

DESCENDING THE OIL PEAK: NAVIGATING THE TRANSITION FROM OIL



Portland Peak Oil Task Force Report

Presented by:

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Oregon Department of Energy

National Planning Conference

Las Vegas

April 30, 2008

When Will Oil Production Peak?

2005	Deffeyes	Oil Geologist, Princeton
2006-2007	Bakhtiari	Former VP, Iranian National Oil Co.
2007-2009	Simmons	Energy Investment Banker, Houston
Before 2010	Goodstein	Physicist, CalTech
2010	Campbell	Oil Geologist, Ireland
2010	Weng; Pang Xiongqi	Chinese National Oil Co.
2010 +/- 2	Skrebowski	Editor, "Petroleum Review"
After 2010	World Energy Council	
2010-2012	Intl. Energy Agency	(Supply, tightness; plateau)
2008-2018	Univ. of Uppsala	Sweden
Before 2015	ASPO-USA	U.S.
2016	Douglas-Westwood	Oil & Gas Market Analysis
After 2014	Wood MacKenzie	Energy/Scientific Consultant
2010-2020	Laherrere	Oil Geologist, France
After 2025	Shell Oil	Major Oil Company
After 2030	CERA	Energy Economics Consulting firm
2037	EIA	U.S. Govt.

0-5 yrs

5-10 yrs

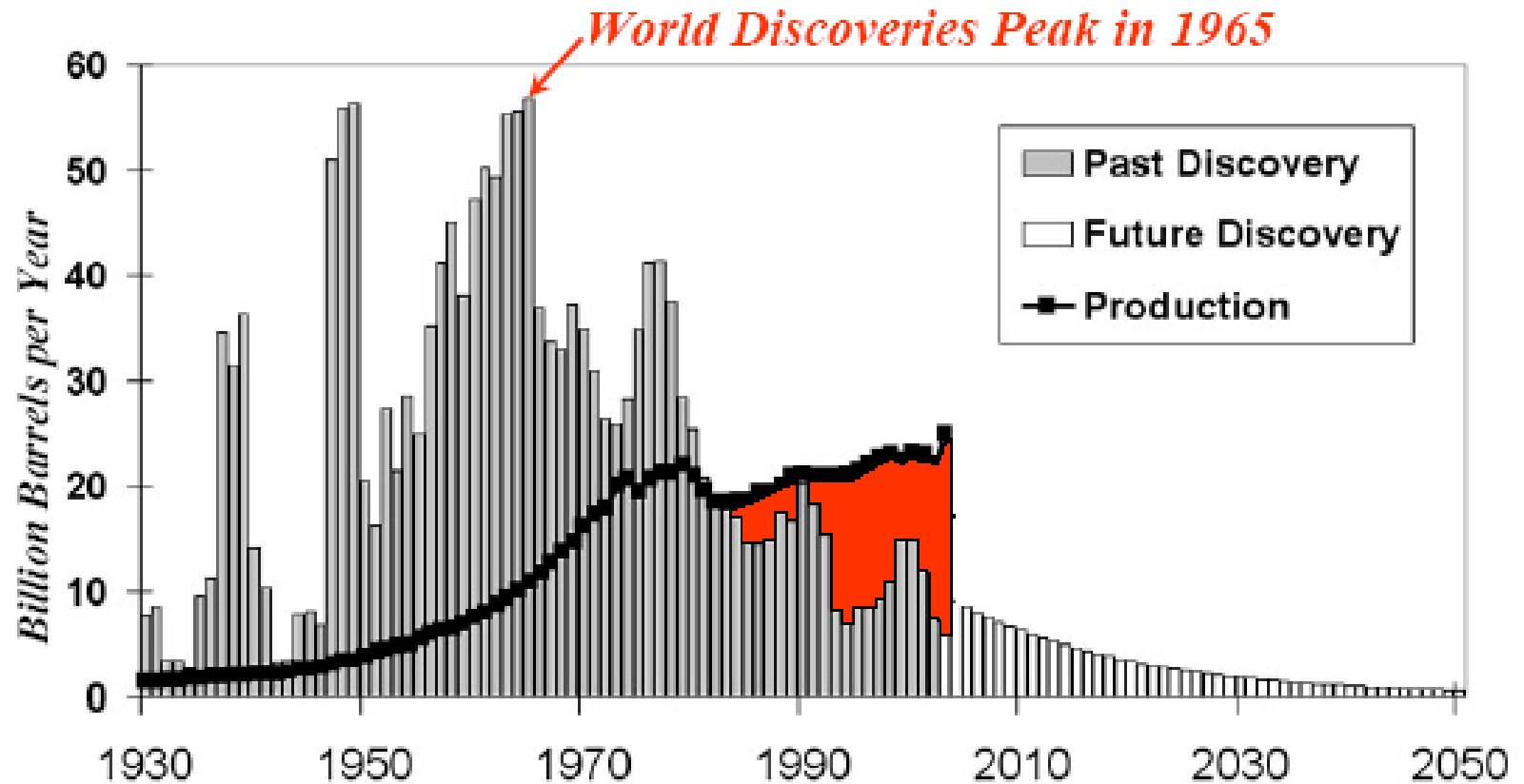
10+ yrs

Three Approaches to Estimate Remaining Oil

- Trend analysis: historical, statistical
- Geologic: field-by-field
- Economic: price-driven



Discoveries Peaked in 1965; Lag Production Since 1983



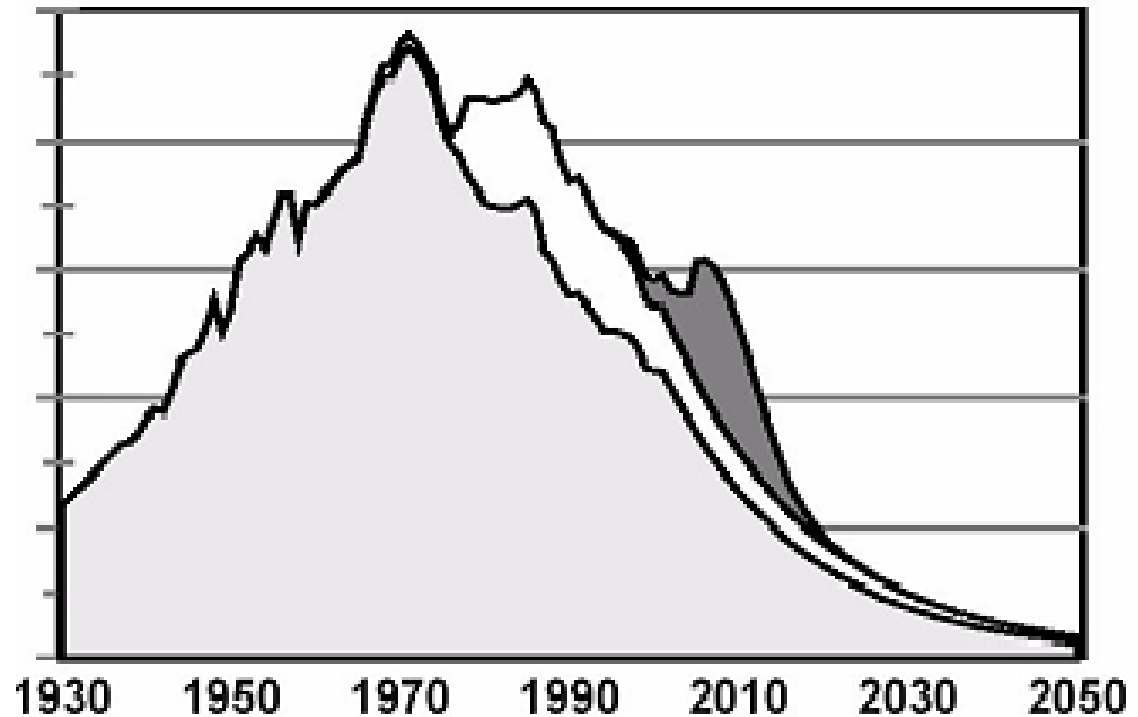
David Hughes, Geological Survey of Canada
From Campbell, 2004

