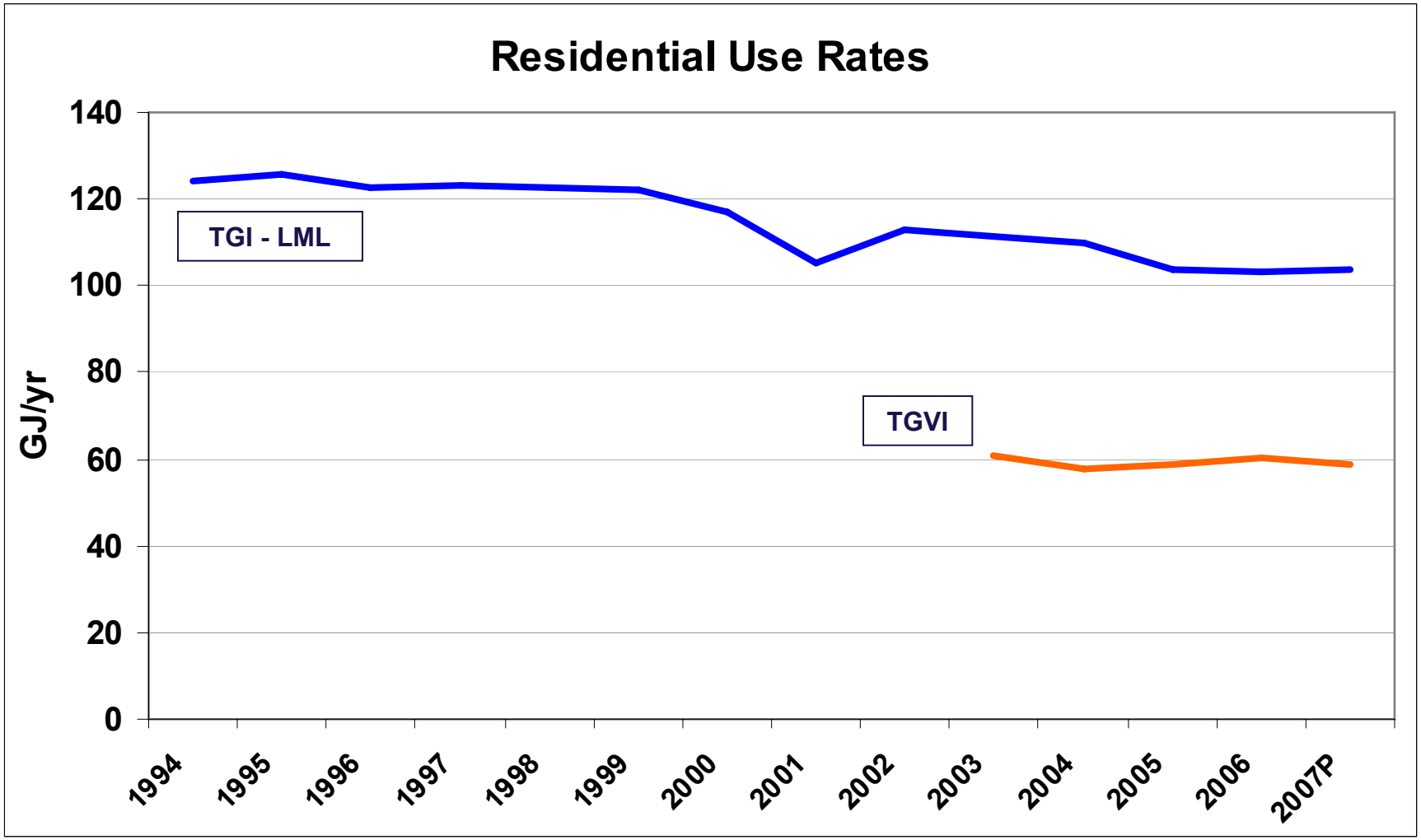


Source: NRCan – B.C. data

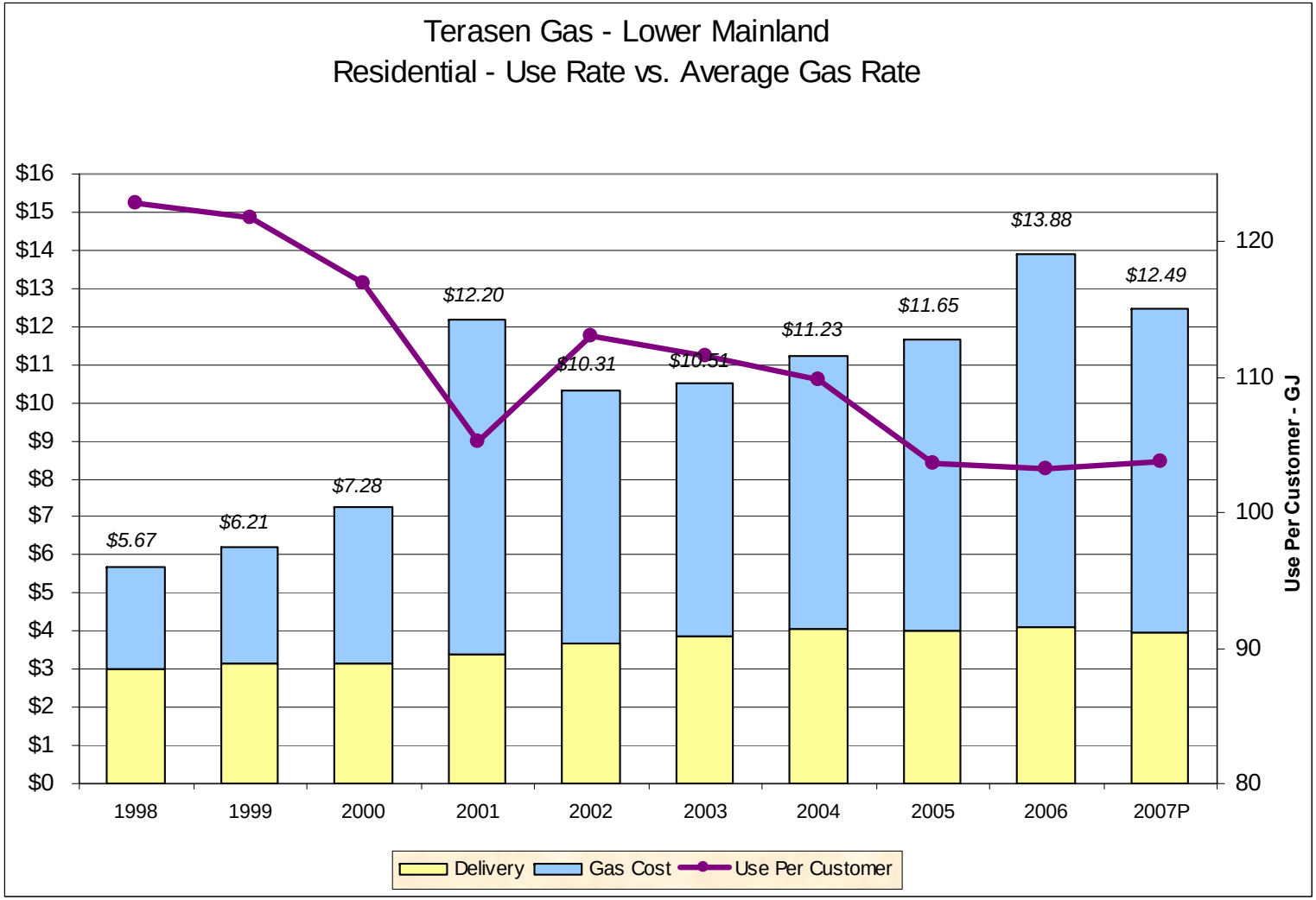
- **Low Eff. ceased installations in 1990**
  - **Aging units to be replaced by higher eff.**
- **Mid Eff. to cease installations in 2010**
  - **Number of units will start to decline after 2010**

