



# **Green Building - Market Insights**

**Presented by Peter Woodbridge to**



Senator Burns Building 1301 16 Ave NW Calgary, AB

**October 25<sup>th</sup> 2012**

# Layout of Presentation

- 1. Global Economy: The 2008 Lehman Crisis .... and 'Life' After the Global Financial Collapse**
- 2. Why is it Relevant to You?**
- 3. How is it Relevant to Alberta's Green Building Demand and GBT Products & Services?**
- 4. Government of Alberta: *GBT Roadmap 2006 .... Strategy Update 2010 ..... Roadmap Update 2012***
- 5. What Has Changed? (in the Post-Lehman Crisis World)**
  - Positive Developments: Green Building Spending Has Risen During Global Economic Downturn
  - Not So Positive Developments: Reality Check for Alberta's GBT Industry
- 6. A Fresh Look at the Market Outlook 2012 to 2020**
  - Consumers
  - Manufacturers
  - Service Providers
  - Regulators
- 7. Our Report Recommendations: Next Steps**

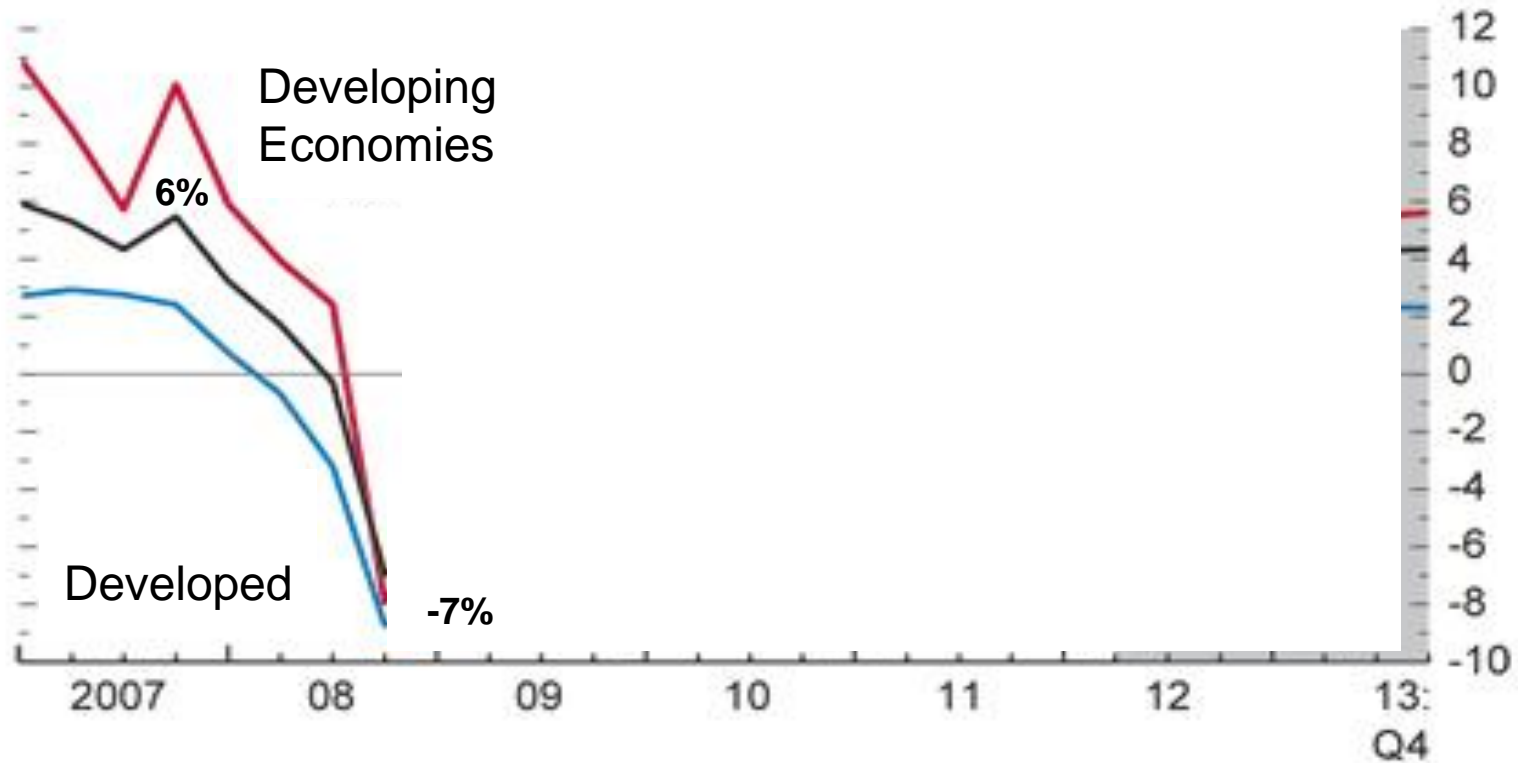
**1.**

**Global Economy:**

**The 2008 Lehman Crisis  
.... and 'Life' After the Global Financial  
Collapse**

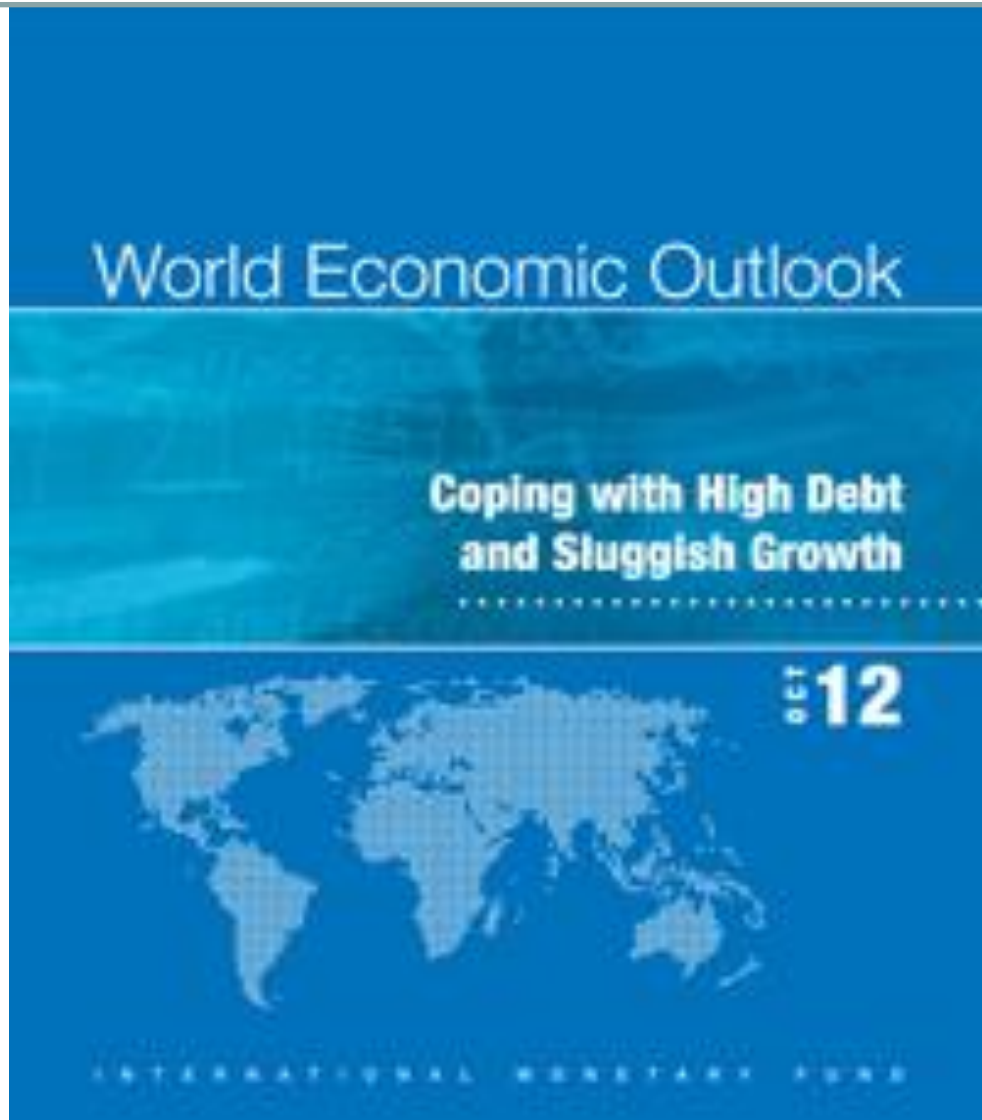
# 'Life' After the Global Financial Collapse

**Figure 1. Global GDP Growth**  
(Percent; quarter over quarter, annualized)



Source: IMF staff estimates.

# Global GDP: Not the Only Measure of Prosperity - But an Important One



**North America**

**China & Asia / BRICs**

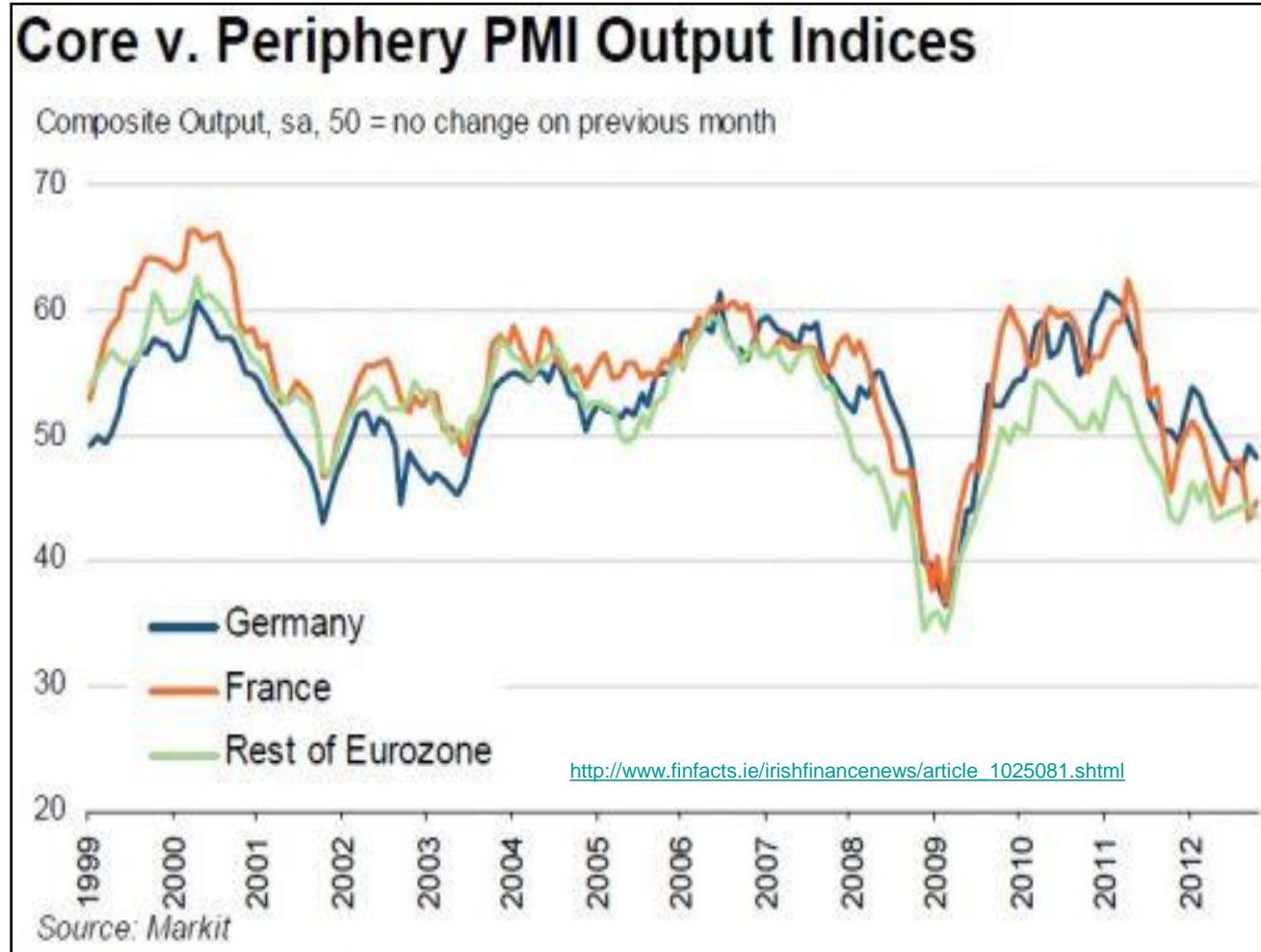
**Europe**

**Other Regions**

# Europe: A Medium Term Drag on Global GDP

*“The euro-zone crisis is getting worse, not better, to judge by the latest economic surveys; manufacturing is slowing and sentiment is worsening”*

WSJ Oct 24<sup>th</sup> 2012 .



PMI = Purchasing Managers' Index ....a measure and indicator of economic activity

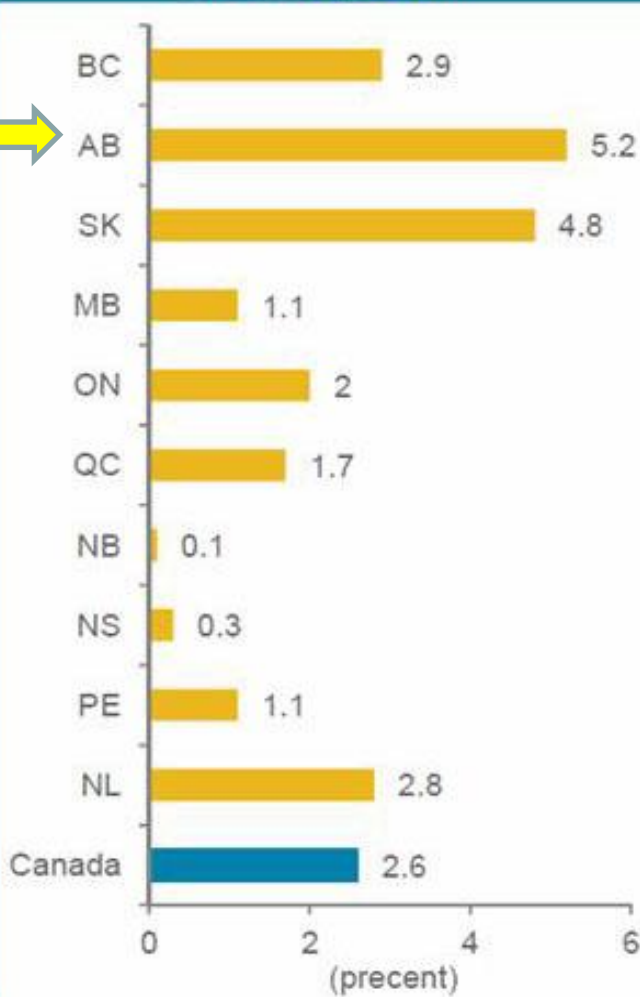
**2.**

**Why is it Relevant to You?**

# ALBERTA

## Strong Economy: Impressive Recovery and Prosperity Indices are Rising

Chart 2: Real GDP by Industry Growth, 2011



Source: Statistics Canada

Chart 2: Alberta Housing Starts and Residential Permits



Source: Statistics Canada

### Key Indicators

All indicators seasonally adjusted unless otherwise indicated.