US Peaked in 1970; 2/3 of Producing Nations Peaked

Also Peaked

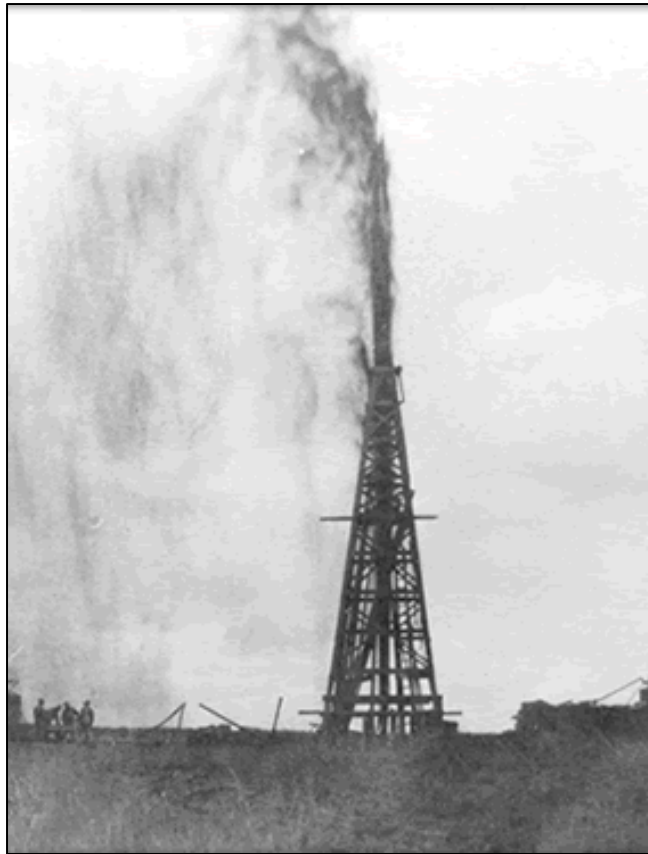
- North Sea
(UK, Norway)
- Mexico
- Canada
- Iran
- Venezuela
- Indonesia

- Nigeria?
- Russia?
- Saudi Arabia?