Typical Consumption:
Low = 67 GJ Mid = 51 GJ High = 45 GJ

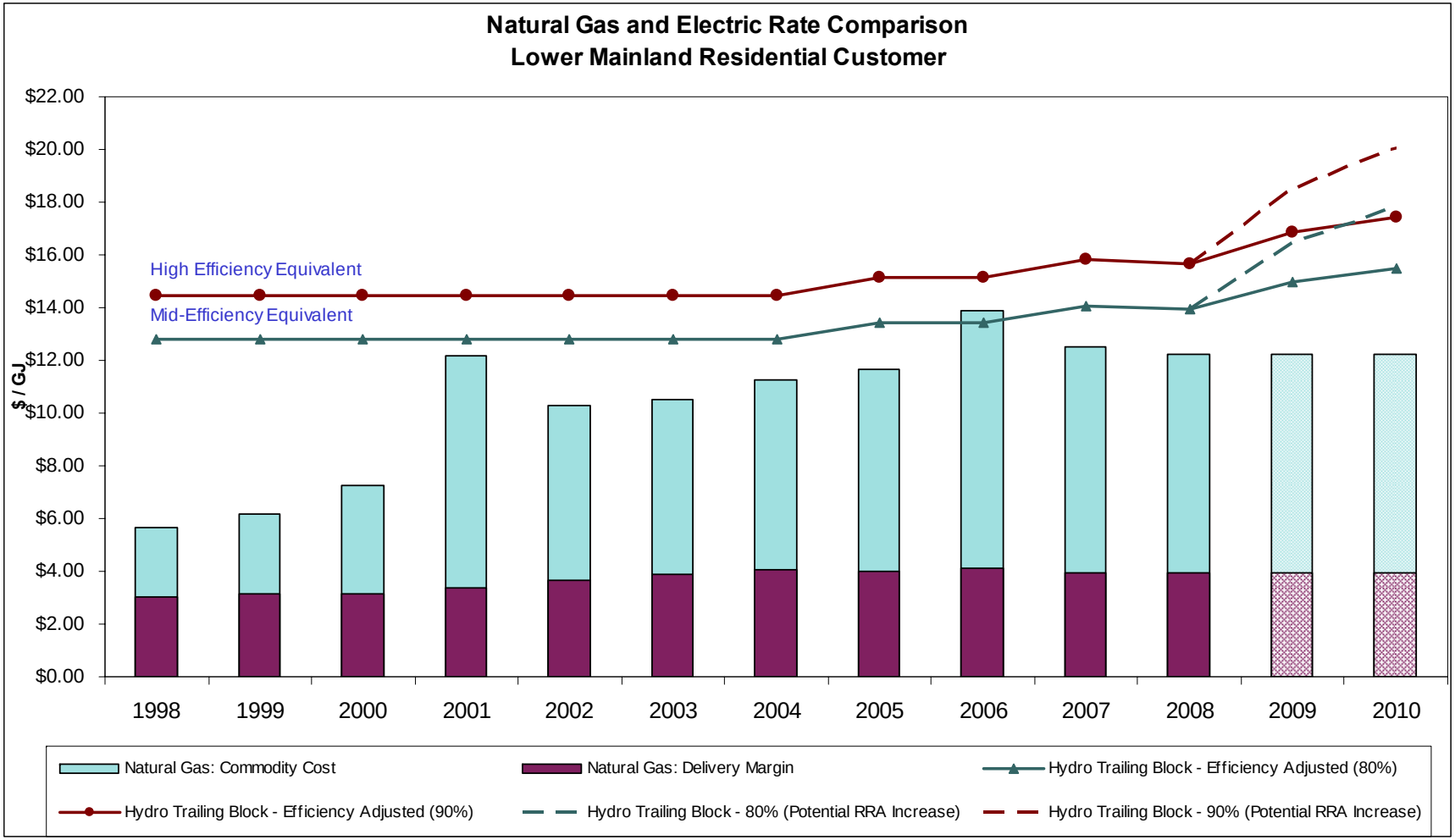
Declining Residential Use Rates



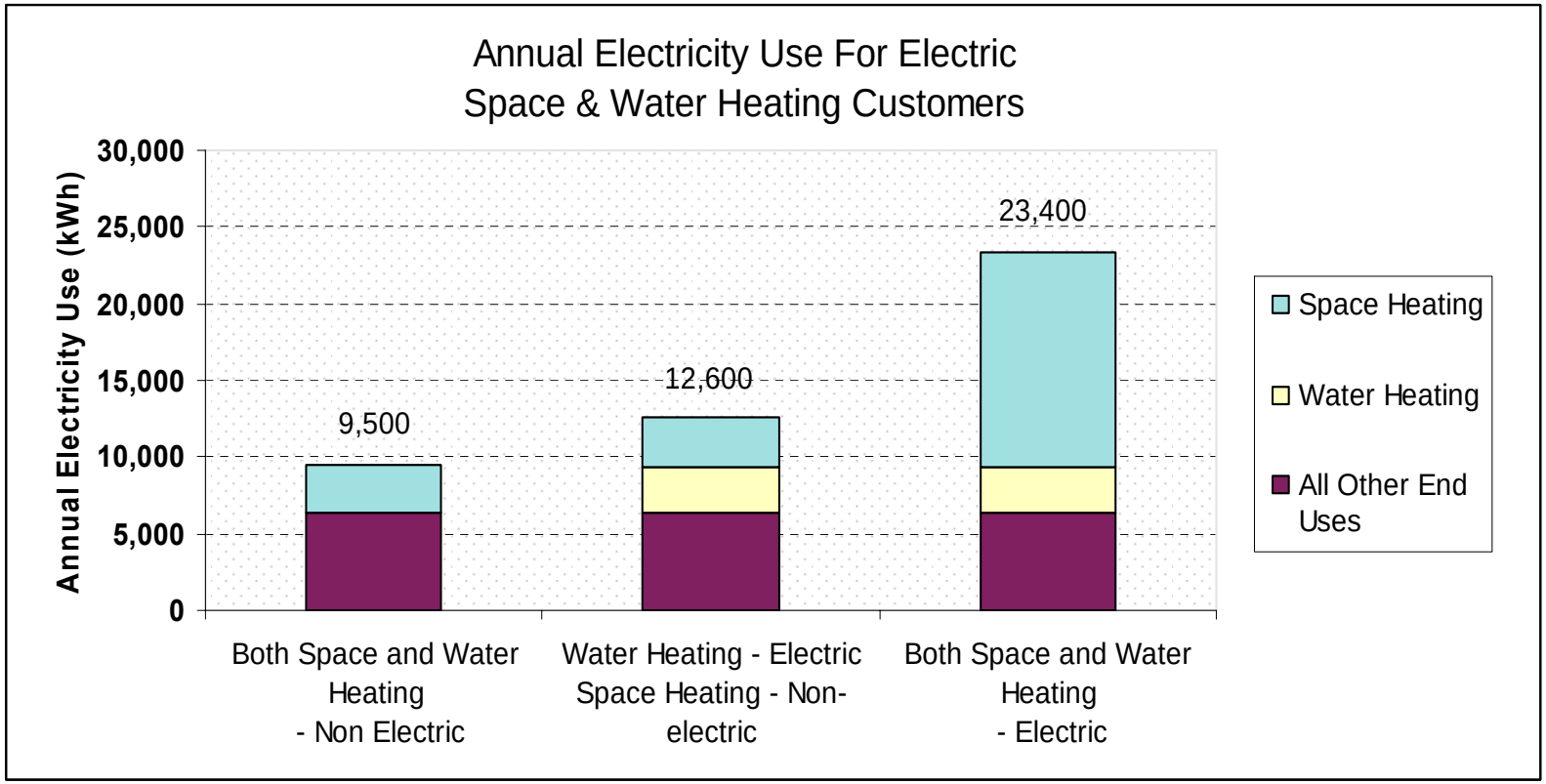
Use Rates vs. Natural Gas Costs



Natural Gas Competitiveness



Electric Space Heating Consumption



Source data: BCH 2007 RDA – Exhibits B-66 and B-67

- **New electric space heating customers add about twice the load to BC Hydro's system as non-electric space heating customers**
- **Electric space heating creates extra challenges as it occurs in the winter coincident with high demands on the system.**

Other Influencers of Demand

- Incentive programs
- Public perception of various energy types
- Climate change policies and initiatives

Annual Demand - Reference Case

Methodology

Customer Additions

- Residential and Commercial derived from household formations and CMHC forecasts
- No change in Industrial customers during planning period

Use Rates

- Residential declines during initial period then levels out
- Commercial reflects recent history during initial period then also levels out
- Industrial survey results used for initial period, then held constant

High Scenario

The High Scenario represents a future where:

1. Province continues to experience strong economic growth
2. Natural gas price advantage improves with respect to electricity
3. Policies are established that promote the direct use of natural gas for space & water heating

- **Supports BC Hydro's requirement to achieve self-sufficiency in electricity generation**
- **Preserves the value of the province's Heritage electrical resources**
- **Recognizes that the direct use of natural gas helps to minimize the region's carbon footprint across the entire energy portfolio**

Low Scenario

The Low Scenario represents a future where:

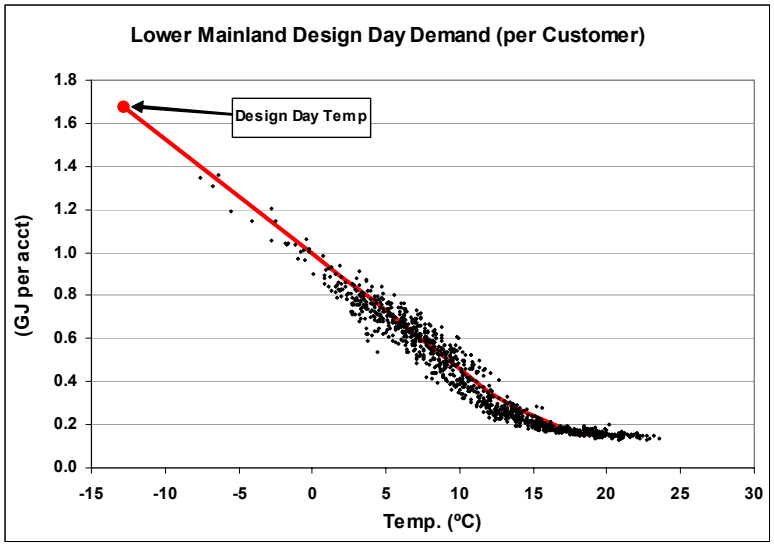
1. Province experiences slower than expected economic growth
2. Technology improvements and increasing efficiencies accelerate conservation efforts
3. Perceived ‘solution’ to climate change causes a shift from natural gas to electricity and alternative technologies

Increases BC Hydro’s challenges in achieving self-sufficiency in electricity generation

Design Day Growth

- Design day estimates demand under extreme weather conditions
  - Purpose is to ensure adequate system capacity and commodity supply
- Driven by the type and number of customers
  - Does not necessarily reflect changes in annual demand

- Expect growth in design day to outpace growth in annual demand
  - Residential customers are expected to form the bulk of new additions

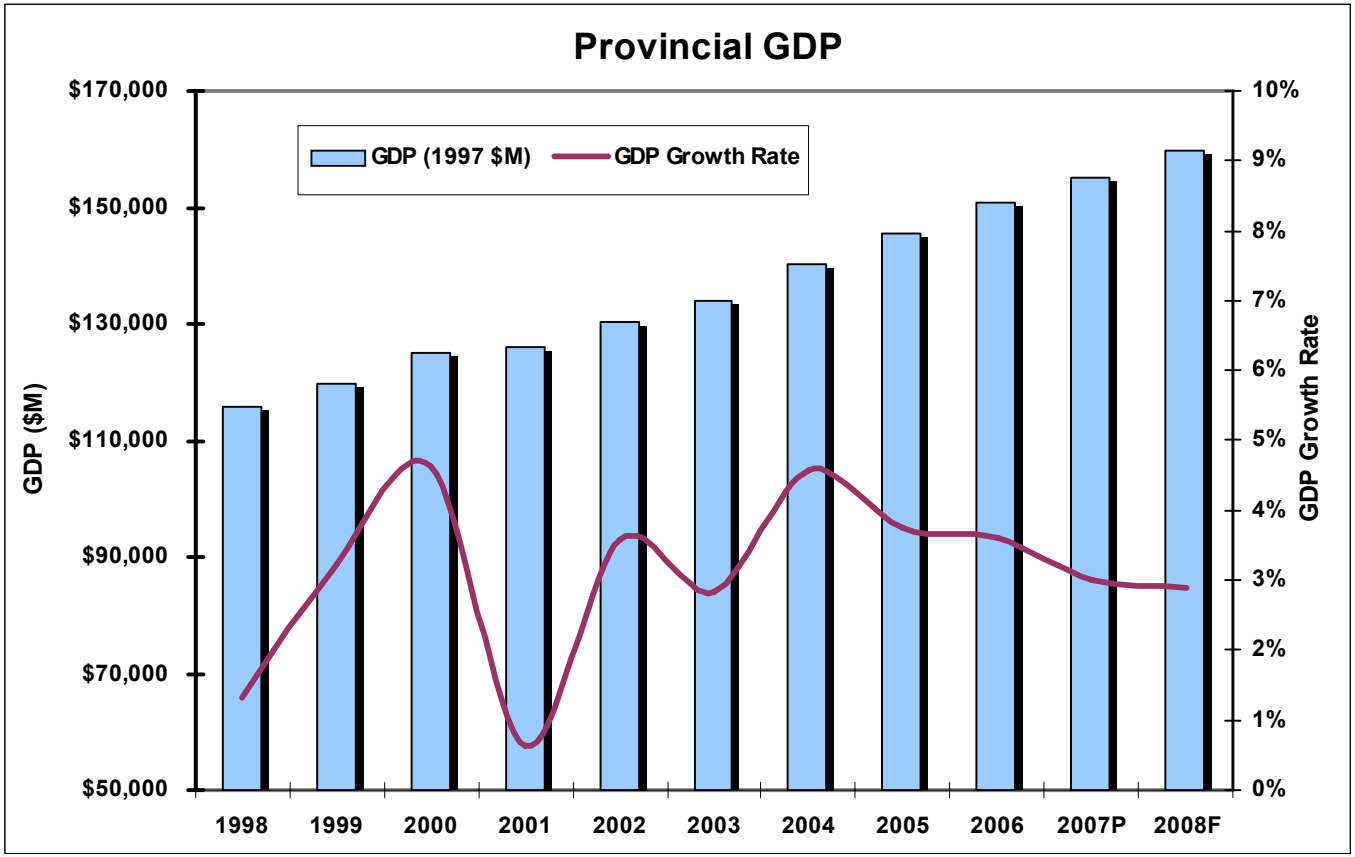


Summary

- Various trends working in opposite directions
  - Population growth
  - Housing type
  - Natural gas competitiveness
  - Appliance efficiency
- Province (and the rest of the world) is at a crossroad
  - Decisions by governments and individuals will significantly shape how energy is used
- Future cannot be predicted
  - Need to be ready for a range of outcomes