Indicator	Latest Month	Value	Change year-over-year (y/y)
Employment (thousands)	April	2,143	3.9%
Unemployment Rate	April	4.9%	-1.0p.p.
CPI Inflation	April	0.8%	-2.2p.p.
Retail Sales	March	\$5.63B	+9.0%
Housing Starts (annualized)	April	37,300	+68.8%
Rigs Drilling (unadjusted)	April	141	+14.4%
Manufacturing Shipments	March	\$6.4B	+13.0%
Exports	March	\$8.8B	+11.1%

Source: Statistics Canada, CMHC p.p.= percentage points.

Source: Alberta Treasury Board & Finance



**3.**

**How is it Relevant to  
Alberta's Green Building Demand  
and GBT Products & Services?**



**Alberta: A Key Part of  
the World Economy.  
Significant Resource Exports**

# Construction and Residential Housing Sectors Driving Renewed GBT Demand

## Chart 2: Alberta Housing Starts and Residential Permits



Source: Statistics Canada

Source: Alberta Treasury Board & Finance

# 4.

## **Government of Alberta**

- *GBT Roadmap 2006*
- *Strategy Update 2010*
- *Roadmap Update 2012*

# **Green Building Products**

## **Roadmap of Opportunities for Alberta Manufacturers**

**Prepared for Alberta Economic Development**

**August 2006**



**Green Building Technologies  
Sector Development Strategy  
for Alberta's  
Building Products Manufacturing Industry**

**Report Prepared for  
Alberta Finance and Enterprise,  
Government of Alberta**

**June 2010**

**Prepared by  
Woodbridge Associates Inc.**



**Green Building Products**  
**Roadmap of Opportunities for Alberta Manufacturers**

**Update Report**

**Prepared for Industry Development Branch**  
**Alberta Enterprise & Advanced Education**  
**August 2012**

**5.**

**What Has Changed?  
(in the Post-Lehman Crisis World)**



# What Has Changed?

- #1. Sharp Decline in Global and Advanced Economy GDP, Economic Slowdown in China and BRICs  
– Followed by an Uncertain Pace of Recovery**
- #2. Continued Rises in Global Oil Prices**
- #3. Overall Levels of Construction Activity Have Declined in the United States**
- #4. Canadian Construction Activity Has Remained Comparatively Robust**

# **What Has Changed? (in the Post-Lehman Crisis World)**

- Positive Developments

- Not So Positive Developments:

  - ... Reality Check for Alberta's GBT Industry

# GLOBAL GDP

	2006	2007	2008	2009	2010	2011
Global GDP % Change	5.3	5.4	2.8	(0.6)	5.3	3.9
Advanced Economies	3.0	2.8	0.0	(3.6)	3.2	1.6

Source: IMF

[www.imf.org](http://www.imf.org) (WEO Update 2012 + April and July revisions)

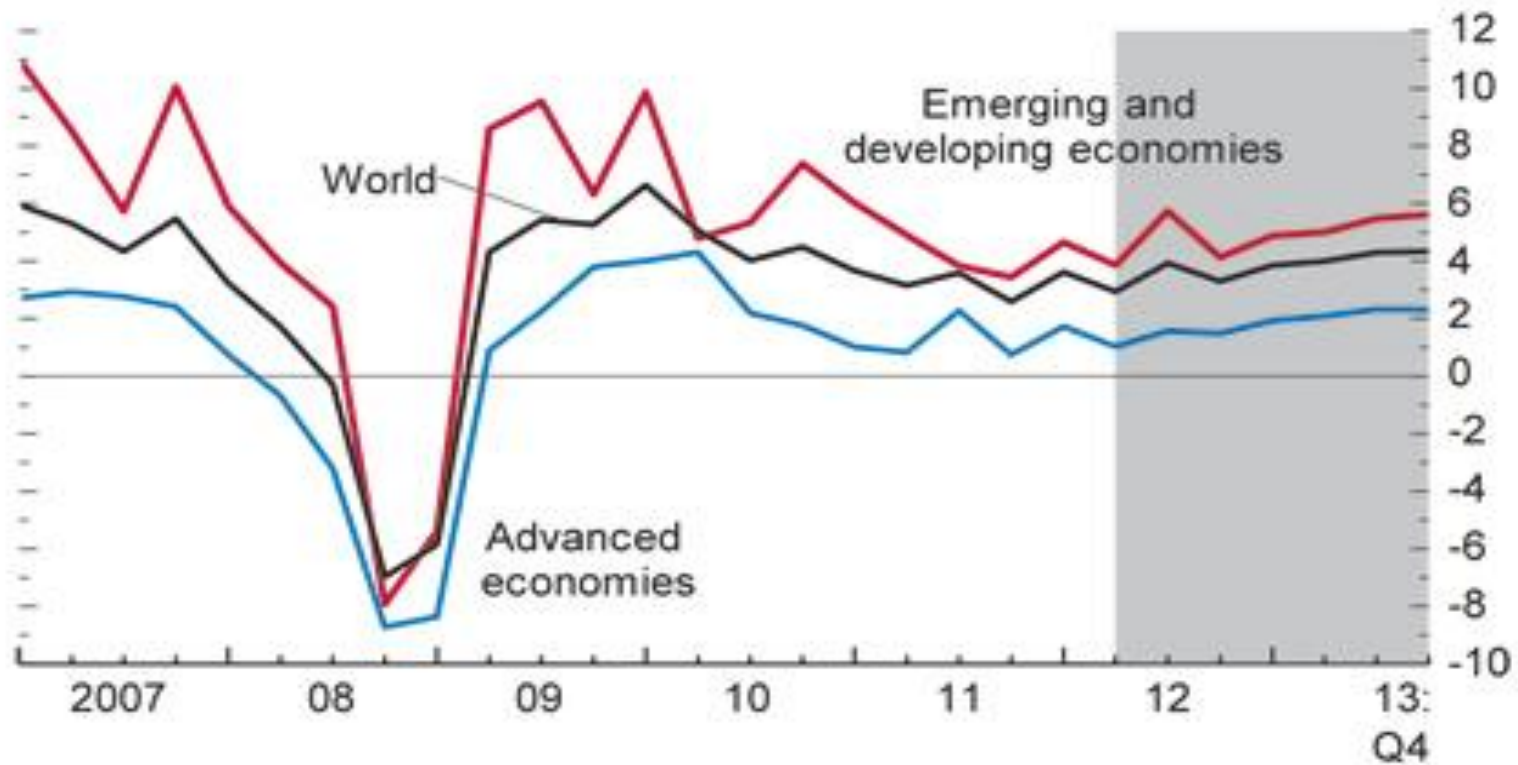
# GDP Decline: The Annual (Averaged) Rate is Deceiving

..... Quarterly Rates Indicate Much Better the Real Pain Felt by People in Numerous Regions!

Many Still Hurting .... 'Recovery' has been Highly Selective

## Figure 1. Global GDP Growth

(Percent; quarter over quarter, annualized)



Source: IMF staff estimates.

# GLOBAL GDP Projections (IMF)

	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>
Global GDP	3.5	4.1	4.4	4.6	4.6	4.6
Advanced Economies	1.4	2.0	2.4	2.6	2.7	2.7

Source: IMF

[www.imf.org](http://www.imf.org) (WEO Update 2012 + April and July revisions)

# Risks in the GDP Forecast

## Bad Risks (from a GBT demand viewpoint)

- **Consumer markets** might not return to an acceptable equilibrium (i.e. permanent damage might be sustained. Consumers' behaviour might have changed, and demand shifts downwards for the long term).
- **Capital markets** might continue to be dysfunctional.  
Won't be willing or able to finance a normal recovery. e.g. U.S. mortgage ind.
- **Regulators go nuts**, and over-react – creating more uncertainty & instability
- **Suppliers lose confidence**, and withdraw or don't invest in new supply
- **Rampant inflation** (due to excess money supply) might cause new instability

## Good Risks (from a GBT demand viewpoint)

- **Demographics** are highly supportive of GBT demand and supply growth.
- **Cost-push pressures** highly support GBT vs. conventional construction.  
(e.g. energy costs [extraction + generation] and home energy price trends).
- **Consumer demand-pull** very strong (constrained today by 'inability to pay').
- **Technology is advancing**, and strongly supports GBT productivity and prices.

## #2. Continued Rises in Global Oil Prices

Chart 1

### Sky high oil prices

Prices have quadrupled over the past decade.

(Real oil prices, January 1970 dollars)



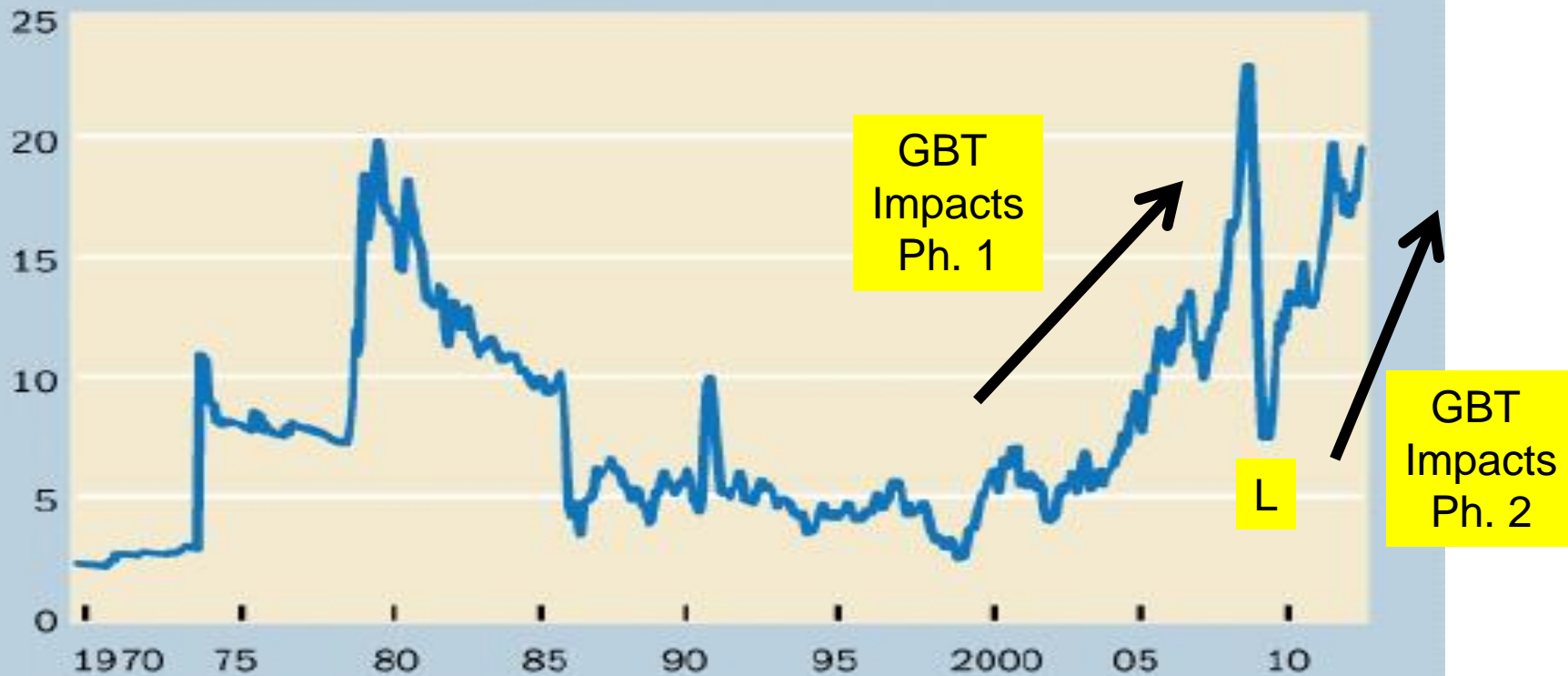
Source: IMF staff calculations.

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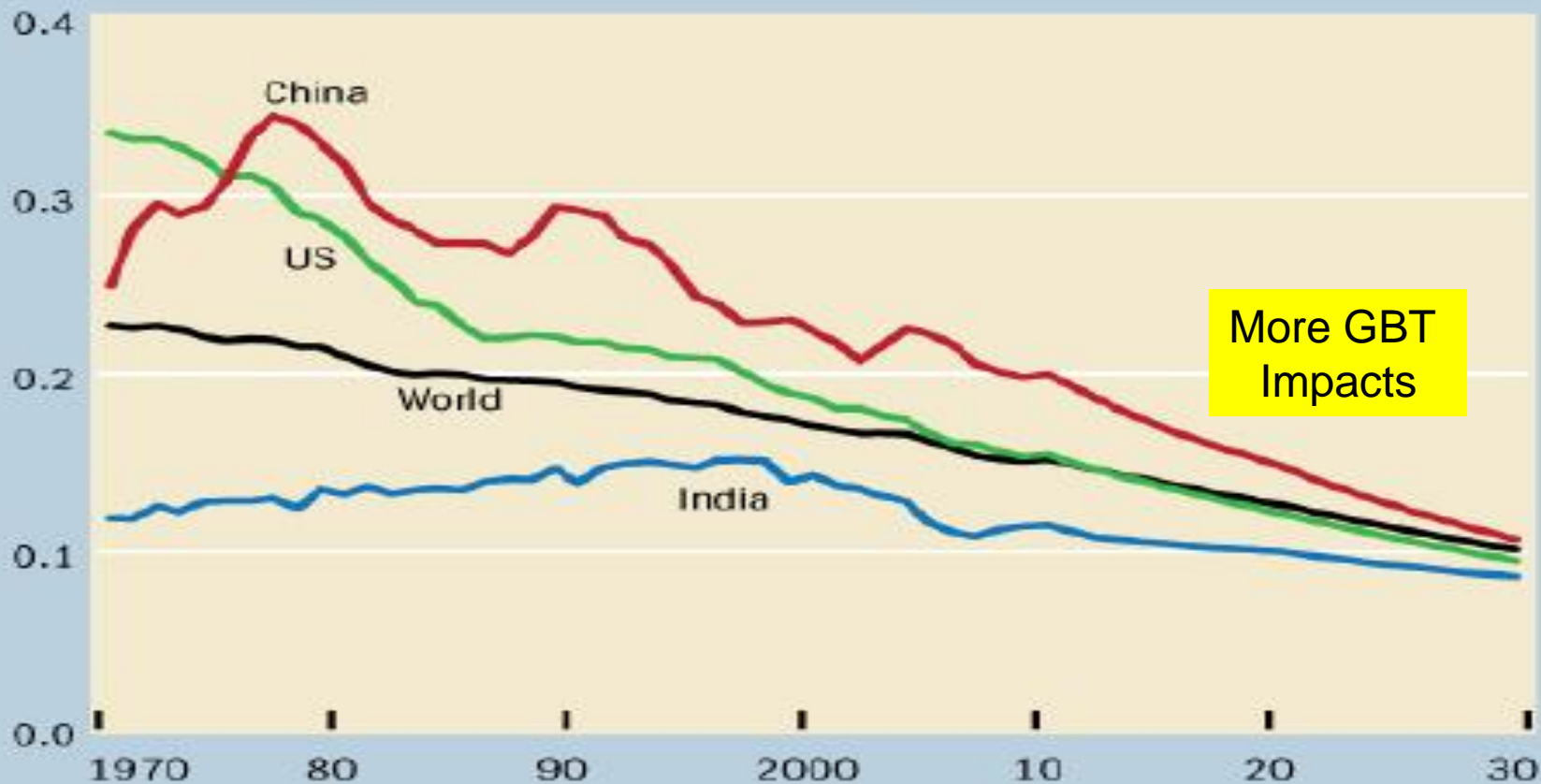