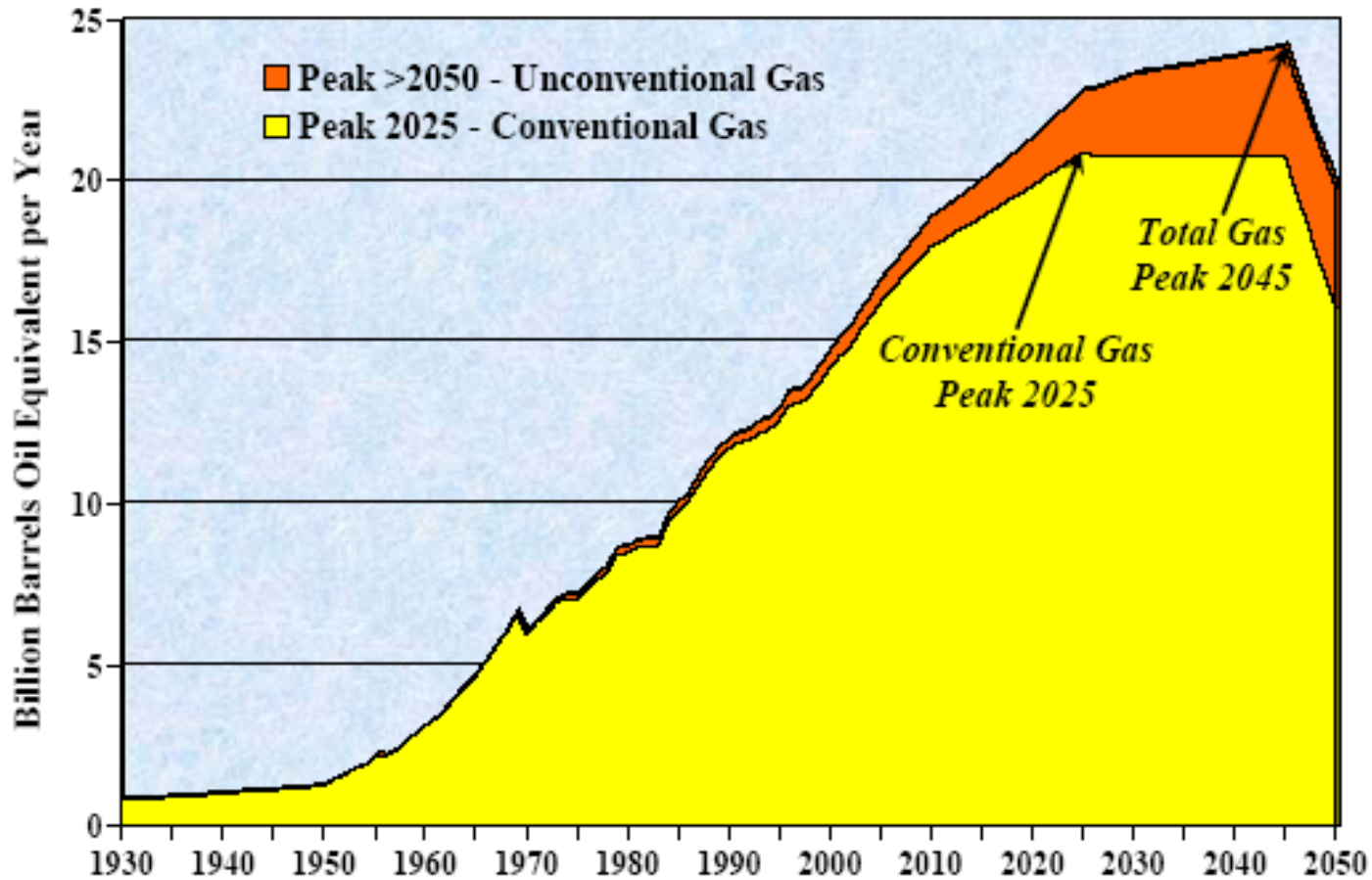


Association for the Study of Peak Oil (ASPO), 2002

New Finds Are Smaller, Harder to Produce



Natural Gas Also Nearing Peak Production



David Hughes, Geological Survey of Canada
Data from C.J. Campbell, 2005

No Magic Bullets



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- More drilling
- Advanced recovery
- Nuclear
- Coal
- Oil Sands
- Biofuels
- Renewables
- Hydrogen

