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# CRITICAL ROLE OF ENERGY CONSERVATION IN ADDRESSING CLIMATE CHANGE

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Challenge what is. Imagine what could be.

Oxford Symposium on Population Migration & Environment

December 6, 2016

# POPULATION & IMMIGRATION IN CANADA



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Population 35.9 million

Immigration 321,000 last year (0.9%)  
including 30,000 Syrians

Land of Immigrants

Vertical Mosaic, not Melting Pot



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# PRESENTATION OUTLINE

- Importance of Energy Conservation
- Challenges
- Policies
- Role for Individuals
- Questions & Answers

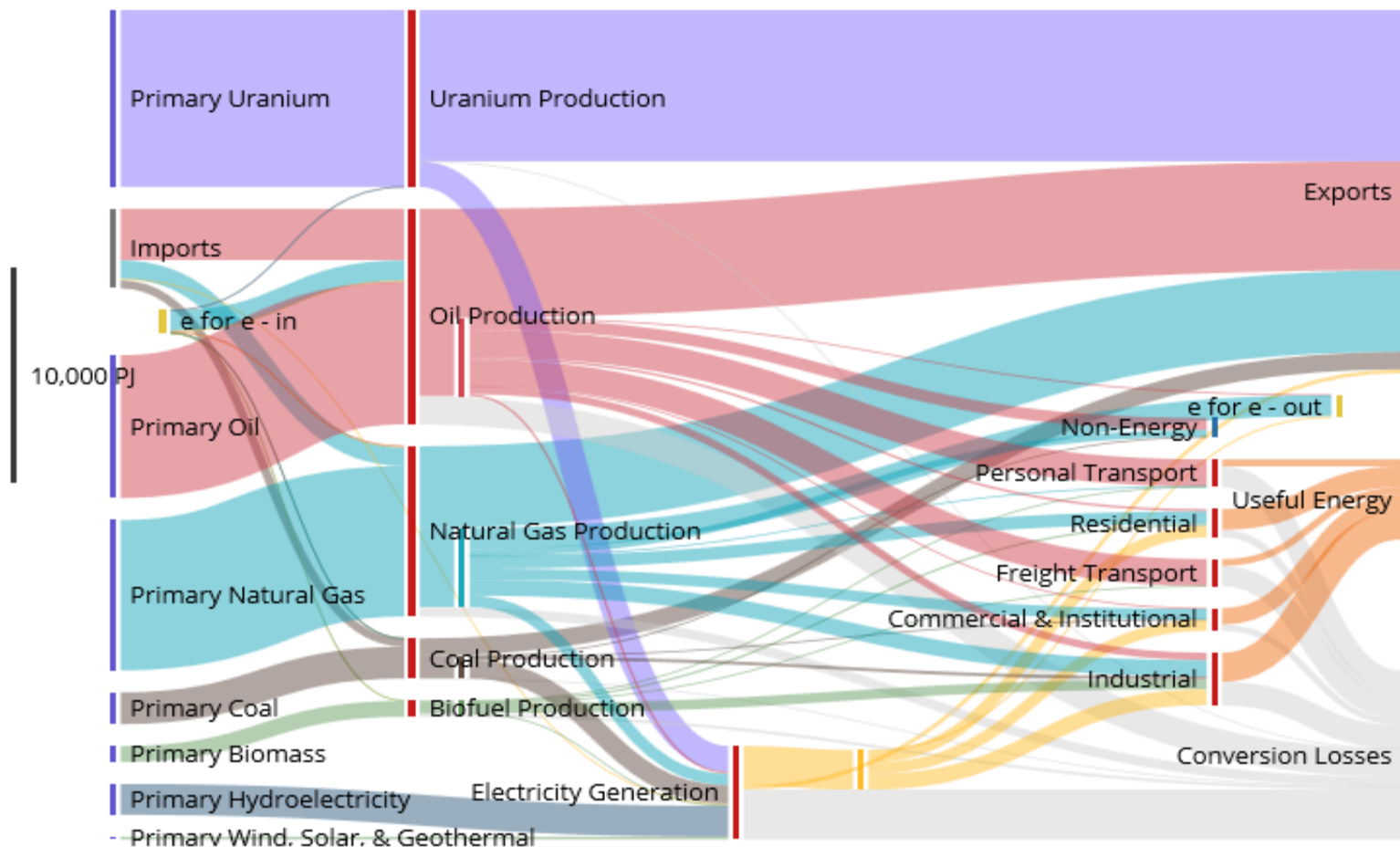
# 2/3 ENERGY WASTED!