# Solutions to Energy Efficiency Favour GBTs

Chart 2

## Energy intensity

Greater energy efficiency means oil shocks have less impact.  
(in tons of oil equivalent / per thousand dollars)



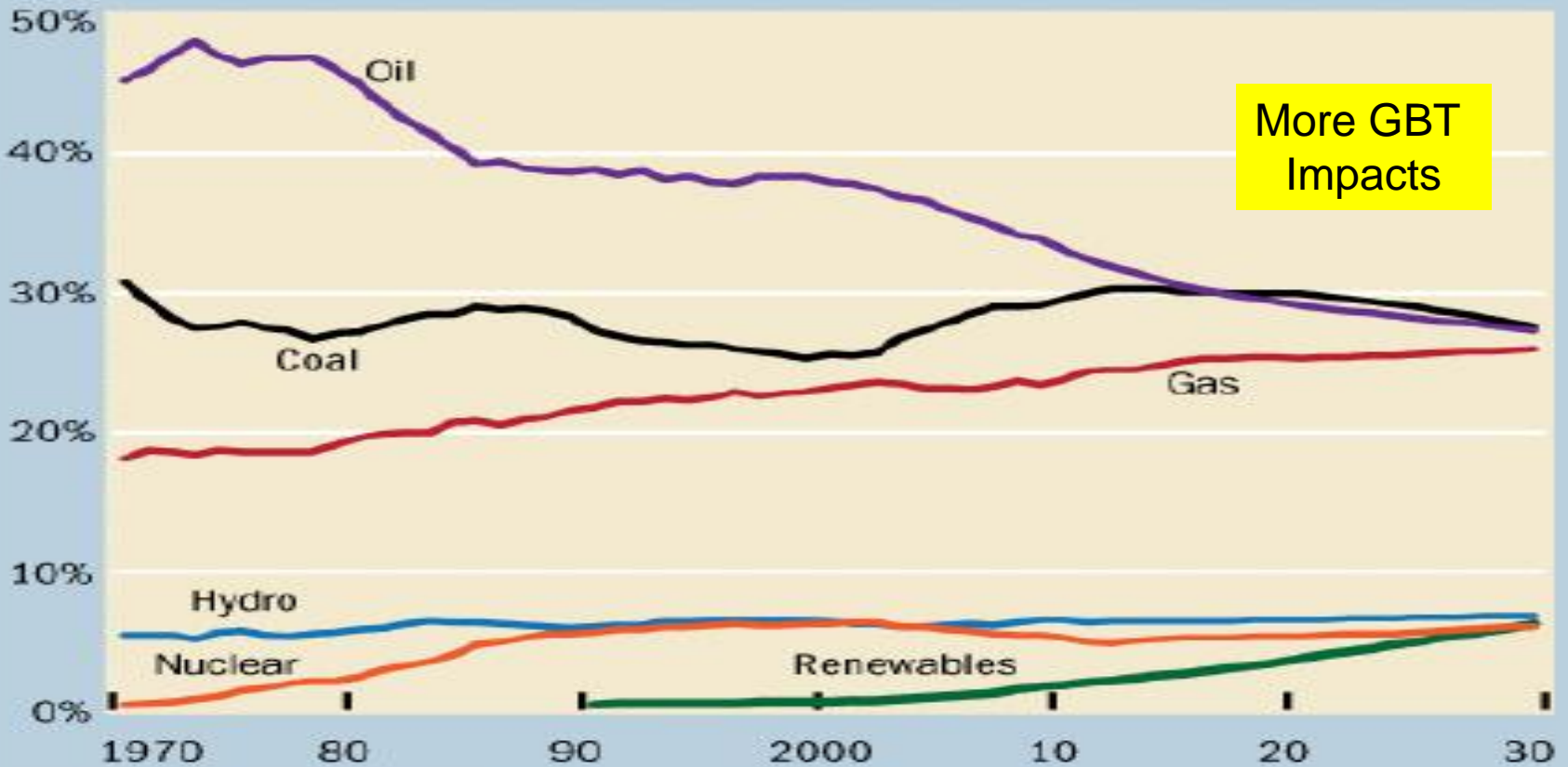
Source: BP, *Energy Outlook 2030*.

# As Well as Oilsands Growth, 'Renewables' are Growing in Market Share

Chart 3

## Shares of world primary energy

Energy sources have been increasingly diverse.  
(percent)



More GBT  
Impacts

Source: BP, *Energy Outlook 2030*.

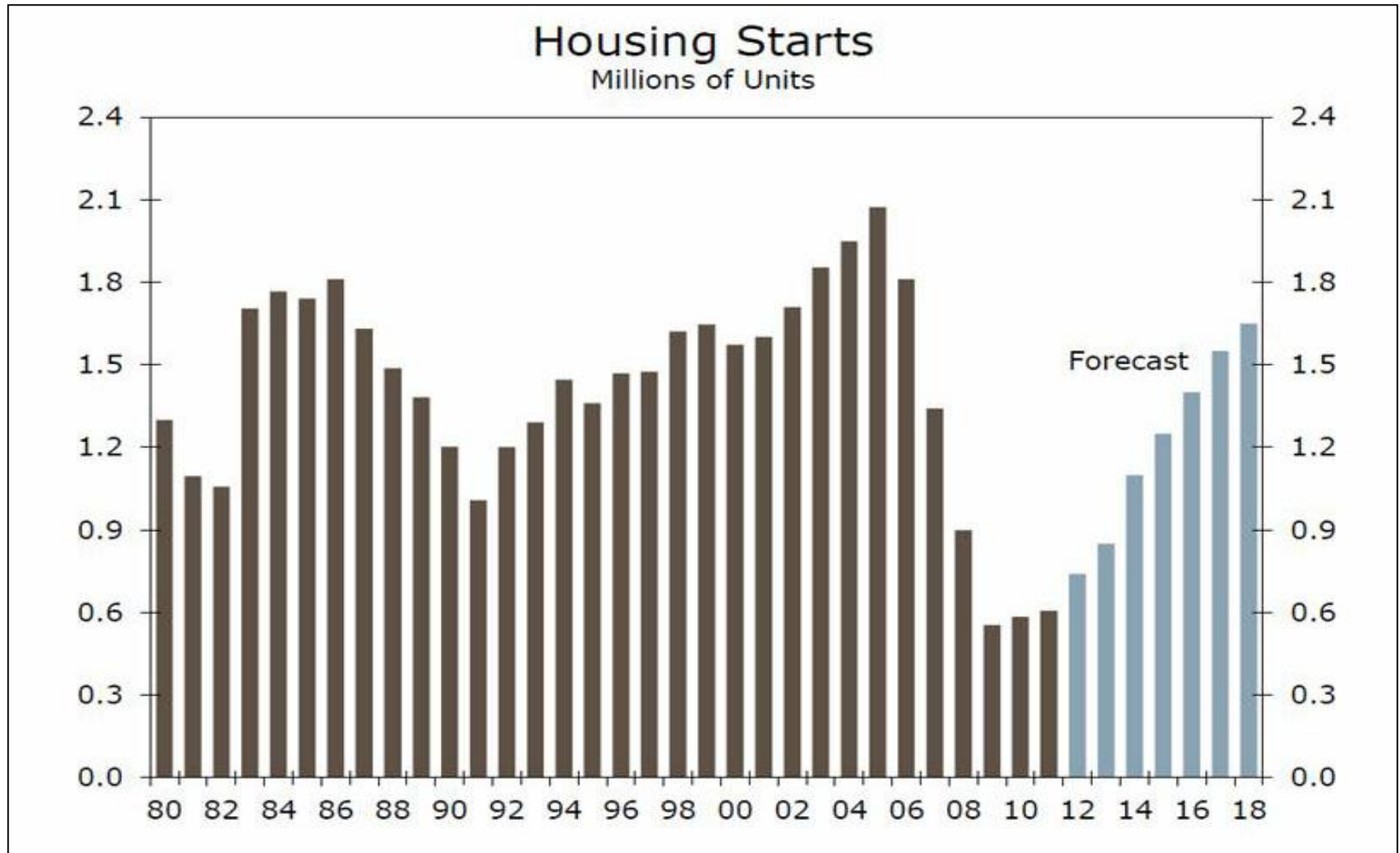
**#3. Overall Levels of Construction Activity  
Have Declined in the U.S.  
(Now in Slow, but More-or-Less Steady,  
Recovery)**

## **#3. Growing Signs of a Potentially Strong Recovery in U.S. Housing**

**- Stock Market Indicates  
Investor Enthusiasm for  
Building Materials**

# U.S. Housing Starts Over the Next Five Years will Double in Volume to 1.6 million Units!

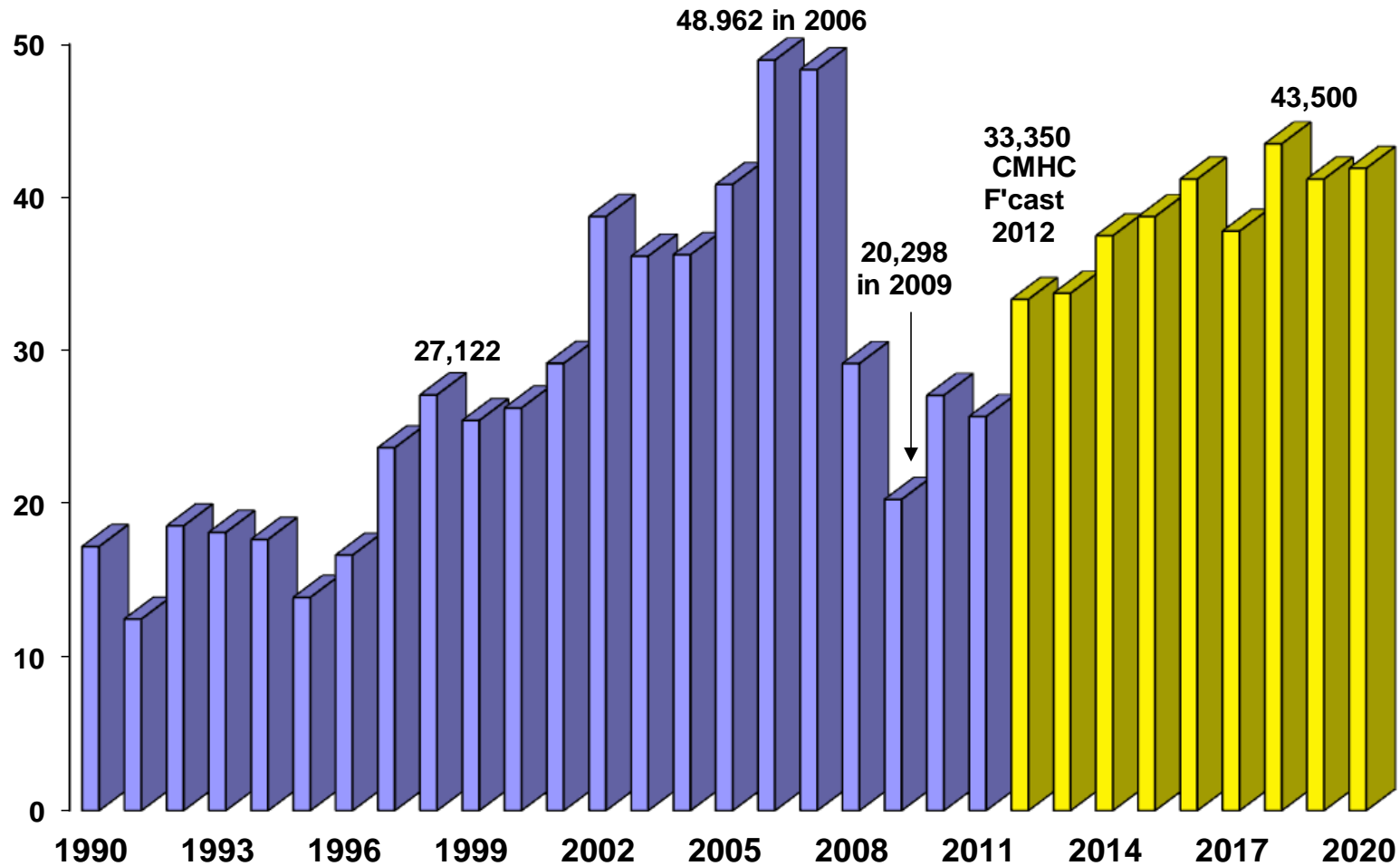
(When has that happened before?? Never !!)