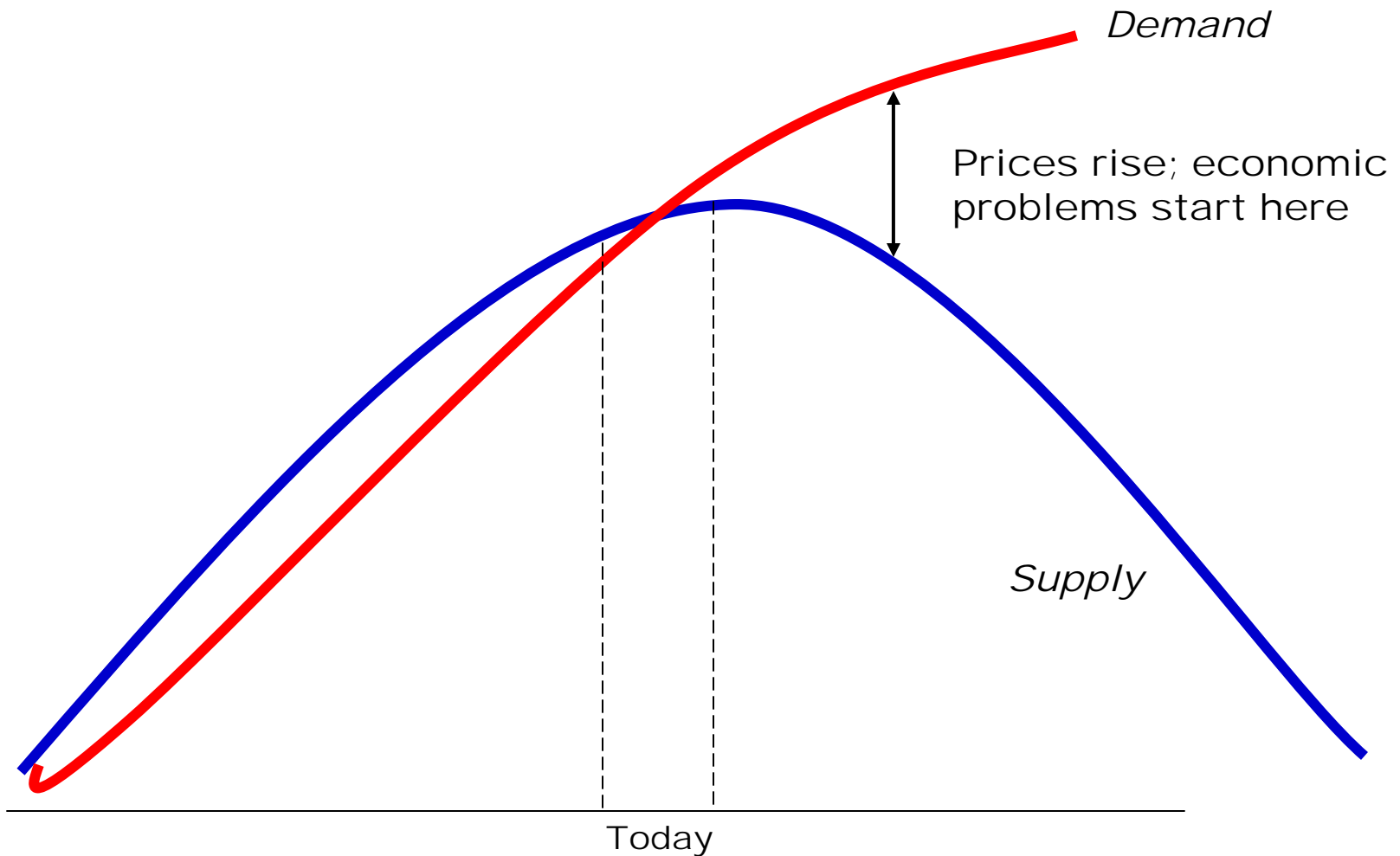
Why Oil Matters

- "Oil is unique in that it is so strategic in nature. We are not talking about **soapflakes** or **leisurewear** here. Energy is truly fundamental to the world's economy. The Gulf War was a reflection of that reality."

*Dick Cheney
Halliburton, 1999*



Long-Term Supply Leveling Off, Demand Outstrips Production



Portland Peak Oil Task Force

- Approved by City Council
- 12 members selected
 - Former director state Econ. Dev. Dept.
 - Former director state Land Use Dept.
 - Architect/planner
 - Energy analyst
 - Farmer
 - Businessman
 - Retired executive
 - Public health worker
 - Sociologist