Additional Information

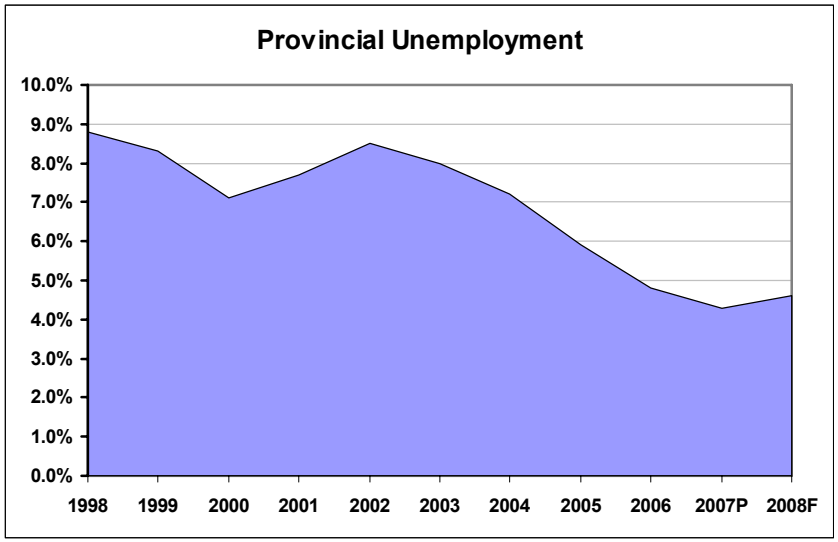
B.C. Economy – Continued Strength



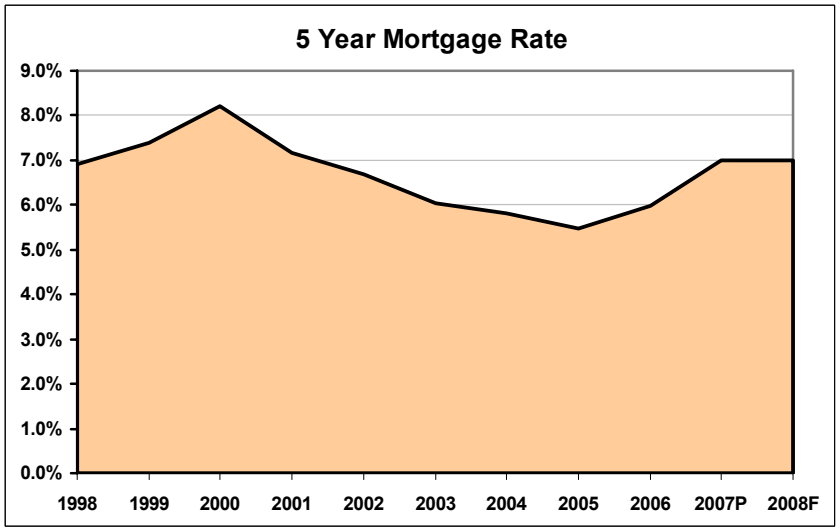
- **GDP growth rate to remain stable at 2.9% in 2008**
  - **Strong domestic demand**
  - **Employment gains**
  - **Growth in retail trade**
  - **Steady housing activity**

Source: Actuals – BC Stats, Forecast – BC Ministry of Finance

B.C. Economy – Cont'd

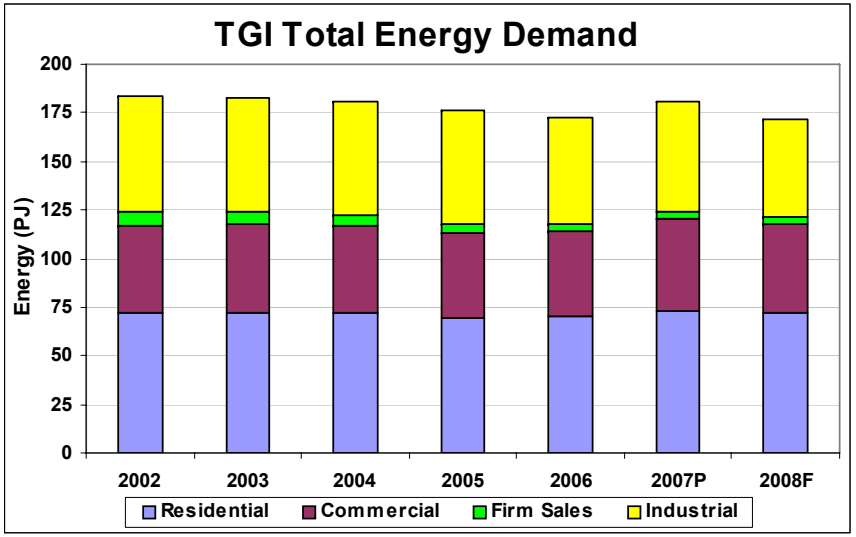


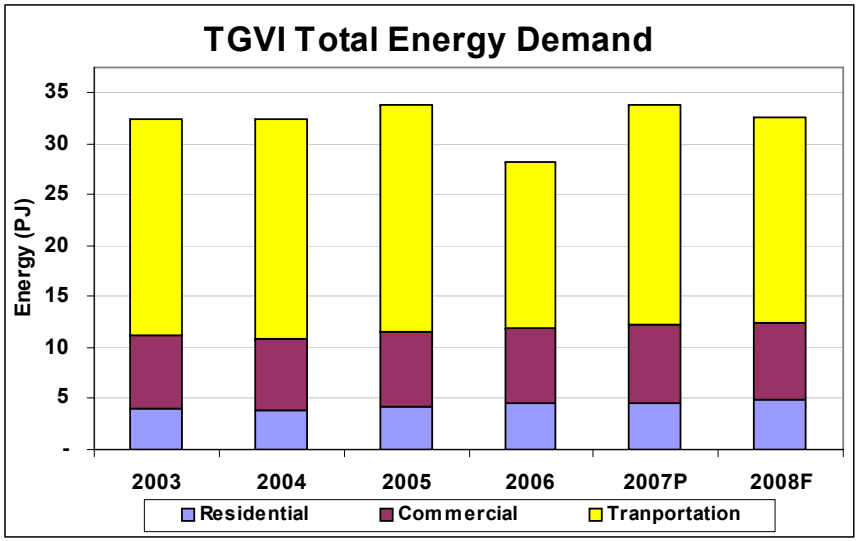
- **Unemployment rate to remain low at 4.6%**
  - **B.C. Ministry of Finance - 4.6% (2007 Quarterly Report)**
  - **BMO Economics - 4.5% (Sep 2007)**
  - **RBC Economics - 4.7% (Oct 2007)**



- **Mortgage rate to remain stable in the 7% range for 2007 and into 2008**
  - **Canadian Mortgage Housing Corp (Q3, 2007 Market Outlook)**
  - **Credit Union Central of B.C. (Oct 2007 Interest Rate Forecast Report)**

TGI & TGVI – Trends in Energy Demand





- **Residential and commercial demand continues to grow as a % of TGI's total business**
- **Long-term trend shows slight decrease in demand**
  - **Residential and commercial steady**
  - **Industrial energy consumption in decline**

- **Bulk of TGVI's energy demand is driven by Transportation customers**
  - **Future Transportation volumes expected to remain fairly constant**
- **Residential and commercial volumes will continue to increase as a % of total energy demand**

Delivering Comfort and Value

Contact Information

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Director, Customer Management & Sales

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E-mail: rick.parnell@terasengas.com
www.terasengas.com

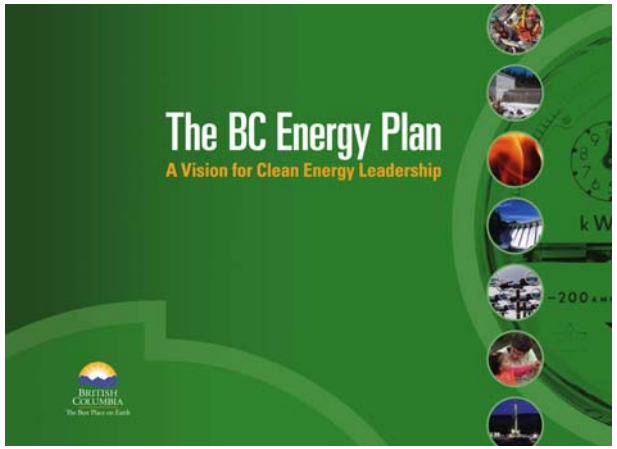
Agenda

- Right Fuel, Right Use, Right Time
- Measurement Innovations
- Installation costs – Connection Policies
- Encouraging sustainable design

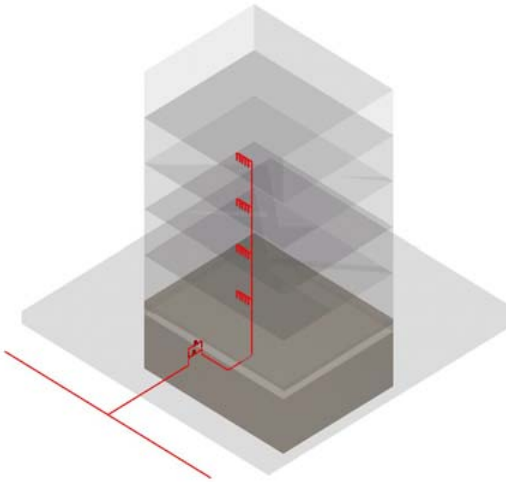
2007 BC Energy Plan

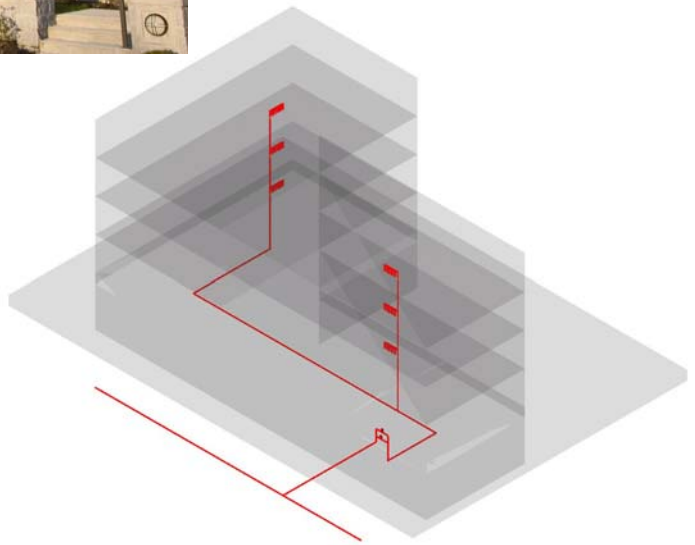
•“It is important for British Columbians to understand the appropriate uses of different forms of energy and utilize the right fuel, for the right activity at the right time. There is the potential to promote energy efficiency and alternative energy supplemented by natural gas.” (p.21)

•“Our province has enormous natural gas resource potential and opportunities for significant growth.” (p.33)