Source: Wells Fargo Bank

# Alberta: New Construction Housing Starts are Strong

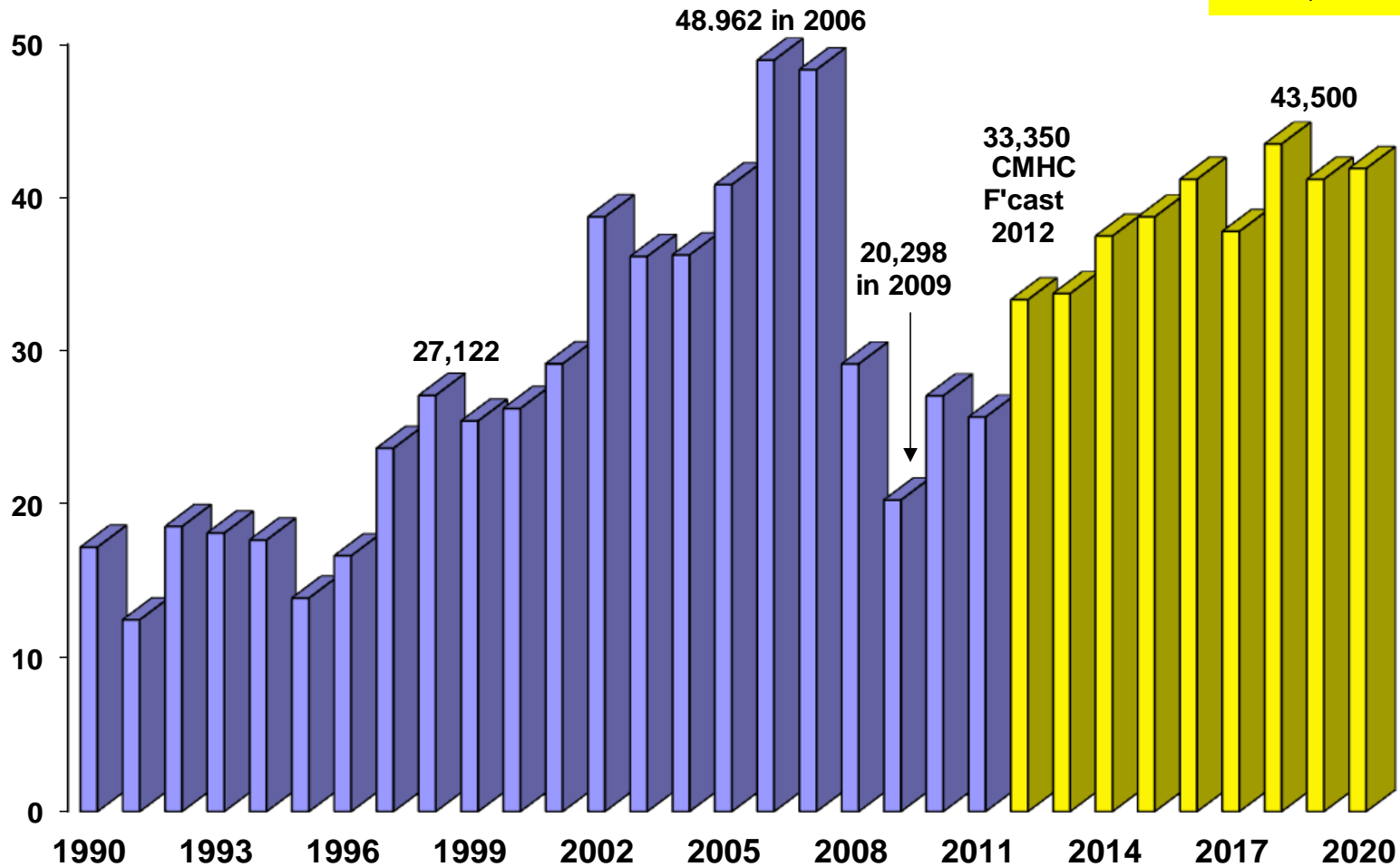
## Alberta: Total Housing Starts - With Projections to 2020



Data Source:  
CMHC

# Alberta: New Construction Housing Starts are Strong

## Alberta: Total Housing Starts - With Projections to 2020

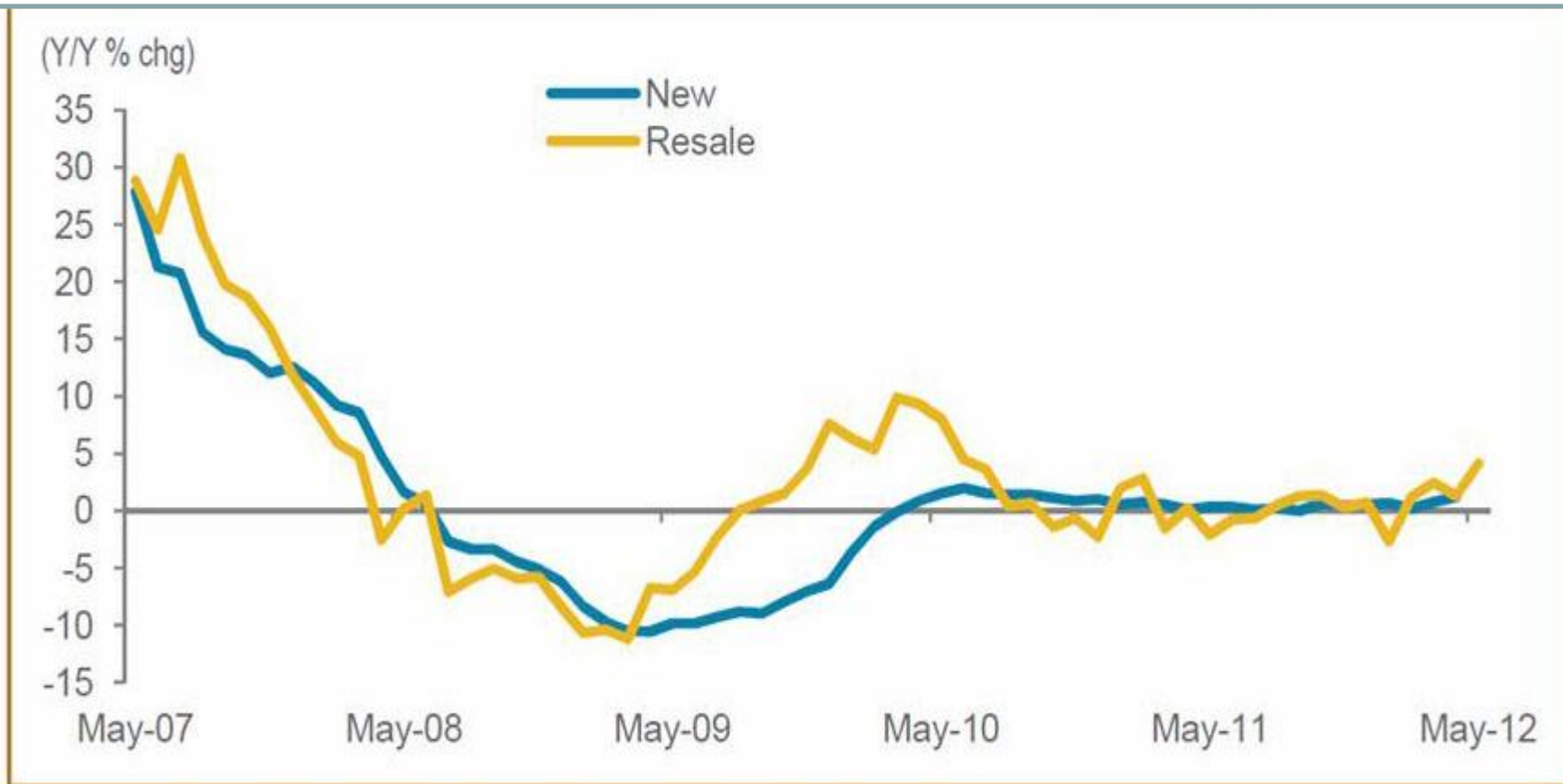


Data Source:  
CMHC

# Alberta's Renovation & Home Improvement Spending is Predicted to be Buoyant over the Next Several Years!

## Alberta House Prices (Year-over-Year)

Strength of the Resale Market Suggests Upward Pressure on House Prices



Sources: Canada Real Estate Association and Statistics Canada

Data Source: Alberta Finance

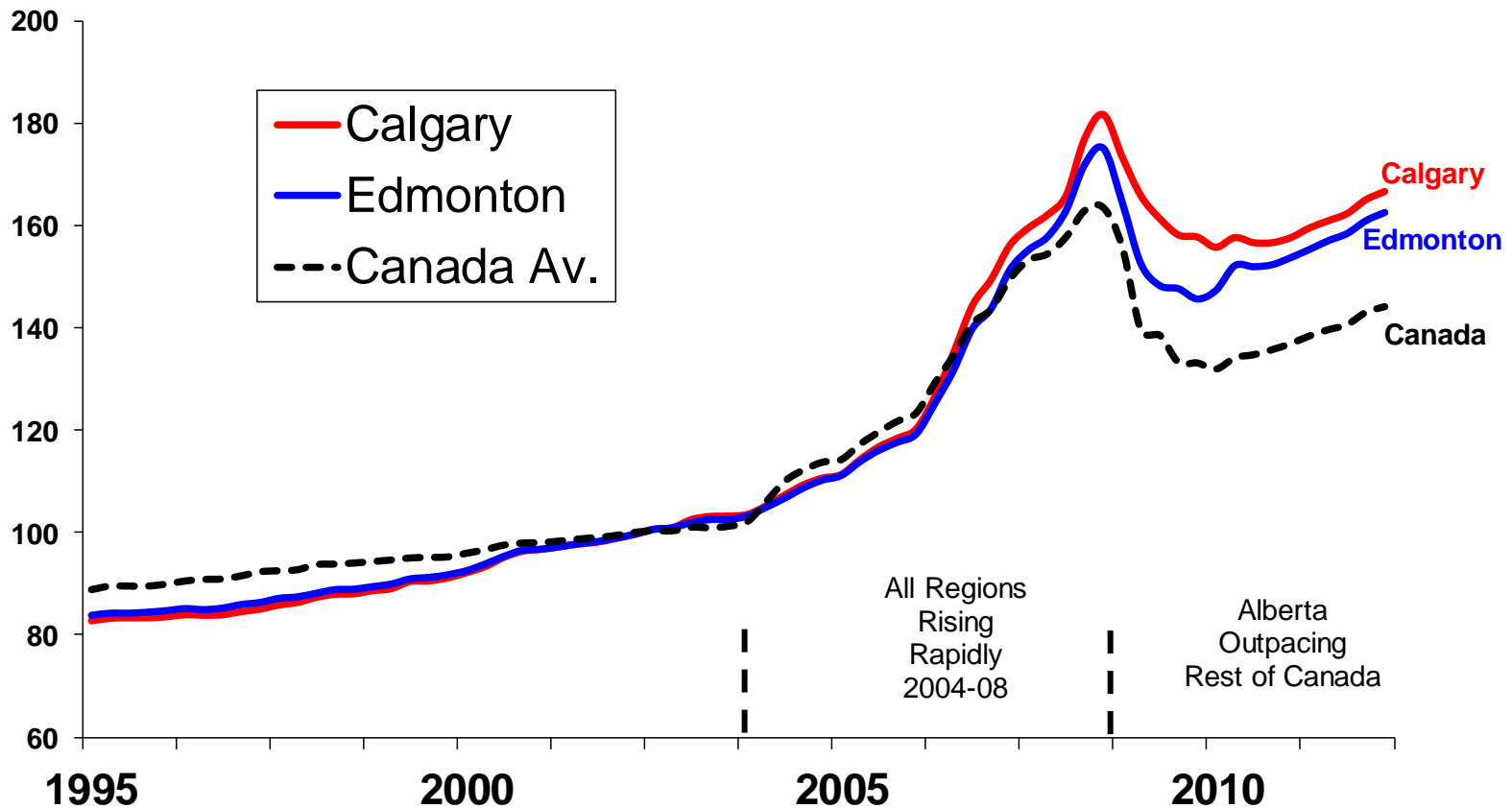


# Keystone and Keystone XL + Others

# Alberta's Rapidly Rising Construction Costs Favour Off-Site Fabrication & GBT

Alberta's Construction Costs Have Been Rising Faster than the Canadian Average

e.g. Apartments (Land Excluded)



Data source: StatsCan 327-0044

# 6.

## A Fresh Look at the Market Outlook 2012 to 2020

- Revised Projections
- Regulators
- Consumers
- Manufacturers, Builders
- Service Providers

Private Sector, or 'Market' Response

# Revised Projections

**a. 3<sup>rd</sup> Party Forecasts**

**b. Woodbridge Associates' Forecasts**

# McGraw Hill: Pre-Lehman Crisis Forecast of GBT Growth (Dated 2008)

**3<sup>rd</sup> Party Forecasts  
(Wider Definition)**

The US market for green building could reach US \$140 billion by 2013

Source: McGraw-Hill Construction, 2008.