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## Canada's Energy Systems in 2010



# WORLD POTENTIAL FOR ENERGY EFFICIENCY



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2/3 of economic potential remains untapped  
International Energy Agency Report



# UNBURNABLE CARBON

## Crossing Thresholds: From Fossil Fuel Divestment to Sustainable Investment

by Bill Baue, Cary Krosinsky, Mark McElroy

March 27, 2013

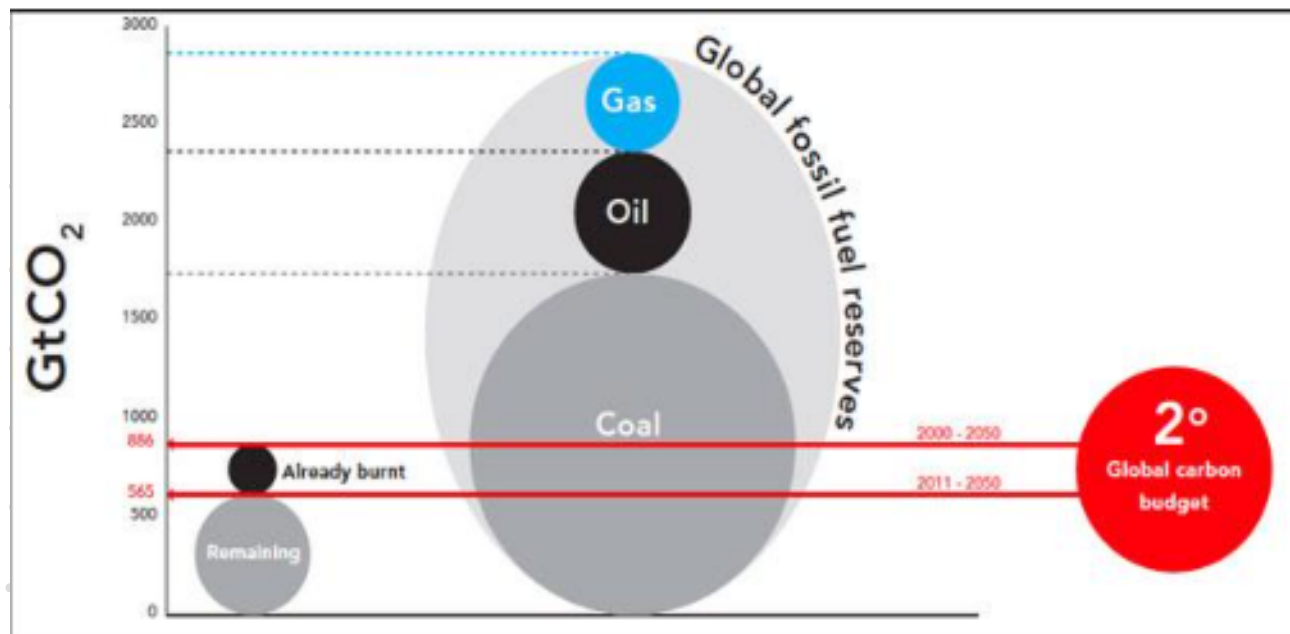


Image credit: Carbon Tracker Initiative "Unburnable Carbon" report



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# QUOTATION

“The Stone Age came to an end, not because we had a lack of stones, and the oil and gas age will come to an end not because we have a lack of oil”



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“The Stone Age came to an end, not because we had a lack of stones, and the oil and gas age will come to an end not because we have a lack of oil”

Former Saudi Arabian oil minister Ahmed Yaki Yamani  
June 2000



# CLIMATE CHANGE IN CANADA AND THE WORLD



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81% of Canada's man-made GHG from production and use of energy

76% for world (24% agriculture, forestry & other land use)