Individual Natural Gas Metering



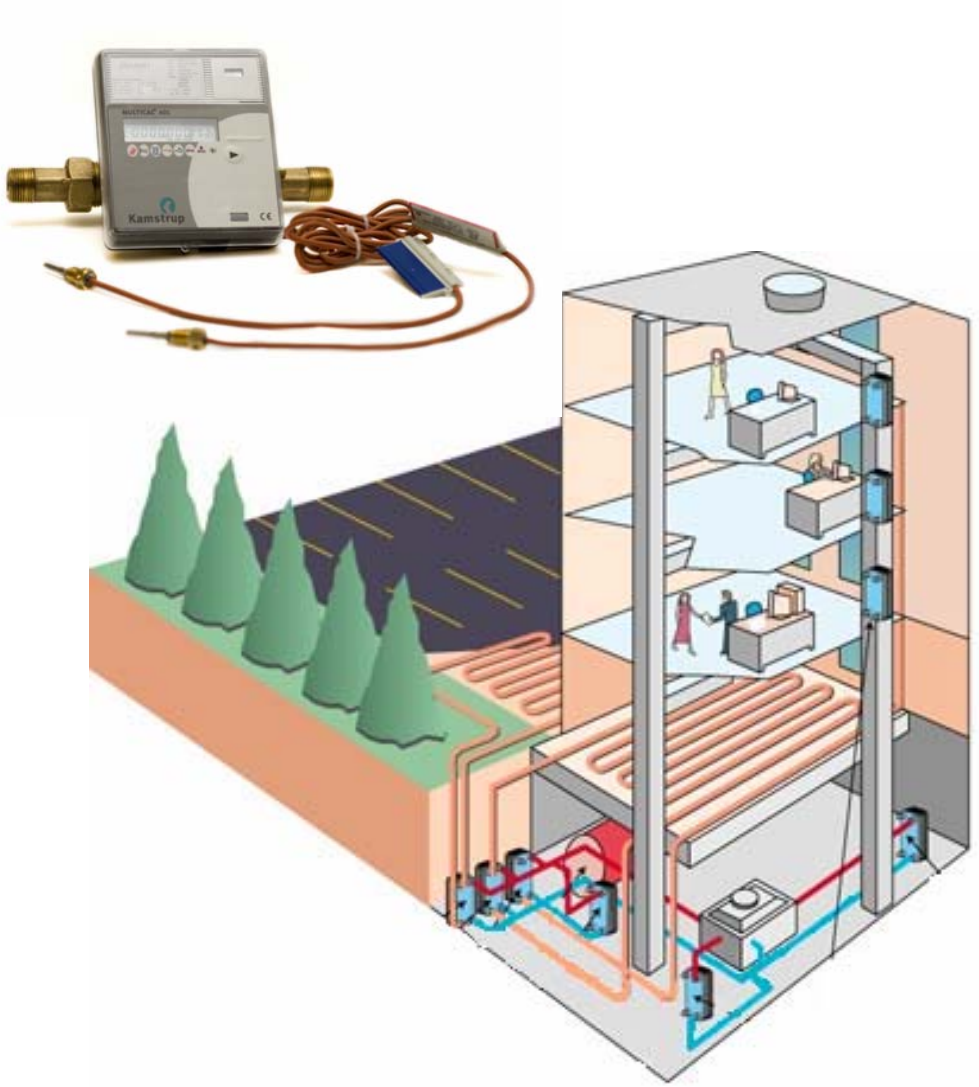


What Gets Measured Gets Managed

Individual measurement encourages efficiency and discourages waste

Thermal Metering

- Measures thermal energy from gas fired hydronic heating system
- Hydronic systems allow for alternative heating sources – gas, geo-exchange, solar etc.
- Owners/occupants are responsible for their actual energy usage; not an arbitrary allocation



Connection Policies – Objectives

- Signal value for builders and potential customers
- Make it easier to add customers and improve the overall efficiency of the distribution system
- Encourage conservation, efficiency and optimal energy use

New Connection Policy

- Eliminates $215 Service Line Installation Fee (SLIF)
- Aggregate Profitability Index for all customer adds on an annual basis
- Service Line Cost Allowance (SLCA)
  - Increased from $1,100 to $1,535 for “on main”/infill services

Connection Policy: Energy Efficiency

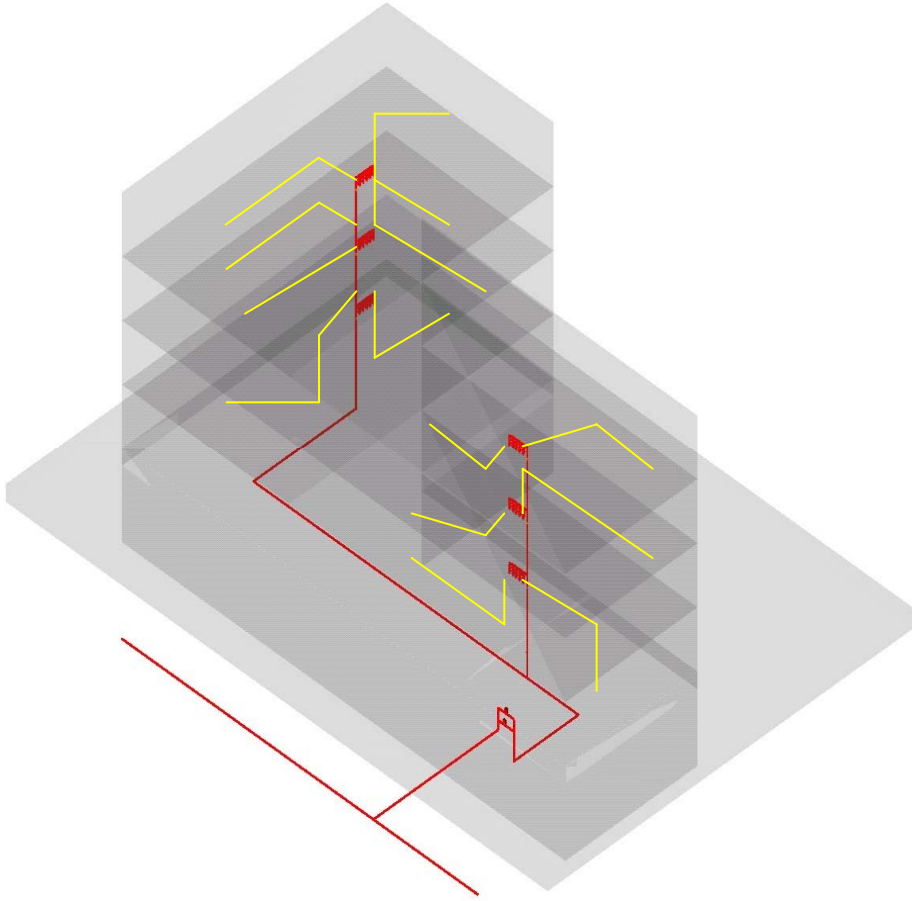
- Assumed gas load in test is increased by 10% for customers with both high efficiency space and water heating

- Assumed gas load in test is increased by 15% for those customers who attain LEED^{tm} certification

Alternative Piping for VSDs

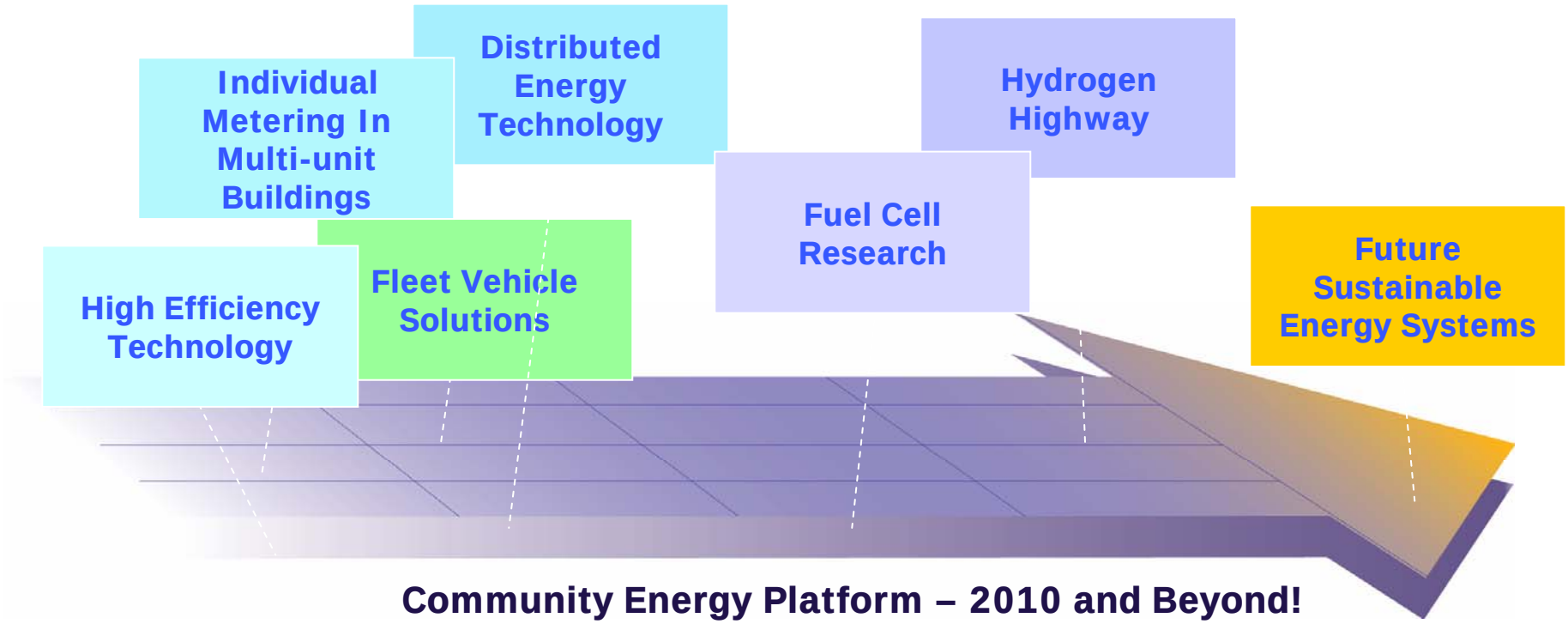
- More flexible approaches when determining where to install meters in VSDs

- Pipe “downstream” of the meter can be included in service line calculations



A Flexible Energy Platform…

Natural Gas is an important part of an efficient, environmentally sensitive, economic and cost effective energy platform today, and an important bridging fuel for advancements in energy system technology for tomorrow...



Summary

- Terasen Gas is making it easier to do business
- Proper energy management aids efficiency
- Continue to encourage the right fuel for the right use

Questions / Comments

Burn blue. Save green.

2008 Terasen Gas Resource Plan

Energy Efficiency and Conservation

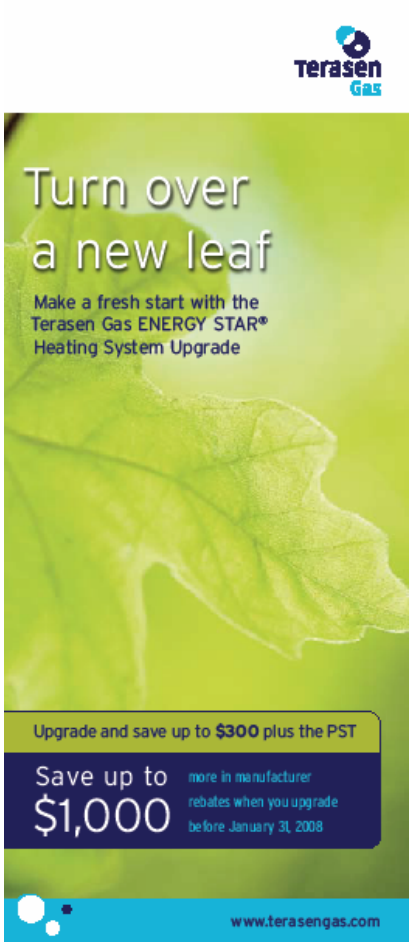
Sarah Smith, Manager, Marketing and Energy Efficiency

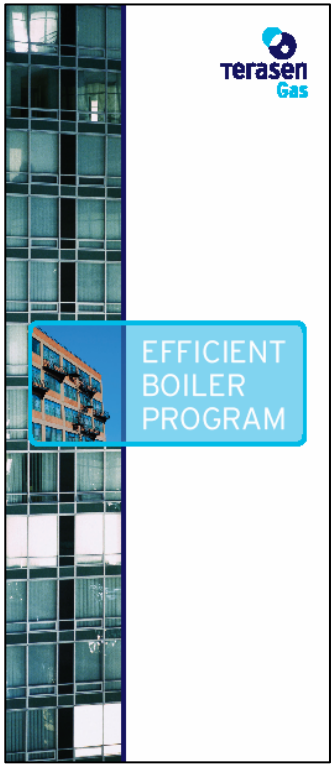
February 11, 2008

Agenda

- Current activity
- Changing conditions
- Consevation Potential Review
- Energy Efficiency and Conservation Application
- Moving forward

Activity – Information and Incentives





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How did we do?