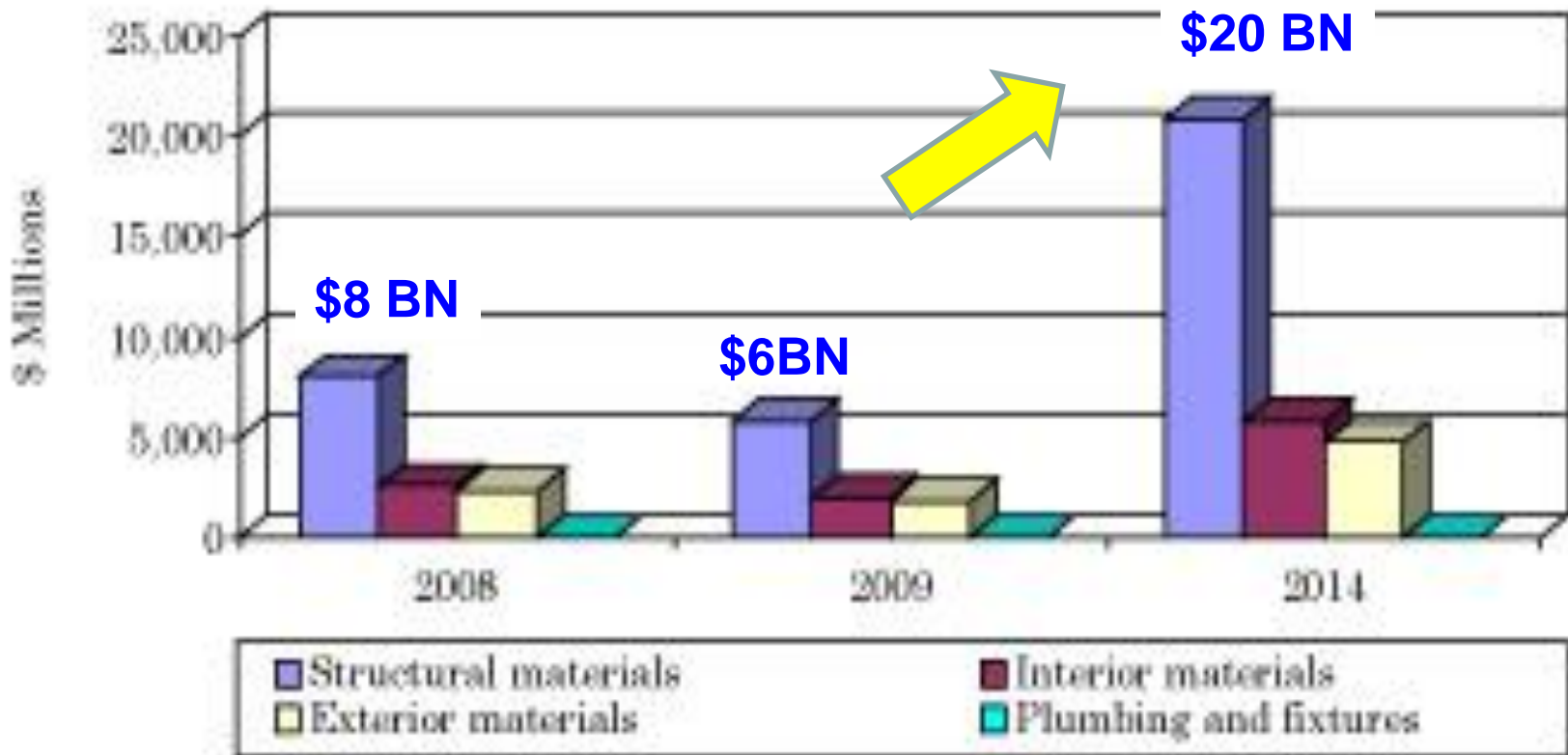


Source: Globe Foundation Report

# After the Financial Crash, Projections in 2009 Were Still Too Optimistic

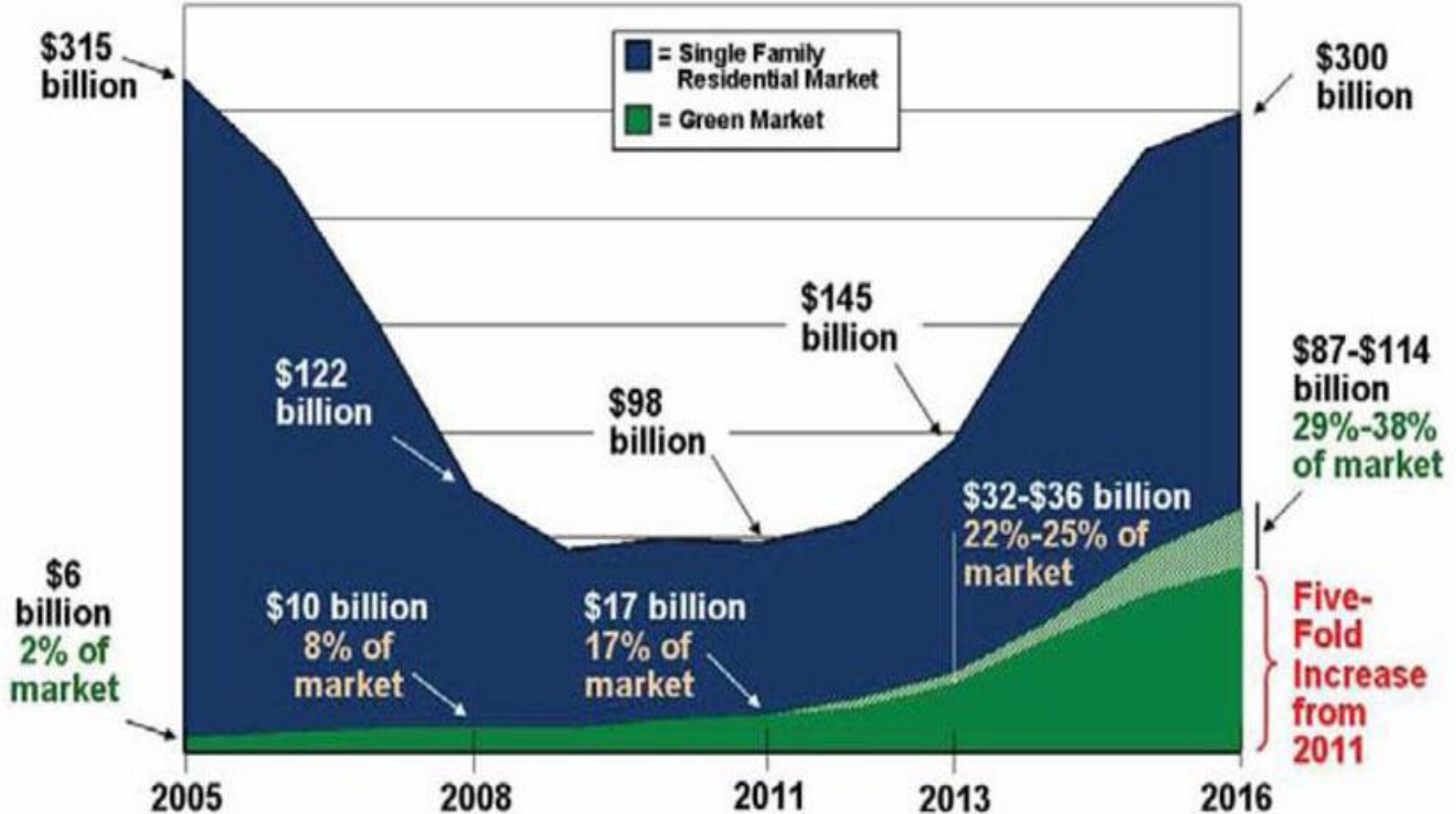
3<sup>rd</sup> Party Forecasts  
(Narrower Definition,  
Building Materials)

SUMMARY FIGURE  
U.S. MARKET FOR GREEN BUILDING MATERIALS, 2008-2014  
(\$ MILLIONS)



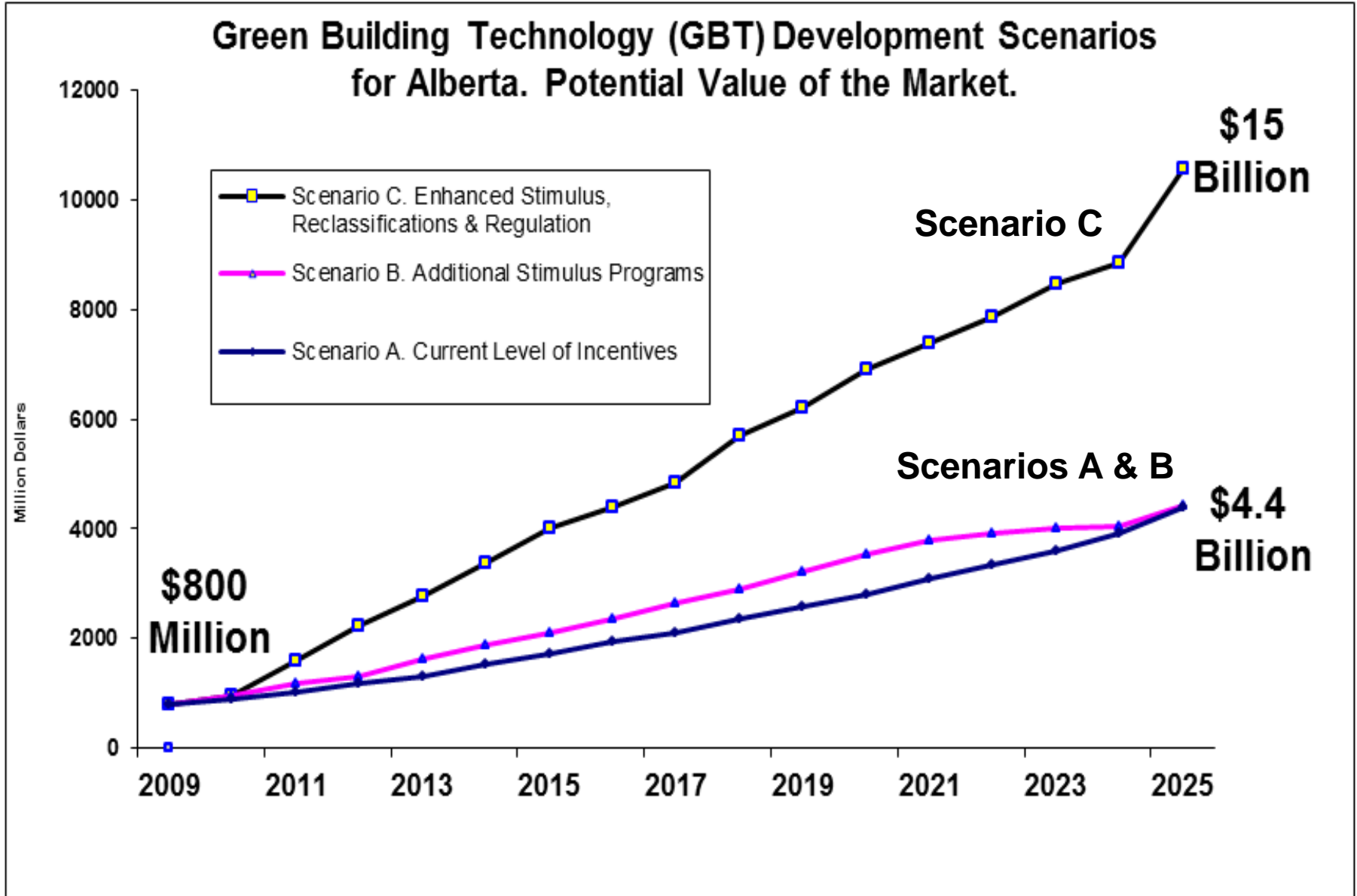
Source: BCC Research

# McGraw Hill: 2012 Forecast of GBT Growth: Conclusion: GBT Market Share Has Risen During Downturn!



Source: Green Market Size: calculation McGraw-Hill Construction; base value of construction market from McGraw-Hill Construction Market Forecasting Service, as of February 2012