Portland Travel Agency, www.travelportland.com

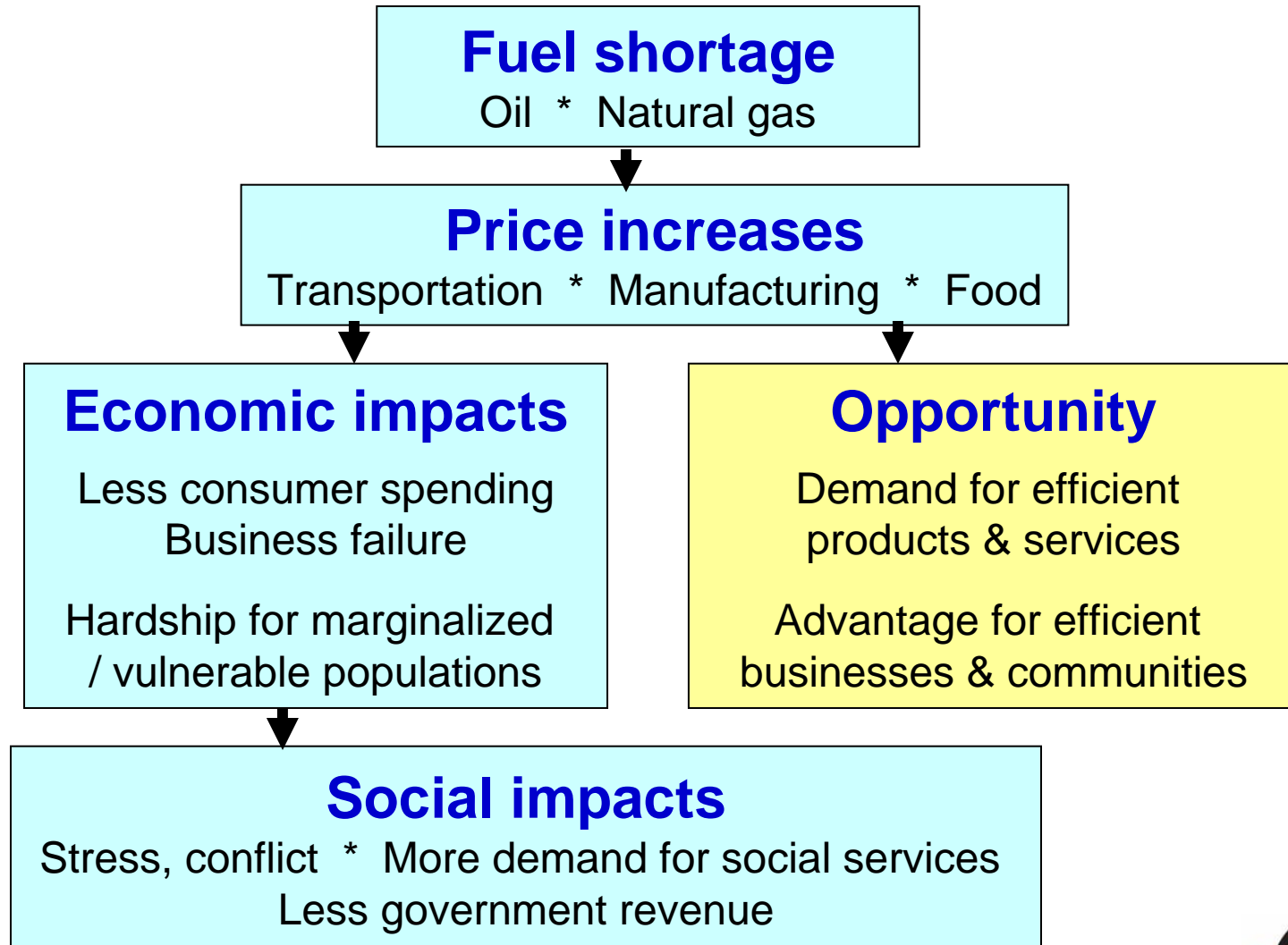
Ground Rules

- No debate about “if” or “when”
 - *Peak is inevitable*
 - *... probably sooner rather than later*
- No “magic bullet” supply alternatives
- Impacts first ...
then Recommendations



www.dreamstime.com

Impact Pathways



Energy Affects Everything

Four Subgroups

**Land Use /
Transportation**

Economy

**Public and
Social Services**

Food & Agriculture

Key Questions

Transportation & Land Use

- How will freight move?
- How will people get to work?
- How will land use be affected?
- How can land use help?