Terasen Gas

Bill Insert September 2005 | Bill Insert May 2006 | Proposed bill Insert September 2006

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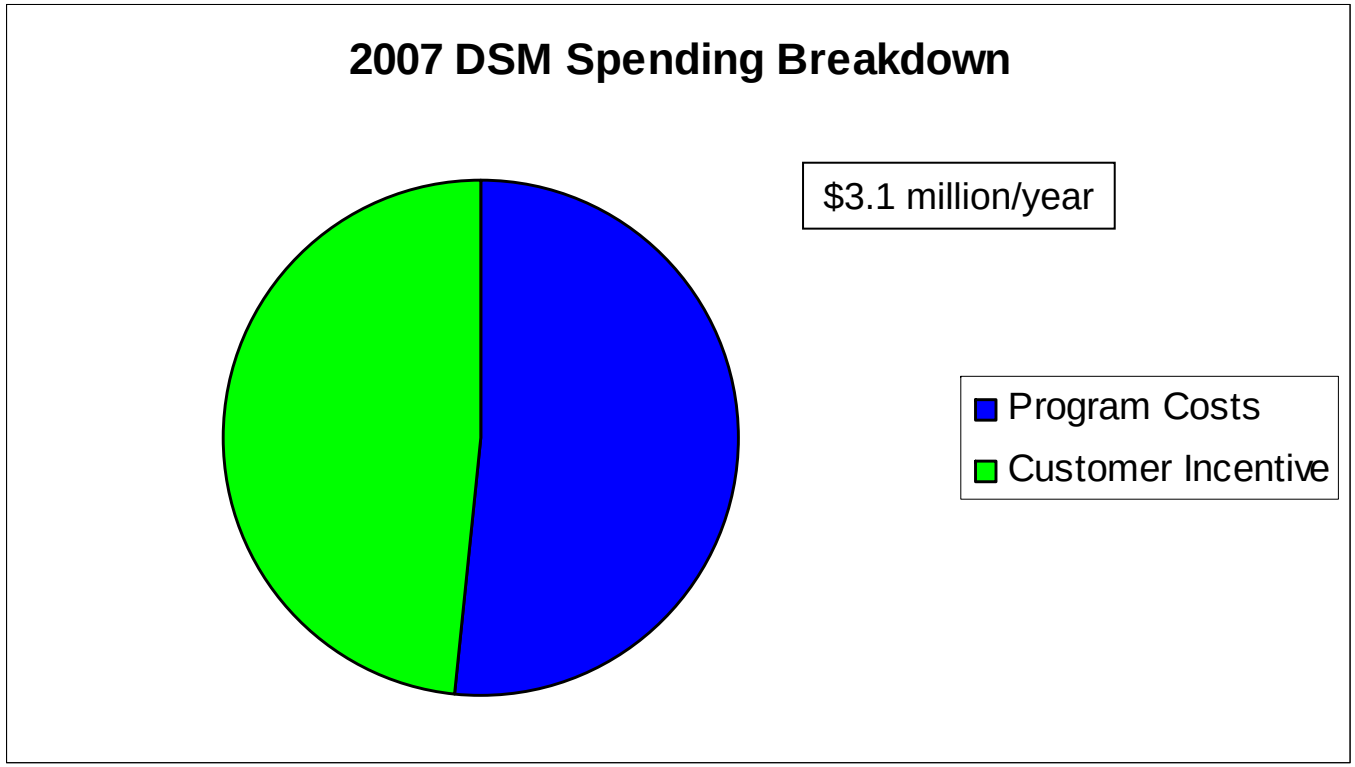
DSM Expenditure - TGI



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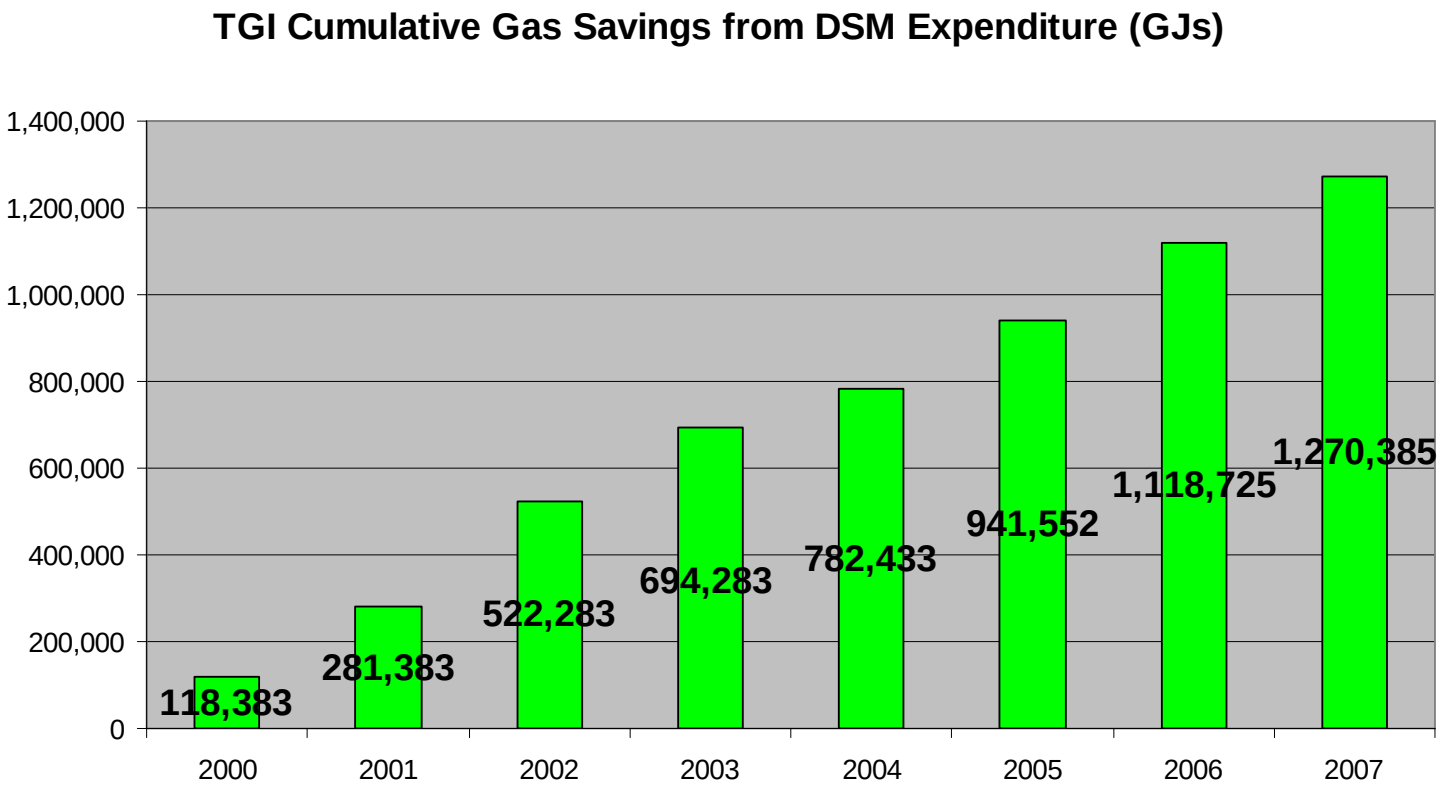
Customers benefit



- **64,000 tonnes GHG annually for at least 10 years**
- **$14 million annually for at least 10 years**

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Times have changed…

Terasen Gas

TGVI more mature

Increase in energy costs

Customer focus on environment

BC Energy Plan

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BC Energy Plan 2007

BC Energy Plan

Utilities to pursue cost-effective and competitive DSM opportunities

BCH 50% conservation goal
BCH self-sufficiency

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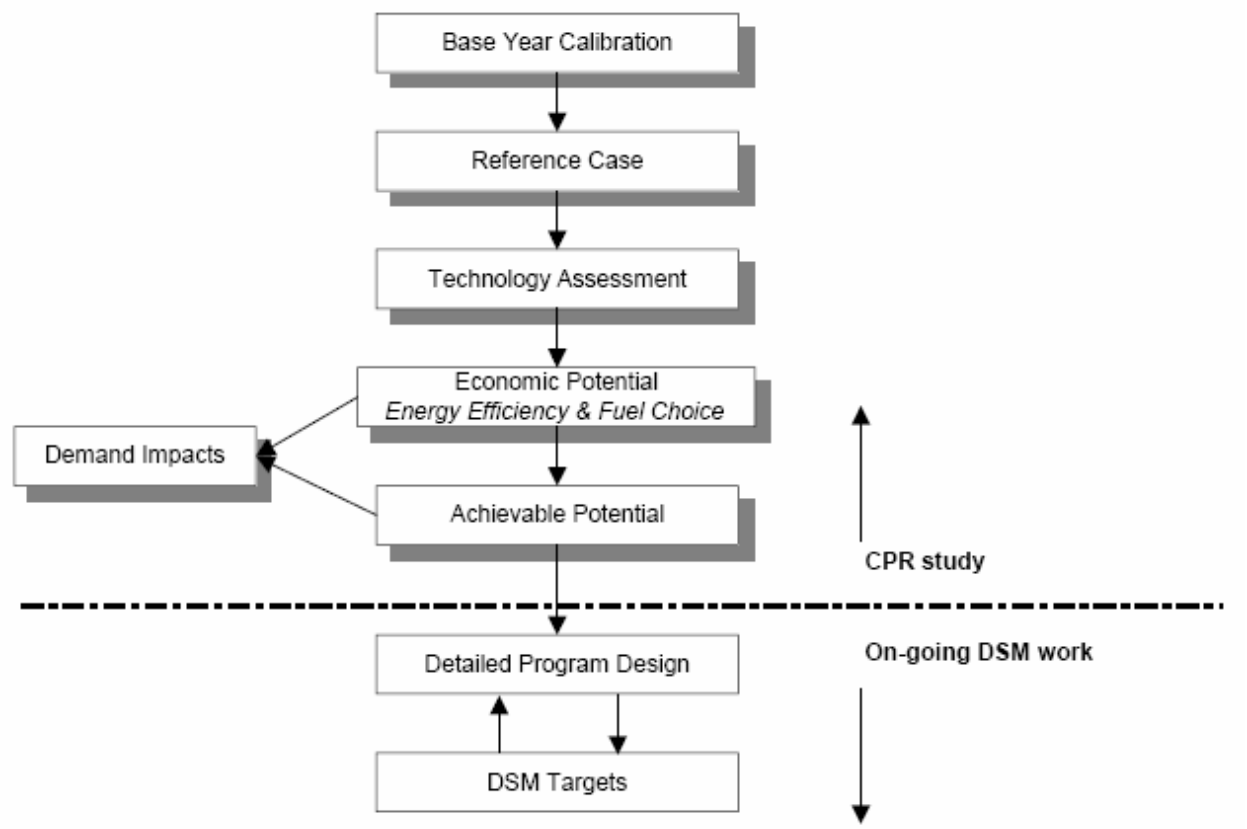
Conservation Potential Review (CPR)