# BENEFITS OF CONSERVATION IN CANADA

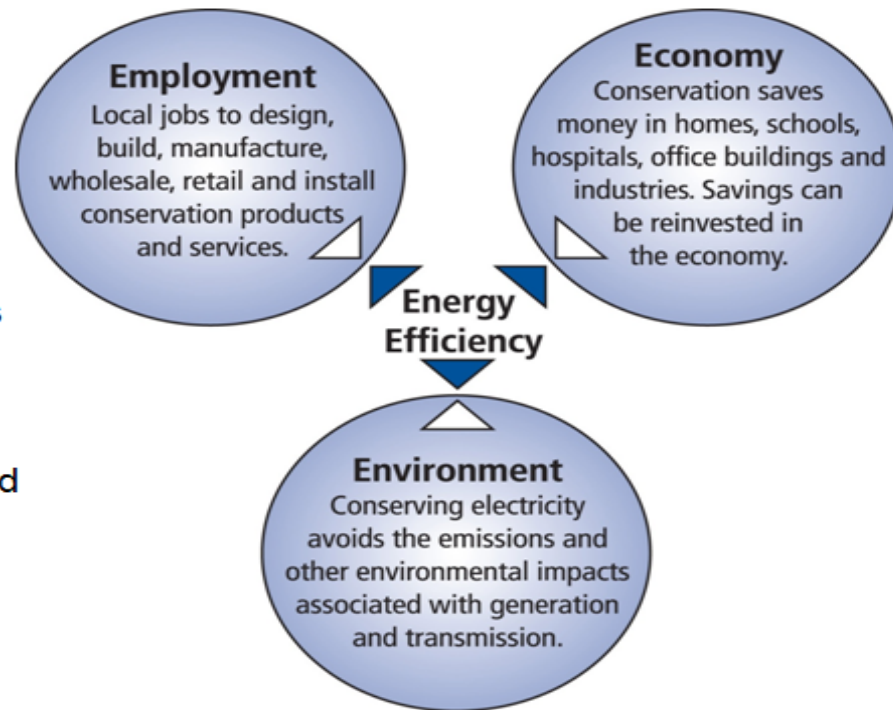


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## Benefits of Conservation

### The Three “Es”:

- **Employment** benefits: labour-intensive, local jobs
- **Economic** benefits: cost-effective for households and makes private sector more competitive
- **Environmental/health** benefits: reduced GHGs, acid rain, smog



1

**OPA**  
Ontario Power Authority

**YORK**  
UNIVERSITÉ  
UNIVERSITY

redefine THE POSSIBLE.

# 4<sup>TH</sup> BENEFIT OF CONSERVATION IN ENERGY IMPORTING COUNTRIES



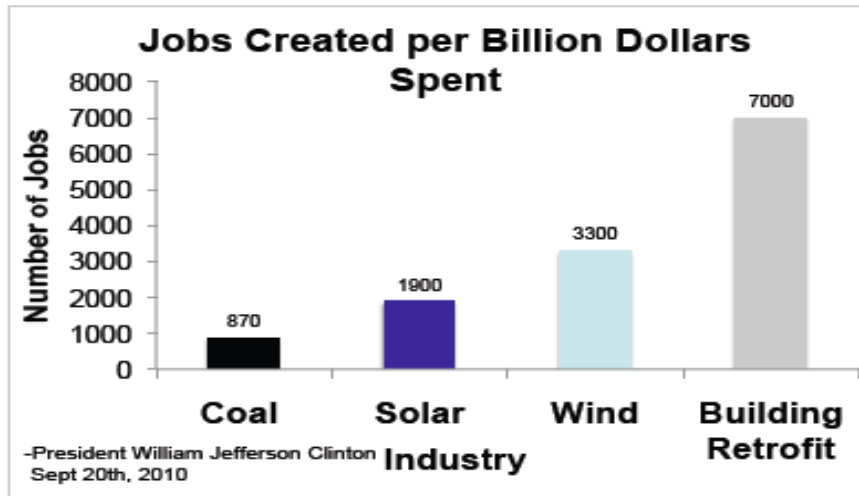
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Increased Energy Security  
Yuhong Zhao yesterday

Some in Europe refer to new supply/  
conservation in terms of “Russian Gas  
Pipeline Equivalents”



# EMPLOYMENT BENEFITS



## Empire State Building Retrofit:

- 8 month design phase, 60 ideas considered, 8 projects (financial and environmental ROI).
- 3.1 year payback
- Initial \$20 million, 38% energy reduction, \$4.4 million savings annually.
- Creation of hundreds of jobs

- [www.esbnyc.com](http://www.esbnyc.com)