Washington State Dept. of Transportation, 2008
www.wsdot.wa.gov

Key Impacts

Transportation & Land Use

- Reduced automobility, demand for alt. transport
- People/businesses relocate
- Increased density, mixed use
- Freight costs up, shift mode
 - *Air, truck decline*
 - *More rail, boat*
- Road maintenance (asphalt) more costly



Pittsburgh Pist-Gazette, May 1, 2007

http://pistgazette.blogspot.com/2007_05_01_archive.html

Key Questions

Food & Agriculture

- Food availability, prices, nutrition?
- Food production, processing, transportation, distribution?



BBC News, "Moscow Shopping Loses Special Feel," Nov. 5, 2005
[www.news.bbc.co.uk/2/hi/programmes/
from_our_own_correspondent/4404646.stm](http://www.news.bbc.co.uk/2/hi/programmes/from_our_own_correspondent/4404646.stm)

Key Impacts Food & Agriculture

- Higher food prices
- Amount, variety of food decreases
- Nutrition, esp. for low-income
- Shifts in food retailing
- More household food production, preservation, preparation



Time Magazine, April 9, 1973

Key Questions

Economy – Business & Jobs

- How will production costs be affected?
- How will consumer demand be affected?
 - *Is product a necessity or discretionary?*
 - *Are there reasonable substitutes?*
- How will upstream suppliers be affected?

Key Impacts

Economy – Business & Jobs

- 1970s on steroids:
 - *Unemployment*
 - *Inflation*
 - *Recession*
- More persistent
- Not prone to conventional economic solutions



Key Impacts

Economy – Business & Jobs

- Higher production, distribution costs
- Supply chain problems
- Reduced demand
- ↓
- Tighter profit margins
- Reduced benefits
- Business failures
- Unemployment



Social Security Administration, Special Collections
<http://www.elderweb.com/home/node/9633>

Key Impacts

Economy – Traded Sector

- High-tech
- Nursery products
- Apparel manufacturers
- Special metal products
- Transportation equipment
- Construction
- Service, retail, health care



Oregon Association of Nurseries, www.oan.org

Key Questions

Public & Social Services

- How will demand for services be affected?
- How will ability to provide services be affected?
 - *Health care*
 - *Public health*
 - *Education*
 - *Housing assistance*
 - *Food assistance*
 - *Police/fire*
 - *Water*
 - *Wastewater*
 - *Municipal solid waste*
 - *Electricity*

Key Impacts

Public & Social Services

- Vulnerable & marginalized populations ... hit first and hardest
- Stretches already stressed systems
- Demand for services up, revenues down
- Fractured community networks

Key Impacts

Public & Social Services

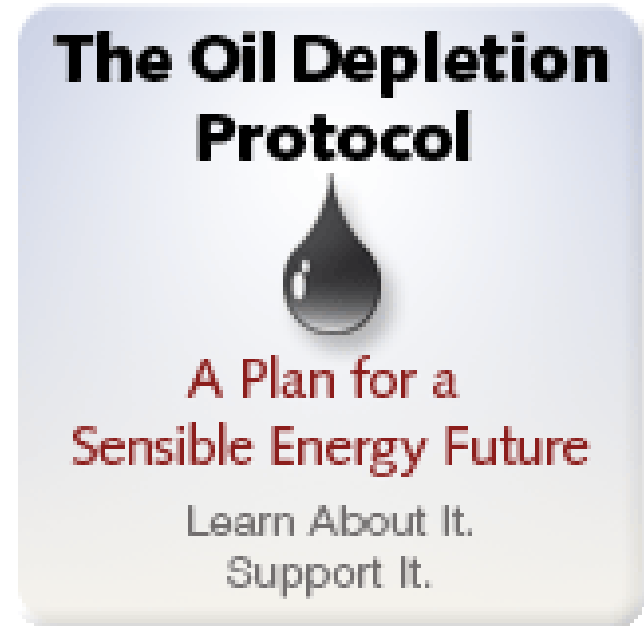
- Reduced health coverage
 - *Less preventive, more emergency care*
 - *Public health concerns*
- Housing, homelessness
- Heating
- Electric supply
- Substance abuse, domestic violence, property crimes