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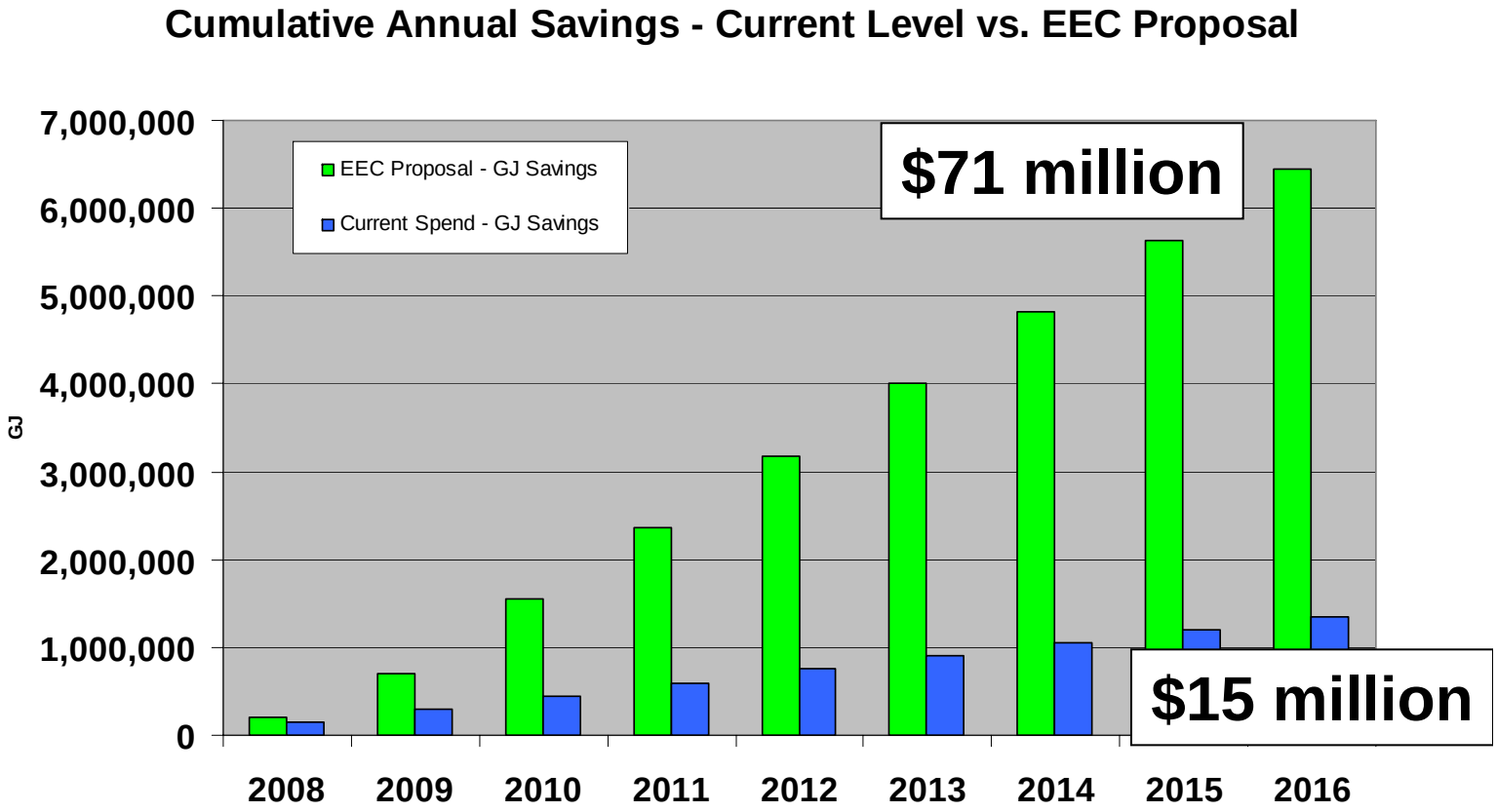
Conservation Potential Review



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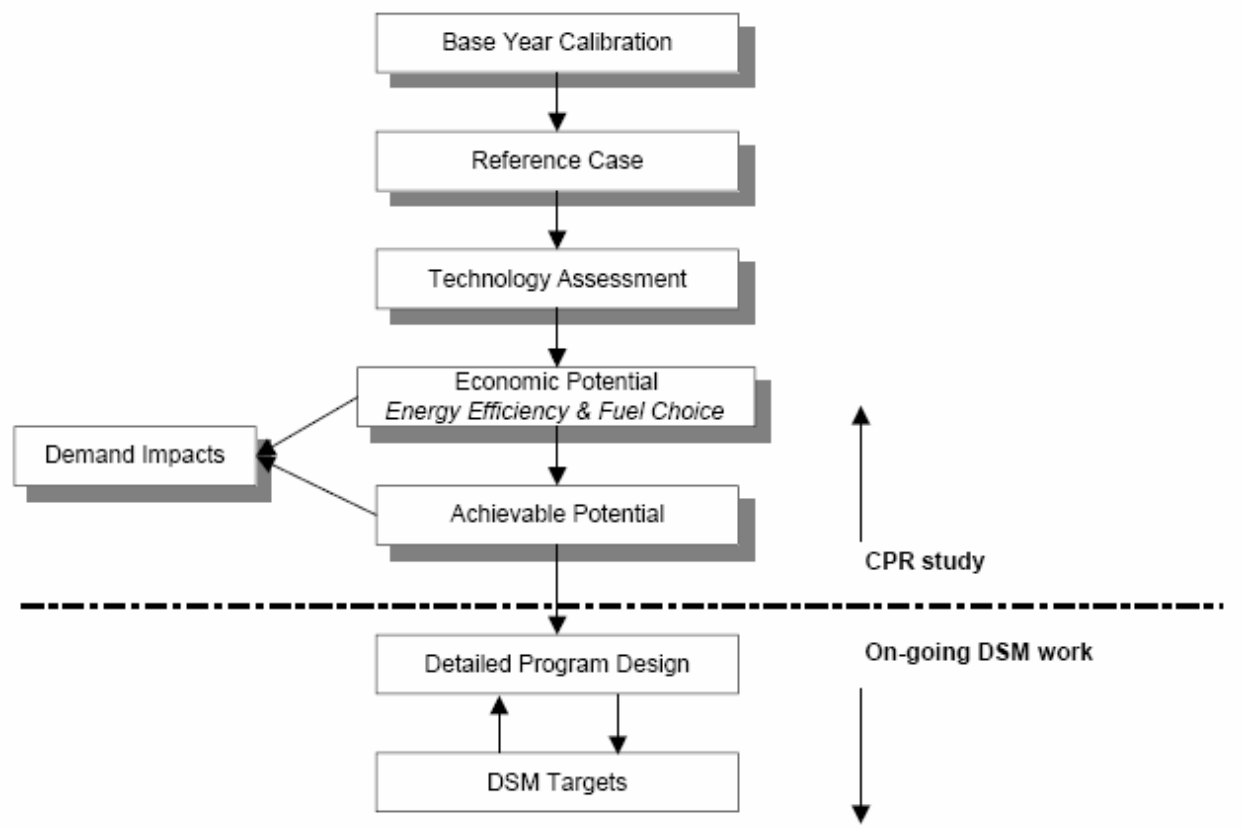
Conservation Potential Review (CPR)



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Overall Terasen EEC Proposal

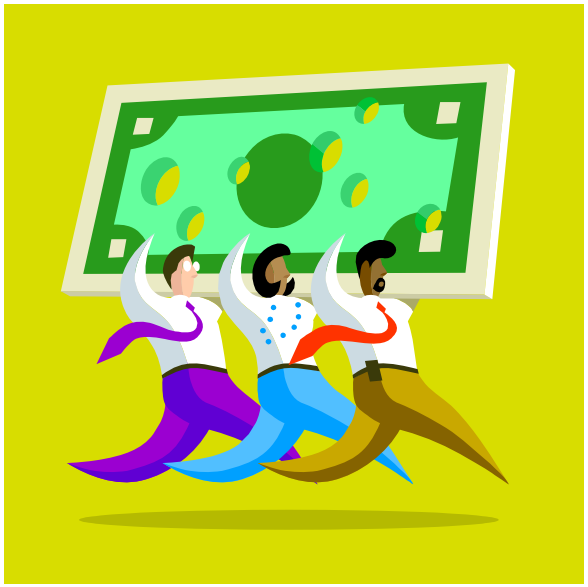
Rate Class	2008	2009	2010
TGI Residential	$6,763,000	$6,751,000	$6,104,000
TGI Commercial	$7,232,700	$8,601,000	$11,092,050
TGVI Residential	$1,734,500	$1,757,500	$2,042,500
TGVI Commercial	$1,095,590	$1,185,990	$1,750,990
Subtotal by year	$16,825,790	$18,295,490	$20,989,540

Financial Treatment

- Capital vs. O&M
- Amortization period
- Rate Impact
- Timing/reporting

Staffing

- 4 staff today
- 20 people by 2010



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Value for investment

Terasen Gas Inc.	Investment	Results	
		Gas Conserved	$/GJ
2007	$3,100,000	1,203,596	$2.58
Proposed	$28,193,000	8,945,000	$3.15

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Comparable Utilities

Company Name	2007 DSM Annual Budget (000,000)	Customer Base	2006 Total Revenues (000,000)	% DSM Budget of Revenue	DSM investment per customer	Annual Sales Volume (PJs)
PG&E	$279.0	4,200,000	12,530	2.23%	$66.43	425.9
BC Hydro	$77.7	1,704,671	4,311	1.80%	$45.58	190.5
Manitoba Hydro	$9.0	258,000	517	1.74%	$34.88	147.6
SoCal Gas	$56.6	5,600,000	4,180	1.35%	$10.11	946.0
FortisBC	$2.5	106,000	208	1.19%	$23.34	11.1
NW Natural	$11.0	636,000	1,000	1.10%	$17.30	125.8
Union Gas	$17.0	1,300,000	2,100	0.81%	$13.08	1,303.0
Enbridge	$22.0	1,800,000	3,016	0.73%	$12.22	445.0
Gaz Metro	$8.8	167,000	2,000	0.44%	$52.69	271.8
Terasen	$4.3	911,935	1,635	0.26%	$4.69	208.0
Puget Sound Energy	$6.1	718,000	2,905	0.21%	$8.52	205.1
SaskEnergy	$1.6	325,000	1,254	0.13%	$4.92	125.0
ACTO Gas	marketing budget	969,200	2,890	N/A	n/a	219.0