# ECONOMIC BENEFITS

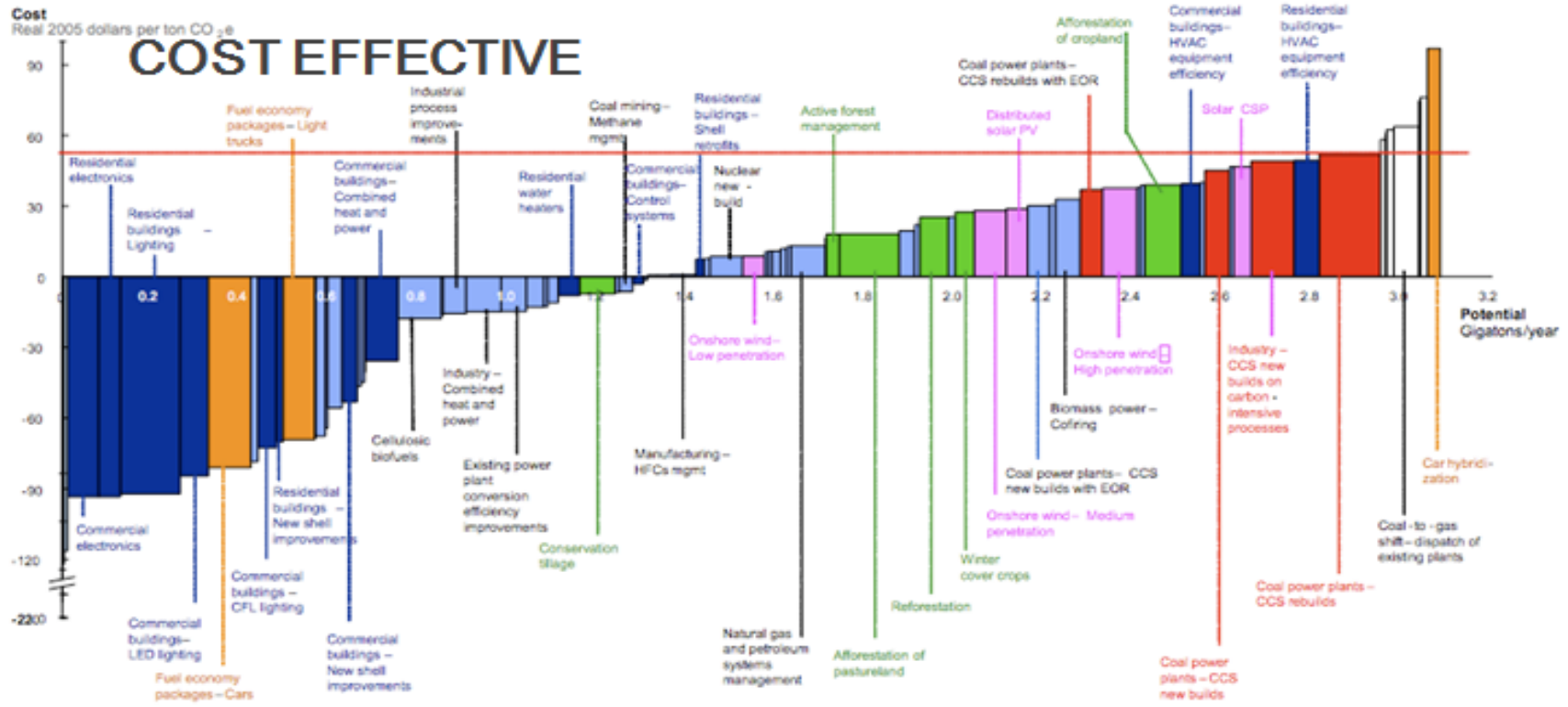


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## Example of GHG Abatement Cost Curve



U.S. curve indicates opportunity set in the U.S. is widely distributed (U.S. mid-range abatement curve – 2030)



SOURCE: McKinsey & Co. analysis



ENERGY SERVICES  
ASSOCIATION  
OF CANADA

PROMOTING  
PERFORMANCE  
BASED SOLUTIONS

# CHALLENGES OF CONSERVATION - HARD TO SEE



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# HARD TO MEASURE





# REQUIRED POLICIES

Set/report/improve targets

Price on Carbon (tax or cap & trade)

Mandatory Minimum Codes & Standards

Voluntary incentive programs (paid by rate payers)

Encourage private sector investment

Leadership by government (House in Order)

# CREATE CULTURE OF CONSERVATION





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# ROLE FOR INDIVIDUALS (1)

# THINK





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# ROLE FOR INDIVIDUALS (2)





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# ROLE FOR INDIVIDUALS (3)

# ACT



# CULTURE OF CONSERVATION



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We have changed our attitudes on...





# FINAL THOUGHTS

Women represent 70% “Green Champions” in OPA  
segmentation of electricity consumers

You must be the change you wish to see in the world  
Mahatma Gandhi

Never doubt that a small group of thoughtful, committed  
citizens can change the world; indeed, it is the only thing that  
ever has.

Margret Mead



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# DISCUSSION

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