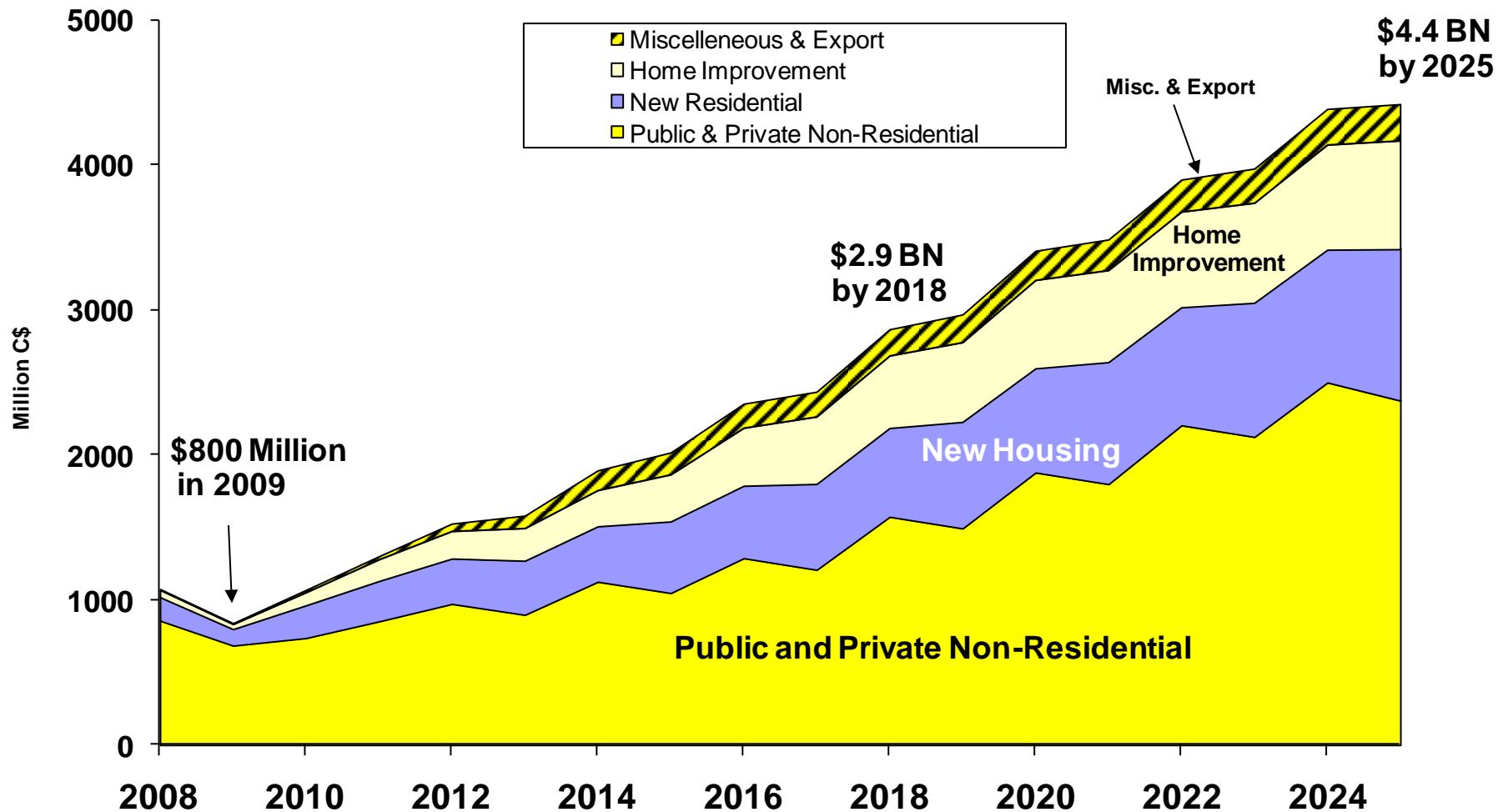
# Woodbridge: 2010 Projections





# Woodbridge: 2010 Projections

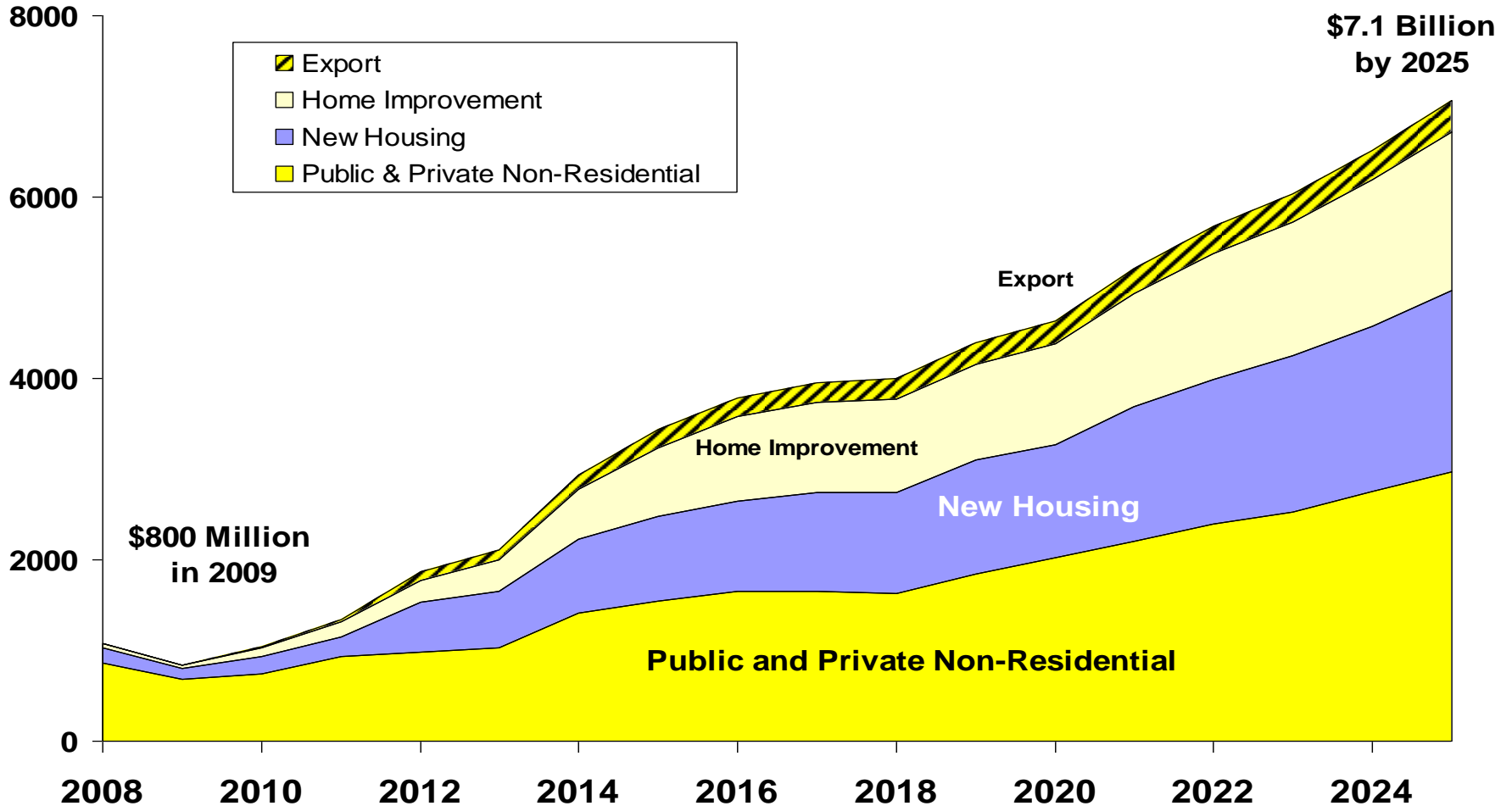
## Alberta GBT Sales Growth 'Scenario A'



# 2012 Report: Our Demand Projections Have Been Revised Upwards

## Alberta GBT Sales Growth 2012 Revisions 'Scenario A'

C\$ Millions



Revisions August 2012

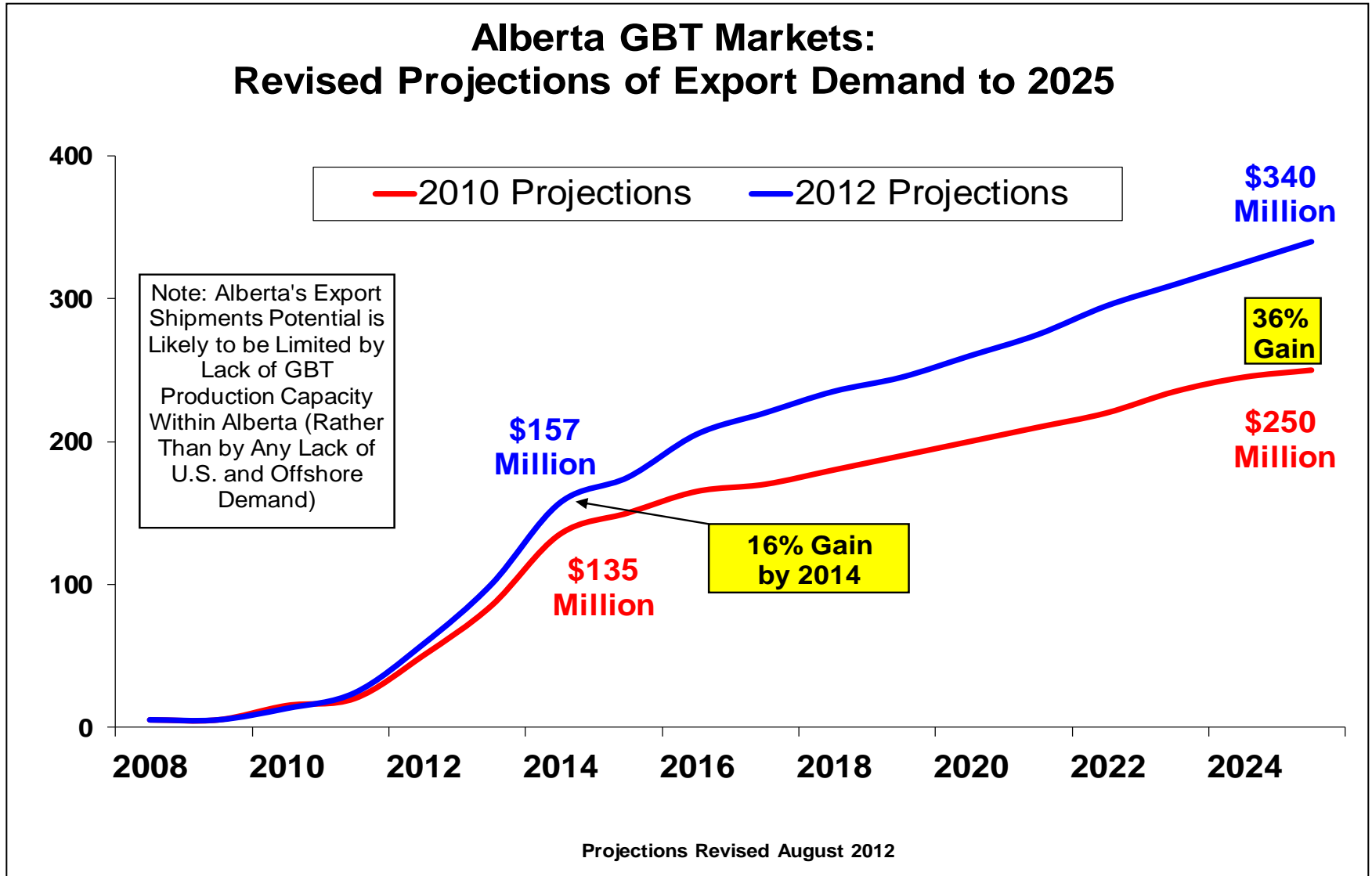
## Alberta GBT Sales Potential C\$ Millions

2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
1.079	0.843	1.043	1.344	1.863	2.105	2.937	3.455	4.055	4.395	4.640

\$7.1 Billion  
by 2025

Source: 2012 Roadmap Update Report

# Export Market Potential is Smaller Than Domestic Market – But Offers Exciting Prospects, and is Competitively Strong for Alberta



# China

Canada already has strong business and trade relationships with China –and Alberta and BC in particular have very close ties with this potential export market for GBT products and services.

Reports indicate that more than US\$300 billion will be invested by China in energy-saving and low-carbon projects under the 12th Five-Year Plan (2011–2015).

[www.greenprospectsasia.com](http://www.greenprospectsasia.com)

Green Prospects Asia says that most countries in Asia Pacific have their local or national green building council (GBC), which are also members of the World Green Building Council (WGBC).

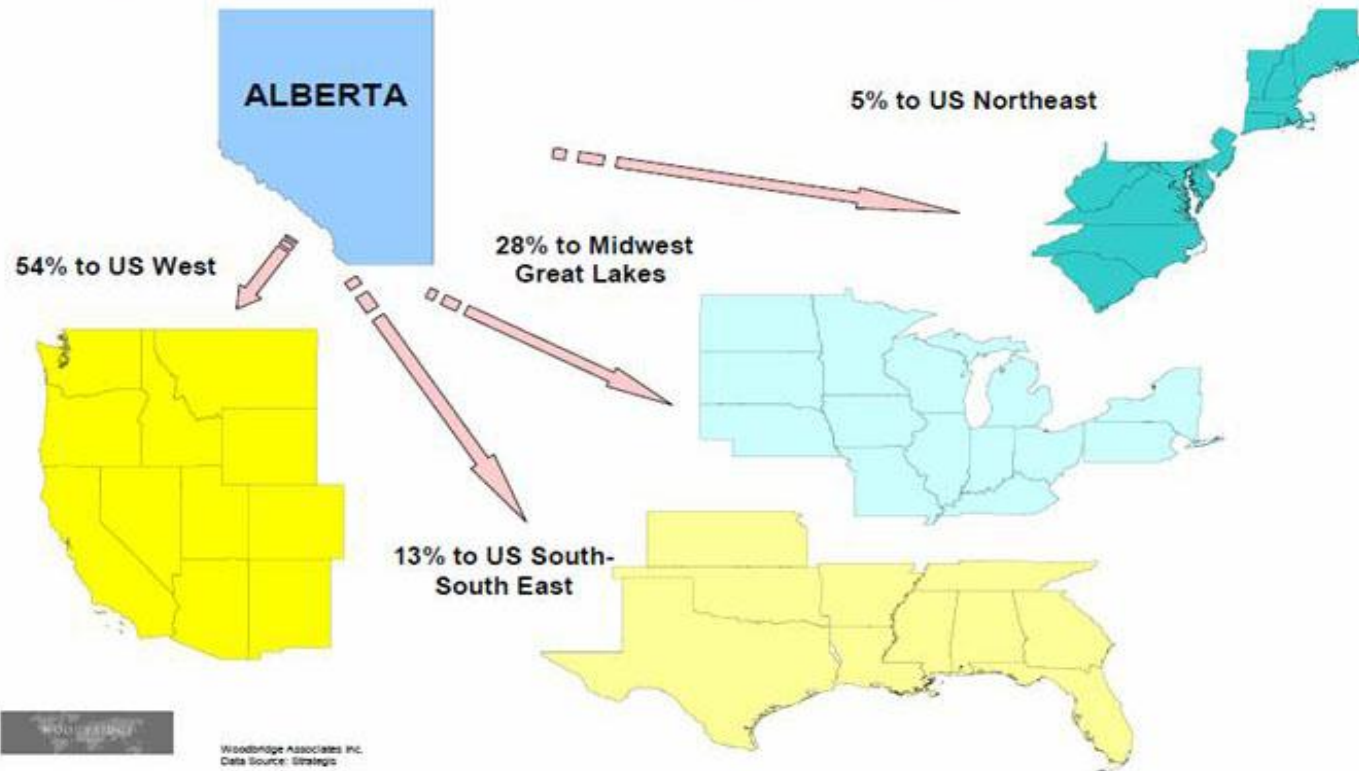
We believe that GBT exports from Alberta can be ‘piggy-backed’ on existing construction materials and services sold to China and other East Asian markets.

# Alberta's GBT Export Market in the U.S. is Substantial

Alberta is Ideally Suited to Sell More to the U.S. Market for Three Reasons:

- (1) Geographical Location
- (2) BC Interior Higher Grade Dimension Supply (Post Pine-Beetle) is Declining
- (3) BC has become very focused on China and Asia markets

Typical Geographical Split of Alberta's Wood Products Sales to U.S.



Prepared for AFPA 70<sup>th</sup> Annual AGM & Conference  
Jasper, Alberta - September 2012

# A Fresh Look at the Market Outlook 2012 to 2020

## - Regulators

# 1.5

**billion dollars**

the amount of damages Solyndra is seeking from Chinese solar companies

**CHINADAILY**.com.cn

## In the U.S. Energy Policy – and Stimulation of GBTs – are Federal & State Issues

President Barack Obama, with Solyndra Chief Executive Officer Chris Gronet. tour of Solyndra, Inc., a solar panel manufacturing facility, in Fremont, Calif. Solyndra received a **\$535 million loan from the U.S. government** has announced layoffs of 1,100 workers and plans to file for bankruptcy. (AP Photo/Alex Brandon, File)



Outcome of U.S. Presidential Election  
Important for GBT Growth Rate,  
Consumers (Voters) will be influenced  
by 'Pocketbook' not 'Planet' Issues

See Woodbridge 2006 Report



Source: <http://www.marciaforarizona.com>

**"EVERY one of our neighbouring states has higher renewable standards and will achieve them even faster than Arizona if we do not change course.**

**Arizona 15% by 2025;**

**New Mexico 20% by 2020;**

**California 33% by 2020;**

**Nevada 25% by 2025 (6% from solar),**

**and none of these states have near the potential for solar that Arizona does."**

Source: <http://www.paulnewmanaz.com>

# U.S. States: Elected Officials Have Regulatory 'Teeth'

## Energy Policy: Political Structure (Example: Arizona)

In Arizona there are five Commissioners. They are each elected to a four-year term.

The duties and responsibilities of the Arizona Corporation Commission include (but are not limited to) researching and developing utility issues, monitoring the quality of utility service, and **approval of rates**;

Revoking the corporate charters of corporations which do not comply with Arizona law; enforcing pipeline safety standards and operating practices applicable to the transportation of gas and hazardous liquids by pipeline and the operation of liquefied natural gas facilities;

Holding public hearings involving the regulation of public service corporations, the sale of securities and the registration of non-municipal corporations.

## China Issues White Paper on Energy Policy October 24<sup>th</sup> 2012

By the end of 2015, **China will lower its energy consumption per unit of GDP** by 16 percent from 2010 and lower its carbon dioxide emission per unit of GDP by 17 percent, according to the country's 12th Five-Year Plan (2011-2015).

China will **actively develop hydropower, solar power and wind power generation and seek safe and efficient ways to develop nuclear power, as well as utilize biomass energy and other types of renewable energy**, according to the white paper.

China plans to increase the share of non-fossil fuels used for primary energy consumption to 11.4 percent and increase that of non-fossil fuels to 30 percent by the end of 2015, the paper added.