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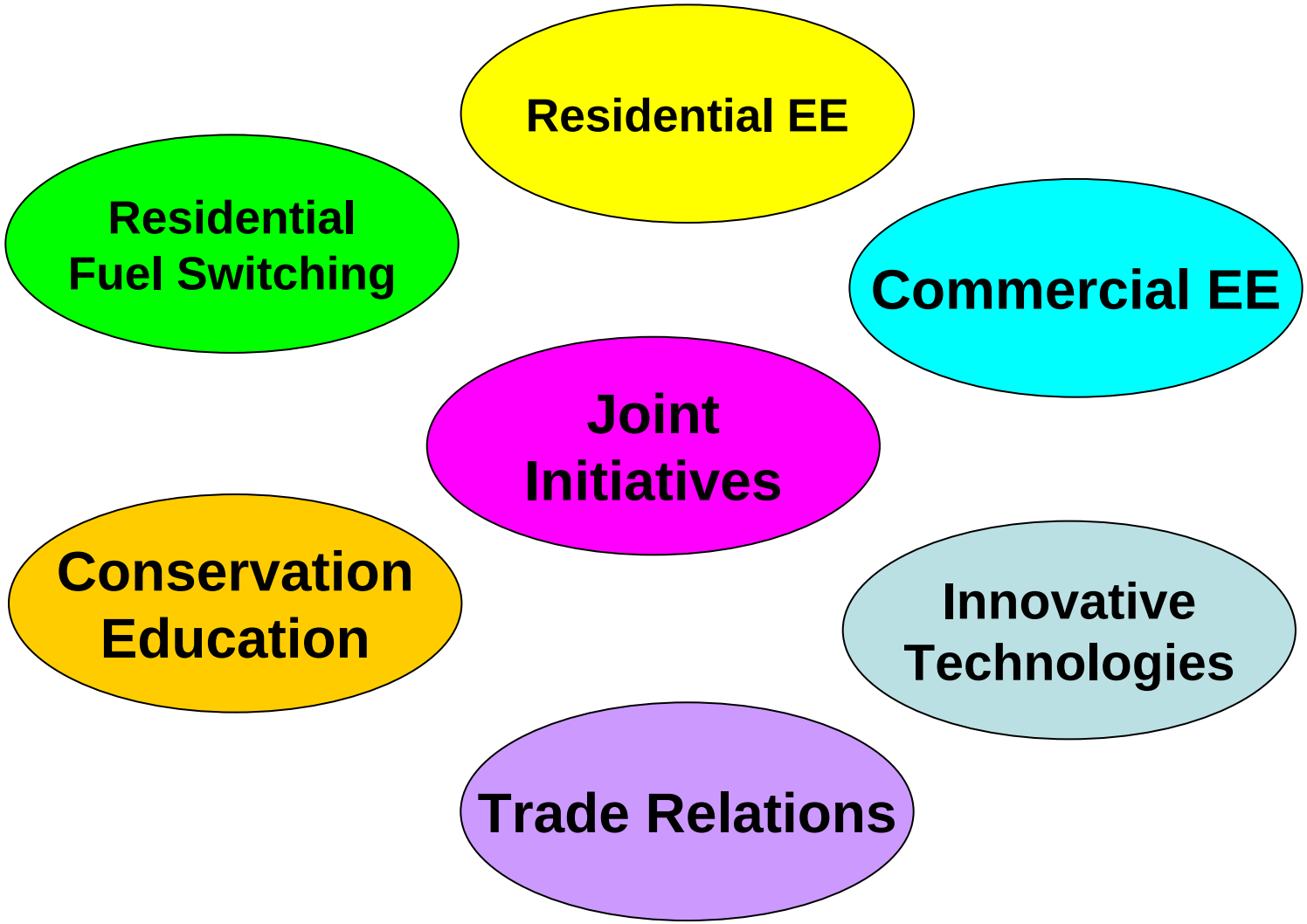
Proposed Initiatives



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The Power of Partnership

Terasen Gas

Terasen Gas

BC hydro powersmart

FORTISBC

Natural Resources Canada | Ressources naturelles Canada

BRITISH COLUMBIA | Ministry of Energy, Mines and Petroleum Resources

ENERGY STAR

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The way forward

February 28

Residential End Use Study

CPR 2009

Partner Activities

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Thank you
Comments and Questions

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604-592-7528

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2008 Resource Plan

Alternative Energy Opportunities

February 11, 2008

INTRODUCTION

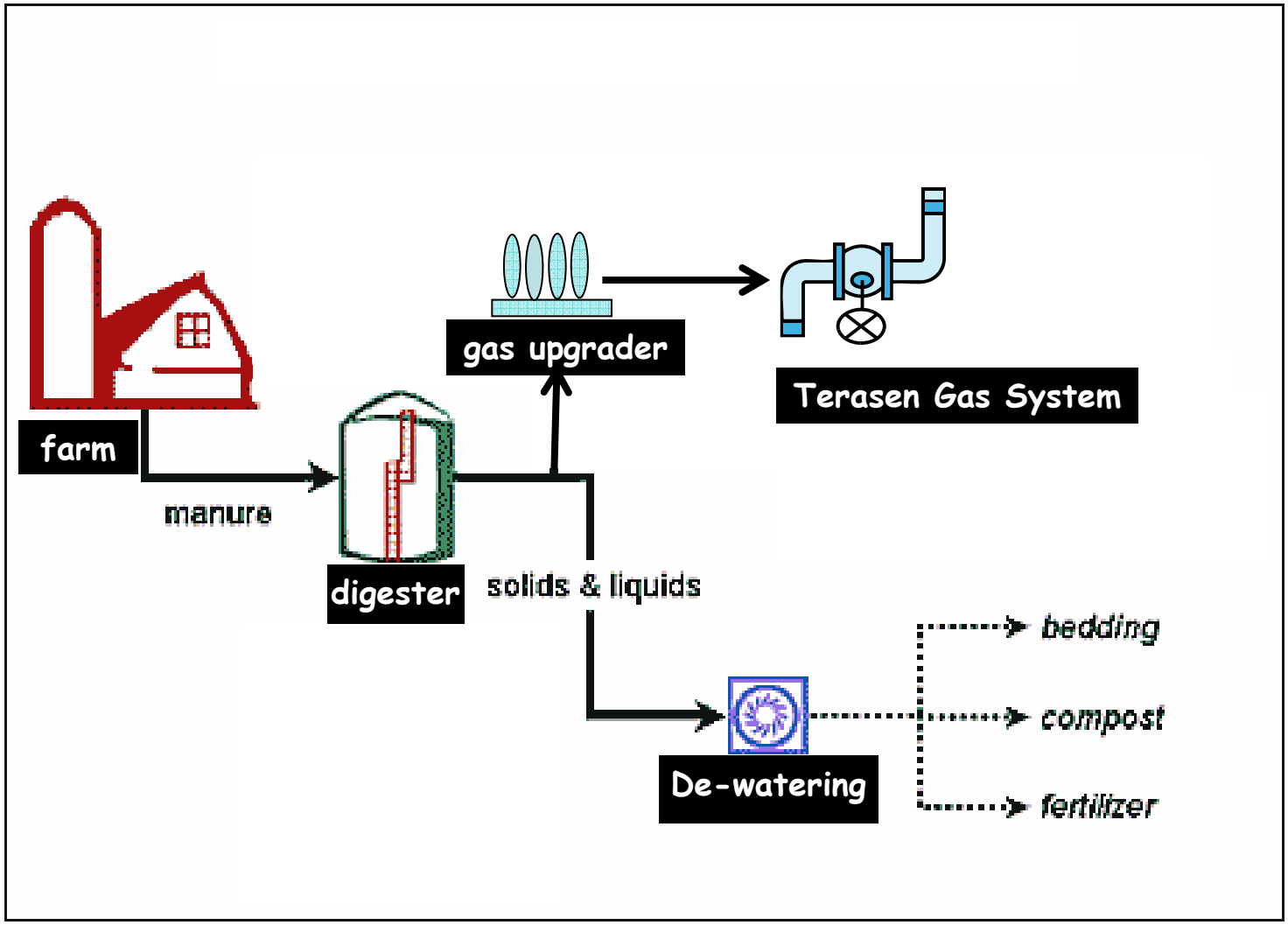
Energy & Environmental Policy

- ✓ Support 2007 BC Energy Plan
- ✓ Proactive role in provision of solutions
- ✓ Balancing of Energy, Environment & Economy

Project Opportunities

- ✓ Biomethane Production
- ✓ Natural gas for the Transportation Sector
- ✓ Waste Heat Electricity Generation
- ✓ Pressure Letdown Electricity Generation

Biomethane Opportunities

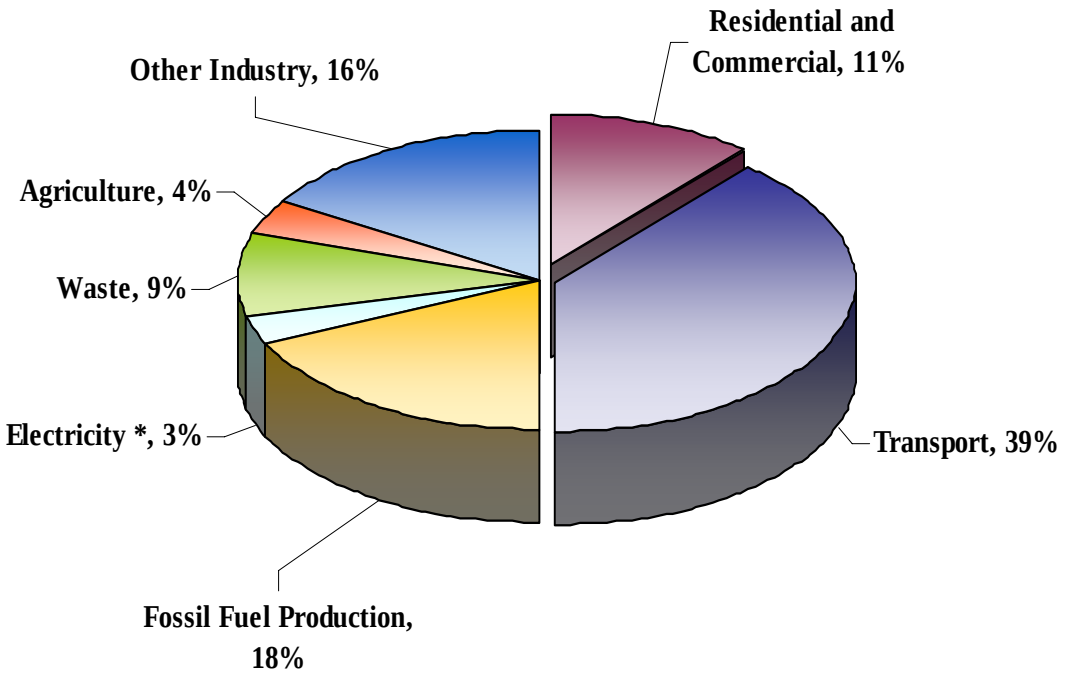


Biomethane Benefits

- Support BC Bioenergy Strategy
  - Methane Capture
    - Methane emissions are 21 times more GHG intensive than CO_2
  - Energy from Agriculture
- Multiple Sources of Energy
  - Agricultural Waste
  - Landfill
  - Wastewater Treatment

Natural Gas - Transportation Sector

BC GHG Emissions by Sector



Natural Gas - Transportation

- Natural Gas Vehicle Applications
  - Municipal Fleets (Waste Haulers, Buses etc..)
  - Trucking Fleets (LNG)
  - Forklifts and other Port Vehicles

- Benefits
  - 25 to 40% reduction in Fuel Consumption Cost
  - 15 to 25% reduction in GHG Emissions
  - 50 to 80% in NOx SOx, and Particulate Matter

Transit/Bus CNG CO_2 Life-Cycle:

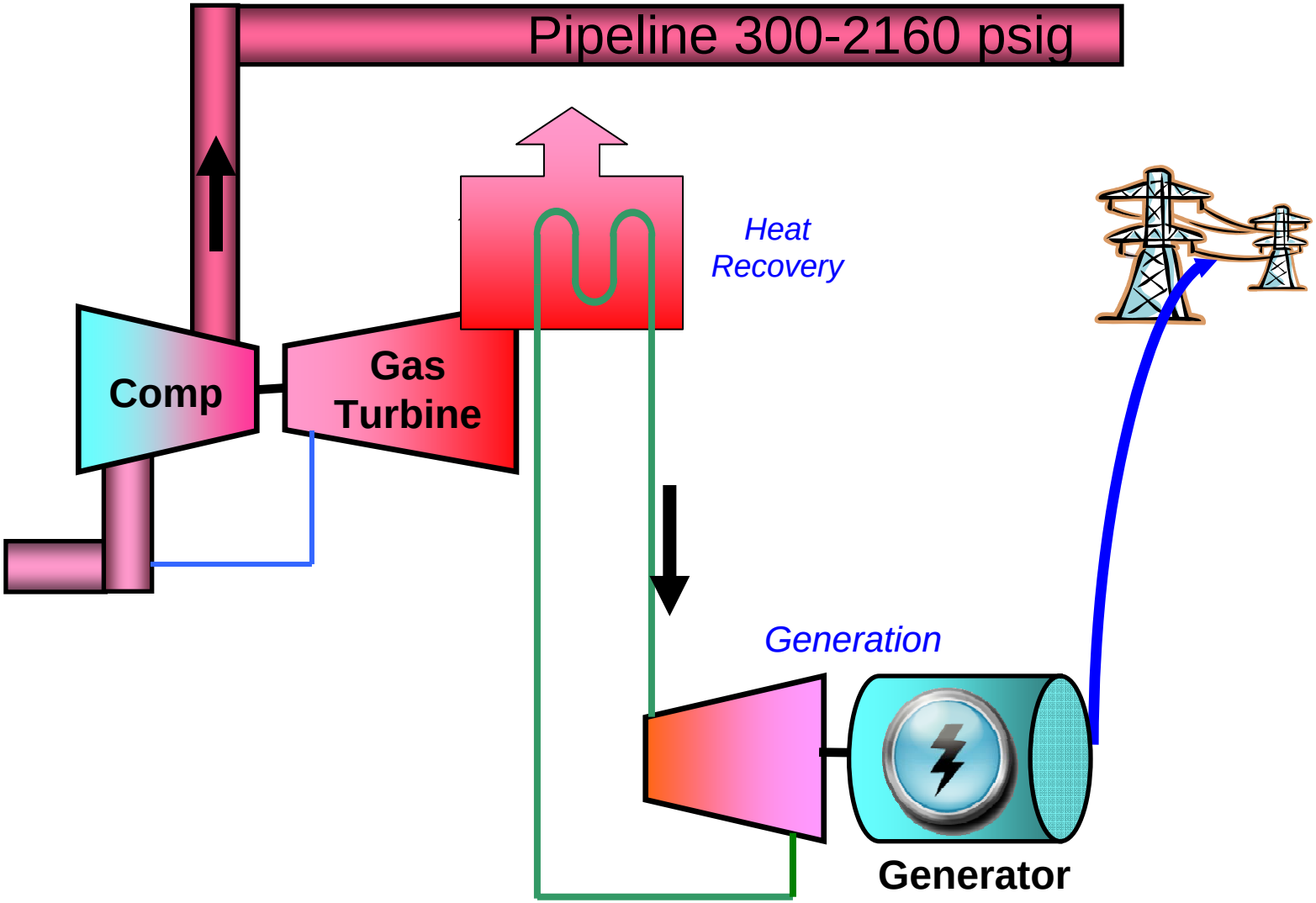
	Extraction	Processing	Fueling, transportation and storage	Emissions at end use	Total life cycle	CO2 Increase
Natural gas (CNG)	130 g/km	55 g/km	80 g/km	1,250 g/km	1,510 g/km	
Diesel	225 g/km	190 g/km	10 g/km	1,350 g/km	1,775 g/km	+18%
Bio diesel	250 g/km	160 g/km	15 g/km	1,300 g/km	1,725 g/km	+14%

Transportation

Cold Ironing – LNG Port Electrification

- NOX / PM10 / SOX ↓ 98%-100%
- CO & CO2 ↓ 57%
- Demonstration project underway with Port of Oakland

Waste Heat Recovery Generation



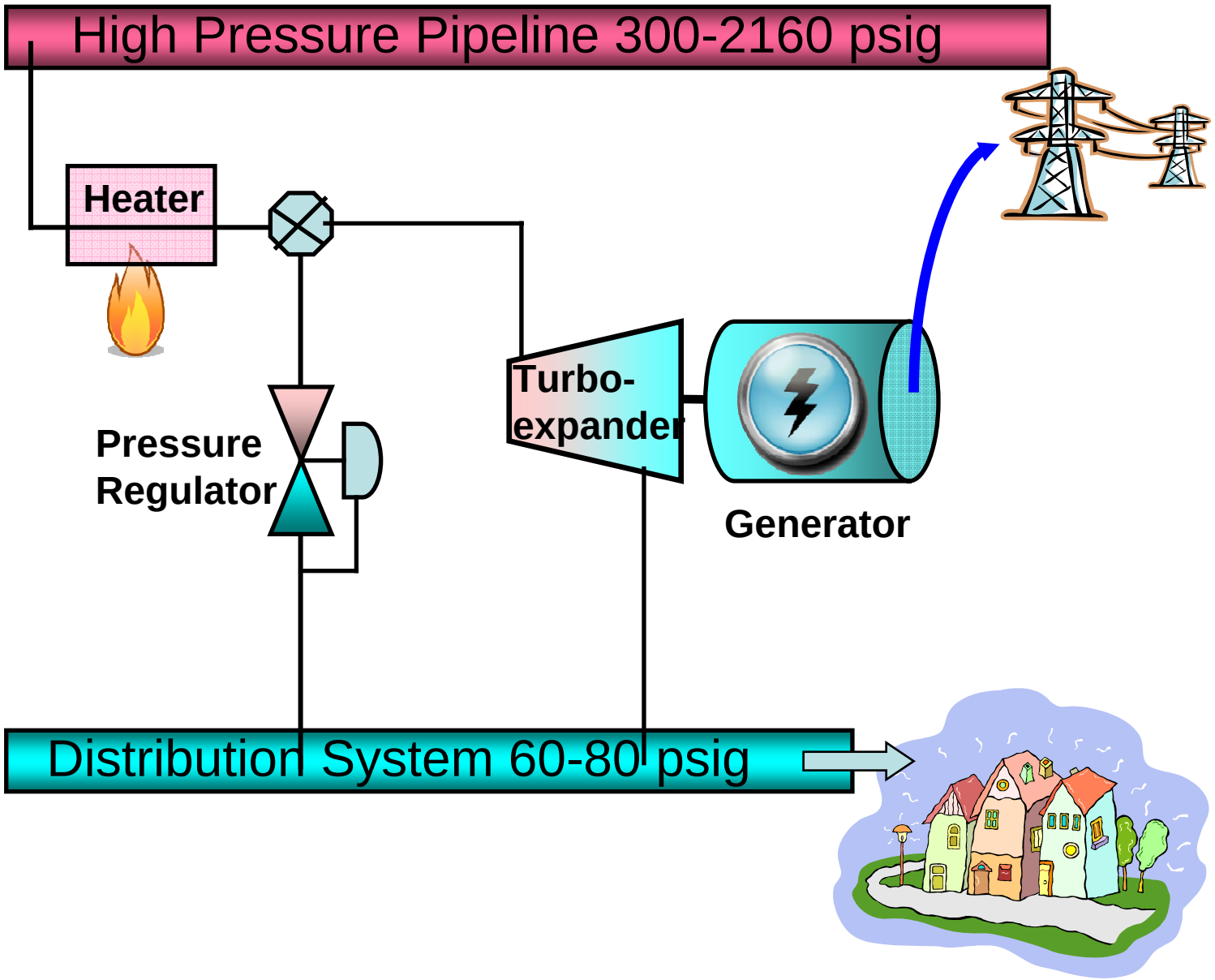
Project Opportunity

- TGVI's Coquitlam Compressor Station
- Potential to generate up to 20,000 MWh of clean electricity per year
- Capital Investment $12 to $18 million
- Qualifies under BC Hydro Standing Offer Program
- May qualify for Innovation Clean Energy (ICE) Funding

Benefits

- Improve energy efficiency in pipeline operations by using waste heat generation for site service
- Provide clean zero emission energy to electrical grid
- Revenue neutral – project costs offset by income from electricity sales
- Overall balance of energy efficiency, environment and economy

Pressure Letdown Generation



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Terasen Gas

Questions

February 11, 2008

Summary and Next Steps
2008 Resource Plan

Contact Information

Ken Ross
Resource Planning Manager

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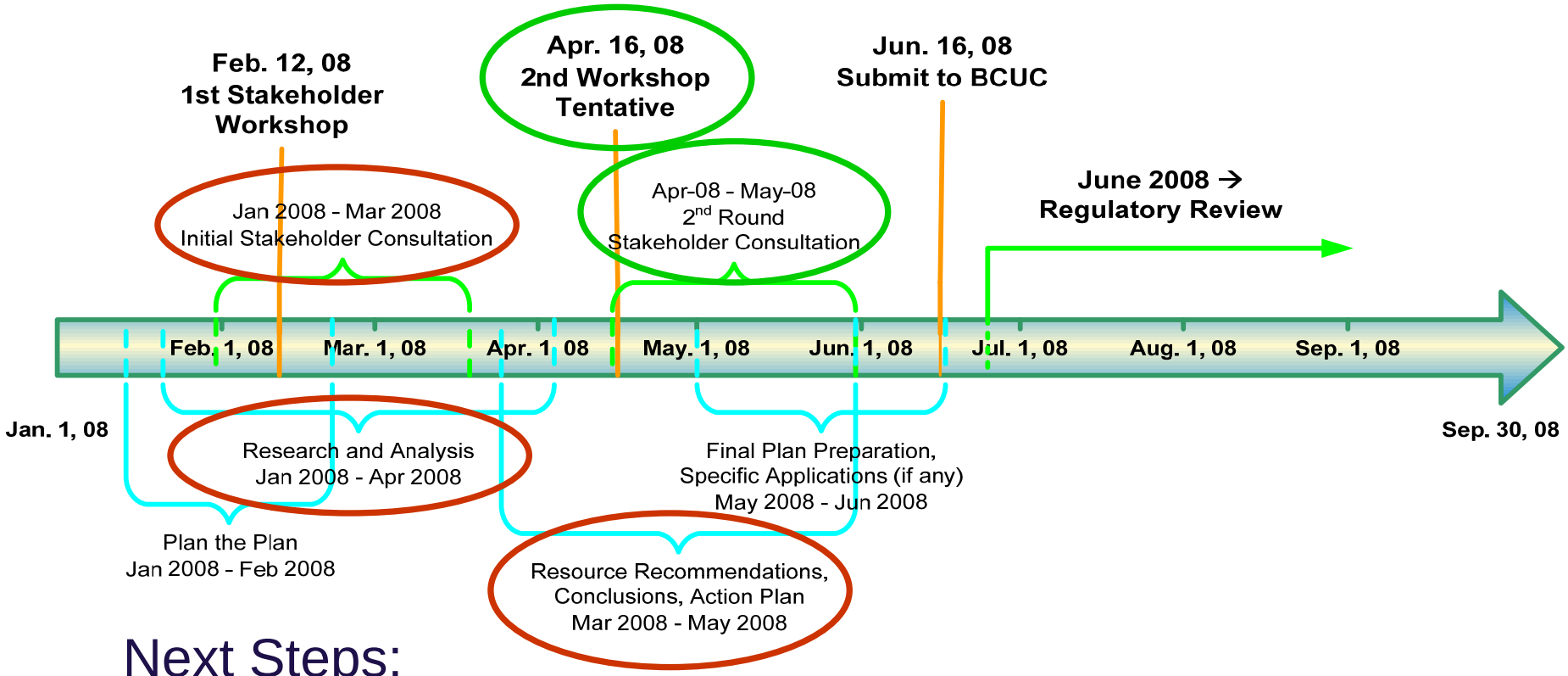
Fax: (604) 592-7620
E-mail: ken.ross@terasengas.com
www.terasengas.com

Summary

- ✓ Natural gas is part of the solution to meet our energy challenges.
- ✓ Direct use of natural gas in BC:
  - Supports a balanced approach to meeting the natural gas and electricity policy actions of the BC Energy Plan.
  - Helps BC Hydro meet its 2016 self- sufficiency target by reducing its future demand requirements.
  - Reduces regional GHG output now and in the future.
- ✓ Terasen is advancing its services to help customers choose the right fuel for the right uses.
- ✓ Continued exploration of efficient natural gas initiatives and technology is key to our energy future.

2008 Resource Plan / Timeline



Next Steps:

- Respond to Stakeholder comments / requests
- Continue research and analysis
- Develop draft recommendations
- Seek Stakeholder input again in the spring

Feedback from Today's Session

Contact:

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Terasen Gas
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Please submit any written comments you may wish to provide by: February 25th, 2008

16705 Fraser Highway
Surrey, BC V4N 0E8

(feedback forms and mail in information provided)