www.dreamstime.com

#1: Reduce Oil and Gas Use 50% in 25 years

- Consistent with Oil Depletion Protocol
- Assess progress
- Start NOW



www.richardheinberg.com

#2: Inform Citizens

- Build awareness
- Unite people around a vision
- Mobilize creativity
- Integrate message with other efforts



SolWest Renewable Energy Fair, www.solwest.org

#3: Engage Civic Leadership

- Educate decision makers and opinion leaders
- Spur government and corporate planning and preparation



City of Portland, www.portlandonline.com

#4: Land Use Patterns

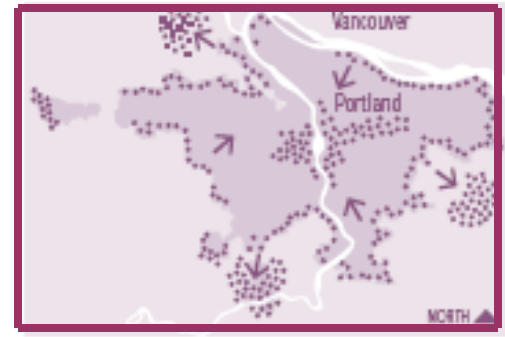
Concept A
Growing out



Concept B
Growing up



Concept C
Neighboring cities



- Reduce transportation needs
- Promote walkability
- Provide easy access to services and transportation options

#5: Smart Infrastructure Investments

- Provide transportation options
 - *Electric trolley*
 - *Light rail*
- Facilitate movement of freight
- Prevent stranded infrastructure investments



Portland Travel Agency, www.travelportland.com

#6: Encourage Efficient & Renewable Transport Choices

- Get people out of their cars
- Ensure that alternatives are safe, convenient
 - *Walk*
 - *Bicycle*
 - *Ride share*
 - *Mass transit*



www.bikeportland.org



www.bikeportland.org



Fuel Efficient Vehicles Now,
www.fev-now.com

#7: Expand Energy Efficiency Programs

- (Dramatically) ramp up existing programs
- More and faster
- New & existing buildings
- Residential & commercial



Sustainable Business Network of Portland
www.sbnportland.org

#8: Preserve Local Food Production Capability

- Preserve nearby agricultural land
- Support local food processing industry



USDA, Natural Resources Conservation Service
www.nrcs.usda.gov/programs/commplanning

#8: Preserve Local Food Production Capability

- Urban gardens
- Enable CSA's
- Educate citizens re: food growing, preserving, nutrition



www.oregonfarmersmarket.org

#9: Promote Sustainable Business Opportunities

- Promote EE-RE businesses
- Help businesses assess impacts of peak oil
- Identify import substitution opportunities
- Workforce re-training



Andrew Zahn, www.poex.org

#10: Preserve Safety Net, Protect Vulnerable Populations

- Health care
- Public health
- Hunger relief
- Shelter options
- Community



www.oregon.gov



www.ers.usda.gov/amberwaves

#11: Emergency Planning

- Fuel allocation
- Food
- Transportation



Armed Forces International

www.armedforces-intcom/categories/emergency-planning-and-management

Visit Oregon (... while there's still oil)