Source: <http://usa.chinadaily.com.cn>

# Europe:

**Despite Recession,  
Still a Leader in  
Renewable Energy  
Initiatives**

**Canada = 5th  
largest producer of  
energy in the world,  
producing about 6%  
of global energy  
supplies.**

# Critical Mass & 'Energy Culture'

**Q. Can Alberta Truly Have a Competitive Edge  
in Renewable Energy Production  
and Manufacturing/Production Technologies?**

**Q. Does Alberta Want To??**  
(Is It the Best Allocation of Resources)

**Q. What About Wood Based Energy/Bio-Fuels?!**

*Alberta is in the fuel, food and fibre (and technology) businesses.*

**For Viable, Sustainable Development of GBT's in Alberta,  
the Province Must Leverage its Sustainable Resources!**

# Alberta's Potential: In Which Technologies & Sectors ?

## 1. Alternative Energy Technologies?

Is it likely that Alberta will be able to take a global leadership role in:

- Design and manufacturing of solar PV panels?
- of wind turbines?
- of geo-thermal energy?
- of cellulose bio-fuels? (e.g. ethanol, bio-diesel)

Of these, the technological leading edge already has been mostly captured elsewhere (solar: Japan: wind turbines: Denmark).

Very large scale. Mega\$\$ and R&D.

Limited or no follow-up to ARC's passive solar panel technology initiative (2006)

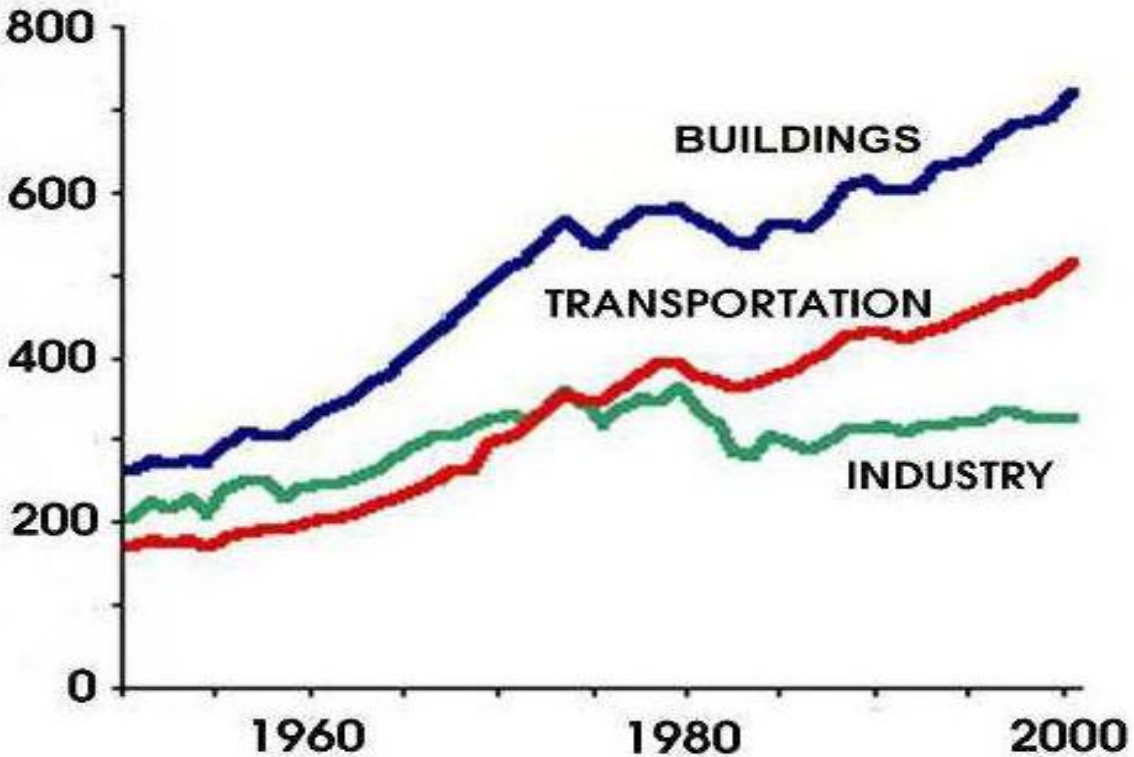
Alberta has some bio-fuel projects, but nothing to distinguish it from other regions and competitors.

**Alberta's Current Scorecard: Maybe 3 out of 10?**



# **Wind Energy Canada: Days of Sun per Year and Frequency of Winter Winds, by Region**

# Construction Industry Potential Source of GBT Competitive Advantage for Alberta



**Percentage of national energy consumption used in buildings:**

- Mexico - 17%**
  - Canada - 33%**
  - United States - 40%**
- (Source: CEC)*

**CO2 EMISSIONS by SECTOR**  
(Million Metric Tons of Carbon)

*Source: Energy Information Administration Statistics*

# Alberta's Competitive Strengths and Opportunities in Buildings and Structures

Well supported by Alberta's export-focused wood products manufacturing industries

- lumber
- OSB/plywood
- value added, secondary processing
- wood framing expertise
- components manufacturing plants
- post-secondary education & skills training
- R&D, and ARC leadership
- certified, sustainable timber management

Comparatively small, but advanced homebuilding industry – with export potential

- site built
- home improvement

Large, well developed factory built housing/structures industry

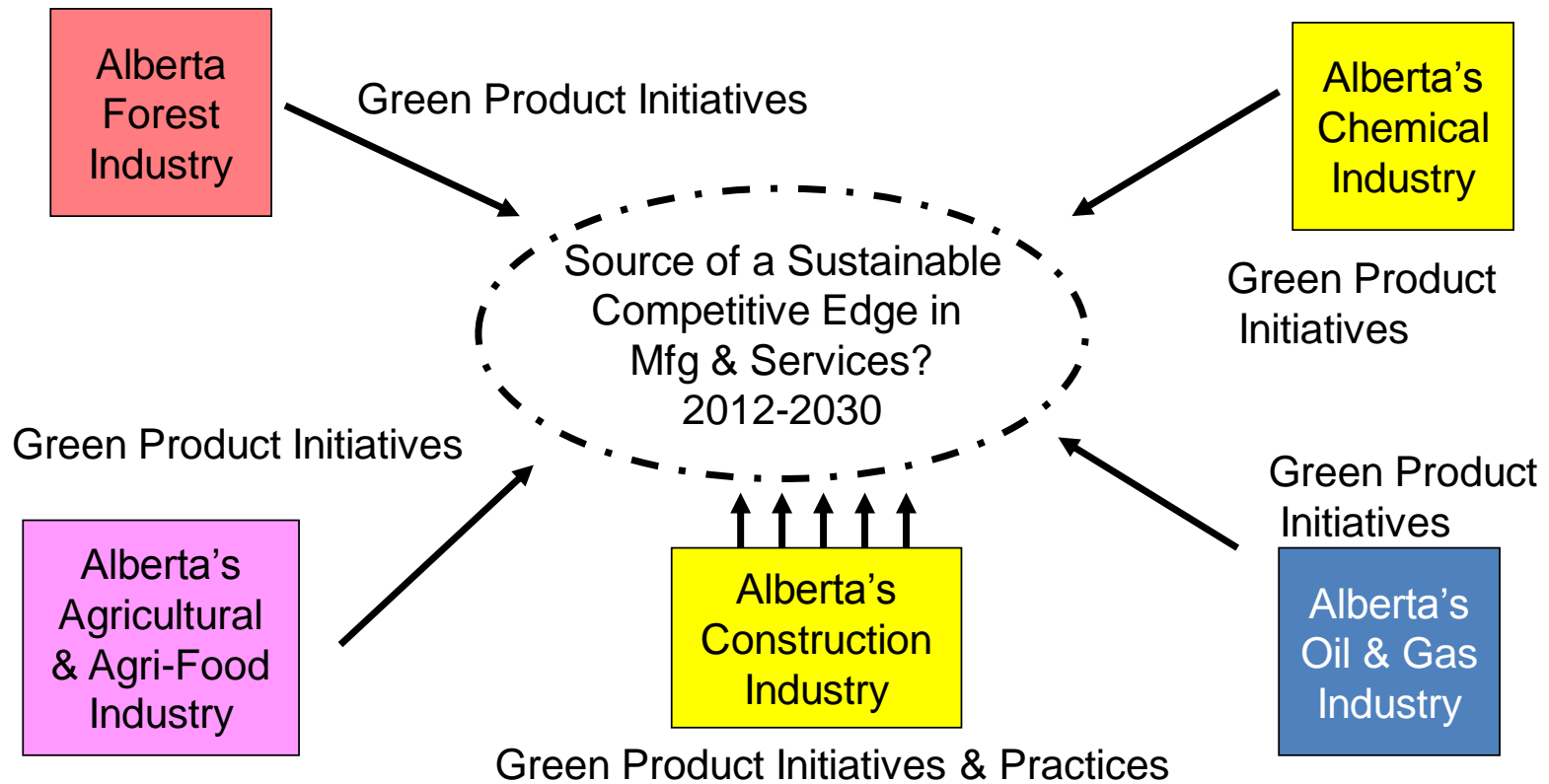
- including world leader ATCO structures, Champion Homes
- set up to serve oil sands development
- Extreme climate structural expertise

Large, well developed site based construction industry

- residential, industrial, commercial
- supported by LEED certified architects, designers, engineers
- supported by construction finance industry

**Water Management:  
A Potential Source of GBT Competitive  
Advantage for Alberta**

# Alberta's GBT Potential: From Which Technologies & Sectors ?



# A Fresh Look at the Market Outlook 2012 to 2020

## - Consumers

**Private  
Sector,  
or 'Market'  
Response**

*Regulated mandatory changes aside,*

*the fact is that until the consumer (homeowner) who invests in green building technologies is compensated more or less in full for these expenditures,*

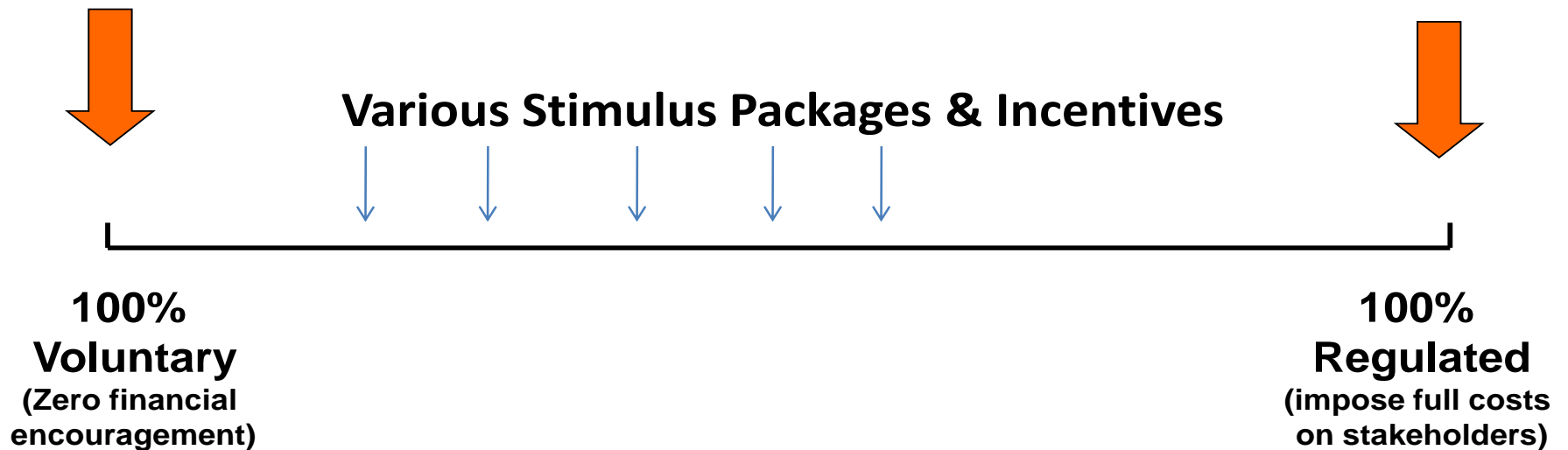
*the rate of adoption of GBTs will continue to lag behind its undoubtedly very significant potential.*

**- Woodbridge Associates**

# Voluntary or Regulated?

## Spectrum of Effectiveness

Neither Extreme Works,  
Neither is Sustainable





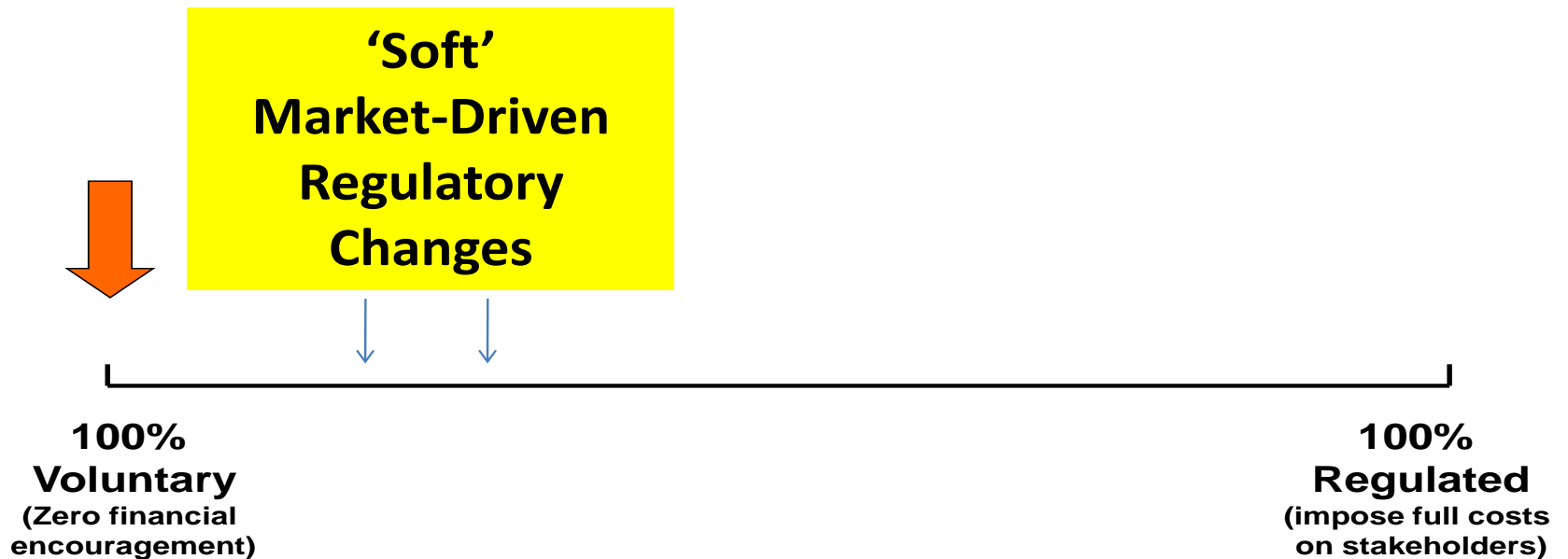
# North American 'Green Building Product' Market Analysis

