Economic and Societal Impacts of Peak Oil

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Portland Peak Oil Task Force

- Produced report in 2007
- Task Force process
- 3 scenarios
- Community vulnerability assessment
- Recommendations are reasonable and doable

http://www.portlandonline.com/shared/cfm/image.cfm?id=145732
3 Scenarios

- Differ by speed and severity of impacts
  1. Long-term: US oil use by 50% over 20 years after peak, population↑, alternatives insufficient
  2. Oil shocks: sudden price spikes or supply cutoffs
  3. Disintegration: Societal collapse
- Not mutually exclusive

4 Major Sectors

- Transportation and land use
- Food and agriculture
- Business, economy, and jobs
- Public and Social Services
Transportation: Greatest and Most Immediate Impact

• Modify use of private vehicles (POVs)
  – use of carpools, car sharing
  – Take fewer, shorter trips
  – use of efficient vehicles, i.e. hybrids
    • Limits to use of electric vehicles

• People move away from POVs
  – use of bicycling, walking
  – use of public transportation
    • Stressing existing infrastructure
    • Demanding new public transp infrastructure

Use of Public Transportation

• cost of building new infrastructure
• cost of operating new infrastructure
• Longer you wait, higher the cost
Changes in Location

- People and businesses will relocate to be closer to each other and to transportation options
- Population will likely shift to city centers
- Density and mixed-use development will increase
- Uncertain how quickly this will happen
- Winners and losers

Changes in freight movement

- From truck and air → rail and ship
- 66% freight energy used for truck transport; 23% for air; rail and ship far more efficient
- Railroads operating close to capacity now
- Rail and ship are slower than truck and air
  - Affects warehousing and production
  - Just-in-time inventory and delivery
- Need for new intermodal connections
- ↓ amount of freight moved in future
- Ripple effects throughout economy
Changes in passenger travel

- Air travel likely ↓
  - 50% of cost of air travel is fuel
  - Business impacts
  - Social impacts
- Road maintenance increasingly difficult
  - ↓ in revenue from gas tax
  - Reliance on asphalt

Food & Agriculture

- 60% of food moved by truck
- Amount and variety of food will ↓
- Cost will ↑
- Food security will ↓
- Dr. Lawrence will talk more about food
**Economy & Jobs: Direct Effects**

- Probably all businesses hurt to some degree
  - Transportation costs $\uparrow$
  - Energy costs $\uparrow$
  - Cost of raw materials and feedstocks $\uparrow$
  - Difficulty getting workers to businesses $\uparrow$
  - ? need to relocate
- Some businesses hurt worse than others
- New opportunities for businesses

**Economy and Jobs: Indirect Effects**

- Upstream
  - Suppliers of raw materials or semi-processed goods have trouble
- Downstream
  - $\downarrow$ consumer demand for goods and services
    - Luxuries
    - Easily substitutable
    - Accessibility--location
- Harder to measure
- Harder to determine and plan for
Unemployment

• ↑ in the short term
• Unknown how long this is apt to last
• Over time, new jobs may be created in renewable energy, goods and services that ↑ energy efficiency, food production
• May be ↓ shift in salaries and size of middle class

Jobs

• No longer economical to travel long distances to get to lower-paying jobs
• Non-profit and public service sectors likely to contract due to ↓ revenues, trouble getting employees to work
• Social unrest
Public and Social Services

• Already stretched
• More people needing services
  – Lower income and marginalized populations hit hardest and earliest
  • Household expenses shift from food to fuel, but both ↑
  • Can’t afford to get to jobs
    – Even public transportation may be out of reach
  • May have useful strengths and skills
  – Less health care coverage
• So challenged by trying to meet current demand that planning for future doesn’t happen

Public and Social Services

• ↑ costs of providing services
  – Transportation significant part of service model
    • Police
    • Fire and rescue
    • Public health and health care
    • Garbage collection
    • Mail delivery
  – ↑ costs of maintenance
    • Schools
    • Electricity production (demand ↑ or ↓?)
Public and Social Services

- Decreased revenue
  - \(\downarrow\) tax base
  - \(\downarrow\) donations and private sector support
- Increasing demand, decreasing ability to provide services

Risk Factors for Societal Collapse

- Perceived lack of leadership
- Perceived lack of transparency
- Lack of community spirit and cohesion
## Portland Recommendations: “Act Big, Act Now”

- **Dramatic reduction in fuel use:**
  - 50% by 2030
- **Anticipate changes in lifestyle**
  - Build public transportation infrastructure now
  - Localize food production
  - Localize goods and services production
  - Rational land use planning
- **Strengthen community cohesion**
  - Citizen participation: inform and mobilize
Portland Recommendations

• Demand reductions
• Consider economic and social benefits of action
• Protect vulnerable and marginalized populations
• Make sure actions reduce carbon emissions

UK Industry Task Force on Peak Oil & Energy Security

• Begins with foreword by Lord Ron Oxburgh, former Chairman, Shell
• Written late 2008
• 3 scenarios for oil supplies
• Could be different scenarios for different countries
  – Geopolitical considerations
  – Exporters choose not to export
• Risks apply to natural gas as well as oil

http://peakoiltaskforce.net/
UK Task Force: 3 Scenarios of Oil Supplies

- “Plateau”—Production flattens ~2015, remains into 2020’s propped up by unconventional oil
- “Descent”—global production falls steadily
- “Collapse”—Steepened descent as older giant oil fields collapse

Summary of Economic and Social Impacts of Peak Oil

- All of the scenarios suggest significant changes and disruptions to all aspects of society
- Community and regional vulnerability assessments are useful
- Planning and bold action now can help to reduce negative outcomes
- Planning must be broad-based and comprehensive
- Peak oil planning must be in the context of climate change and economic realities