## Key Conclusion

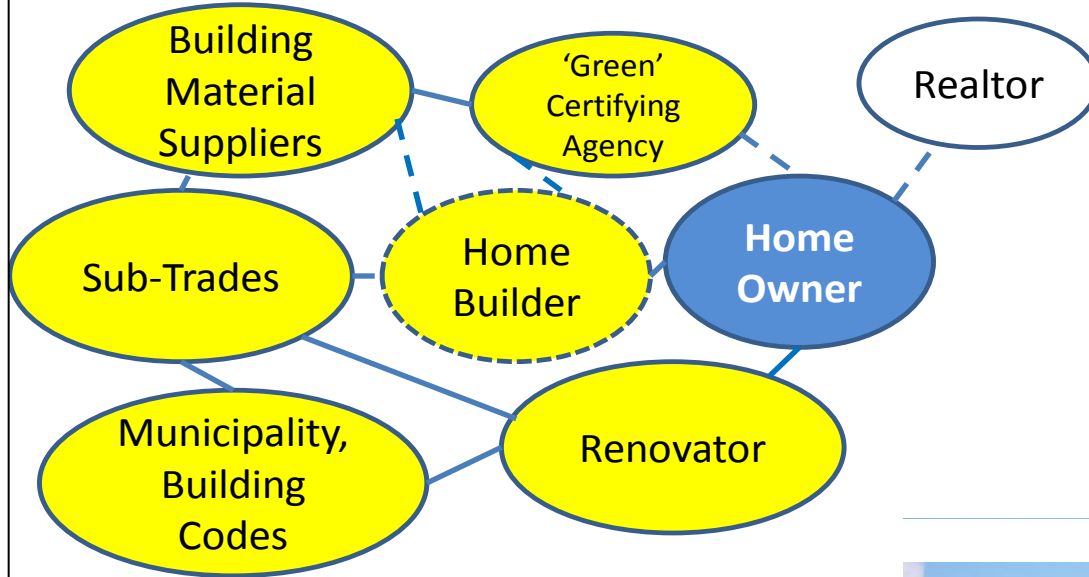
***At the Present Time,  
'Green' is Easier to Sell to Government  
and Private Sector Non-Residential Customers  
than it is to Most Private Households***

# Voluntary or Regulated?

## Spectrum of Effectiveness



# Supplier Responses: Green Building Materials and Practices



## Step 3 Occupancy Phase

### Issues

Call-Backs

Equipment Warranties

Materials Warranties

'Liveability'

Regular Maintenance

Home Improvement

Warranties, Liabilities & Resale Market



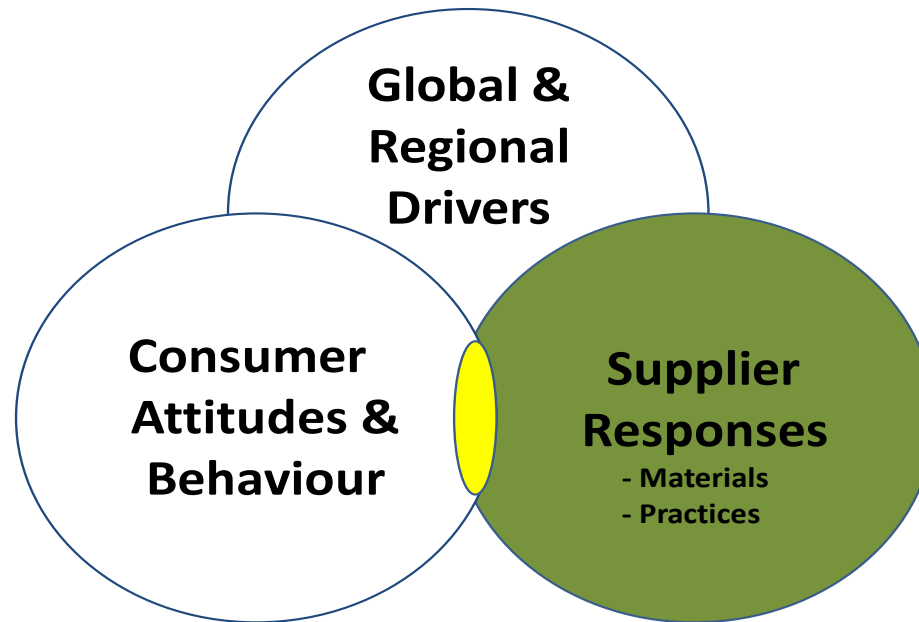
# France: Innovator in 'Soft' Market-Driven Regulations

# A Fresh Look at the Market Outlook 2012 to 2020

## - **Manufacturers, Builders**

**Private  
Sector,  
or 'Market'  
Response**

# Outlook for Green Technologies: Suppliers



**Building Product Specifiers and Suppliers Respond in Two Ways:  
(1) the Materials the Specify and Use (2) their Practices**

# Defining the Green Built Market

## #1 Defining 'Green Buildings'

- **Not just products .... sum of the products acting as a whole**
- **Use of products with 'green' attributes**
- **Sustainable design and construction**  
(i.e. balance between homebuilding, life-cycle-occupancy and a sustainable environment)
- **More efficient use of resources** (e.g. goal of net zero energy structures)
- **Lighter footprint and minimum impacts on the environment**  
(e.g. goal of zero impacts?) CO<sub>2</sub>e Neutral
- **Create healthier structures and living conditions**

# Defining the Green Built Market

## #2 Defining 'Market'

**Important to Distinguish Between 'Market' and 'Potential Market'**

**'Market'** = where commercial transactions take place (between willing buyers and willing sellers).

**'Potential Market'** = anticipation that a market will evolve.

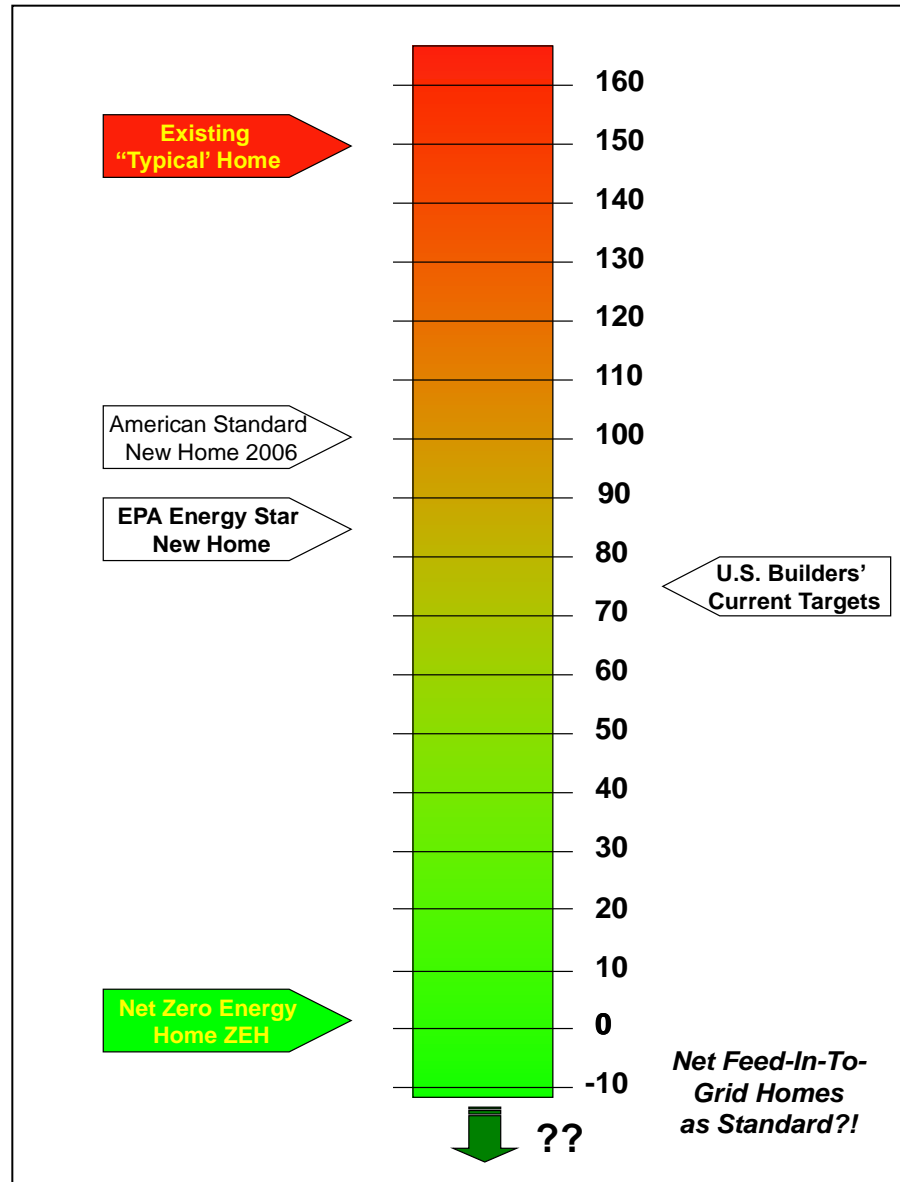
**"Markets' are measured by actual transactions.**

**Too many 'estimates' of the size of the green-built market are based on an optimistic perception of the 'potential market' and/or a very favourable interpretation of 'green content'.**





# U.S. Home Energy Rating System ('HERS')



# A Fresh Look at the Market Outlook 2012 to 2020

## **- Service Providers** (including ABDC)

## **Follow-Up Discussion?**

**7.**

**Our Report Recommendations:**

**Next Steps**

# Alberta: Two Strategic Options

1.

## Let it Evolve Naturally

(Market Forces & Market Pricing)

- Private Sector Initiatives
- Public Sector Programs, Policies and Regulation
- 'Ad Hoc' Responses to Global Events and Pressures

2.

## Plan for Optimum Effectiveness

Coordinated Response

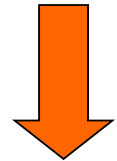
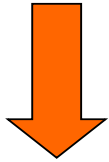
- Private Sector Initiatives
- Public Sector Programs, Policies and Regulation

**Goal = Maximize Alberta's Global Competitiveness in Construction, Manufacturing and Services**

# Voluntary or Regulated?

## Spectrum of Effectiveness

Neither Extreme Works,  
Neither is Sustainable



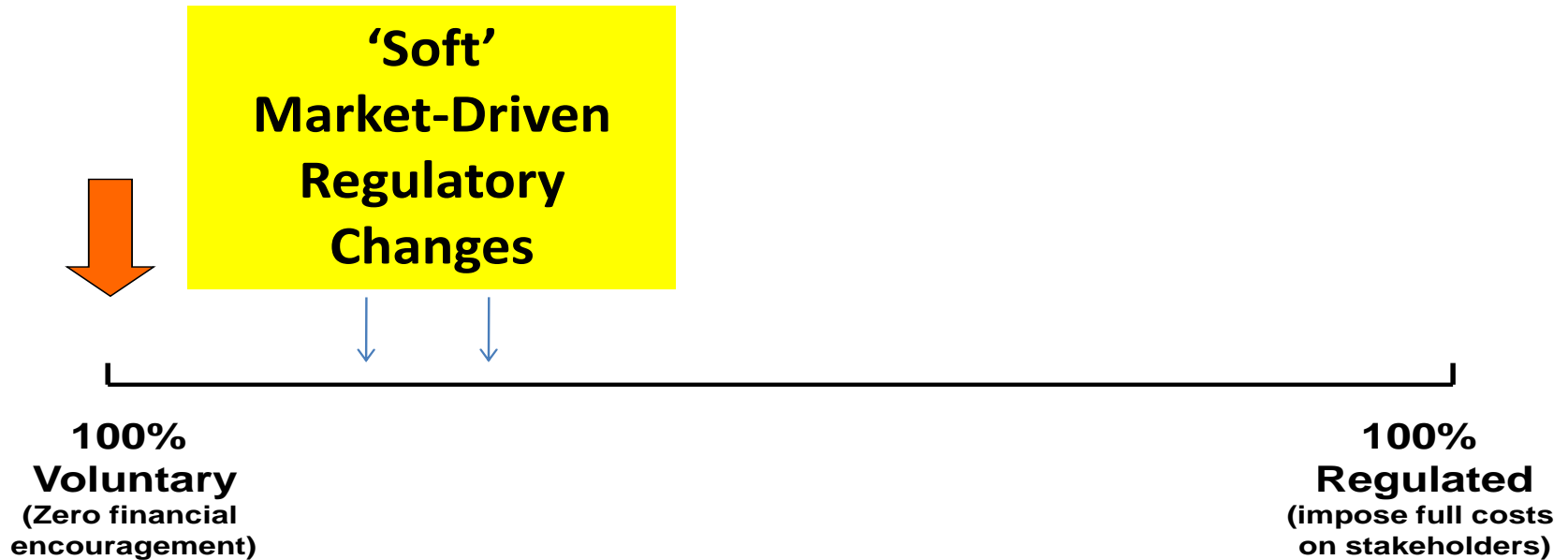
**100%  
Voluntary**  
(Zero financial  
encouragement)

**100%  
Regulated**  
(impose full costs  
on stakeholders)

# Lots of Scope for Market-Driven 'Soft' Regulatory Changes

## Voluntary or Regulated?

Spectrum of Effectiveness



# Recommendations

1. Readers of this report should read it along with our two previous reports, in order to gain the most value from the research provided to date. Each report is integrated with the other – notably this report and the 2012 GBT Strategy Report.
2. The Government of Alberta ('GoA') should take special note that the green building (GBT) sector in North America and globally has continued to grow over the past several years – despite severe economic constraints worldwide. The message here is that the private sector believes that green building is here to stay and will continue to grow strongly in the years ahead.
3. The GoA should not hesitate to take a lead-role in facilitating this process. Provincial policies in the past have tended to be hesitant with regard to 'soft' regulatory changes – perhaps reflecting a political philosophy of non-intervention in the private sector. The types of 'soft' regulatory policies outlined in this report are market-driven and non-interventionist in nature. Actions taken by government to facilitate the sector's growth are likely only to impact the timing of this growth – not its direction.



## Recommendations (2)

5.. The GoA should note the key role of emerging economies as markets for GBT growth in Alberta. In particular, it is recommended that an export trade mission to China (e.g. Tianjin) be considered for the year 2013.

Interested members of a trade mission to China could include GBT focused firms in lumber and building materials, homebuilding, the realty sector and GBT services firms.

The potential is for several firms within these sectors to ‘piggyback’ sales of GBT materials and services onto existing exports to China. Other East Asian markets also could be considered. But we recommend an initial focus on China because of the very strong and growing trade between the two jurisdictions - and substantial inbound investments from China.

6. Alberta’s main export market will remain the United States. We recommend continuation of the current geographical focus of GBT export sales efforts (as outlined in our previous reports). Namely, focus on the US West and Midwest.

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