

Restructuring the Economy

Transforming manufacturing to
create a green, sustainable model

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Systemic problems...

- A manufacturing base, which is the foundation of a wealthy economy and a middle class, is disappearing
- Income inequality is leading to a plutocracy of billionaires who control the political system
- Global warming
- The end of cheap fossil fuels (e.g., peak oil)
- Ecosystem destruction (Desert Earth)

...Require systemic solutions

- We need an interlocking set of large-scale solutions to our civilization-threatening problems
- We need to set up a clear vision of what a sustainable, just society would look like.
- We need to go on the offensive
- We need a concrete platform for elections
- Solutions should be government-based
- Cost should be in trillions, over 10 to 20 years

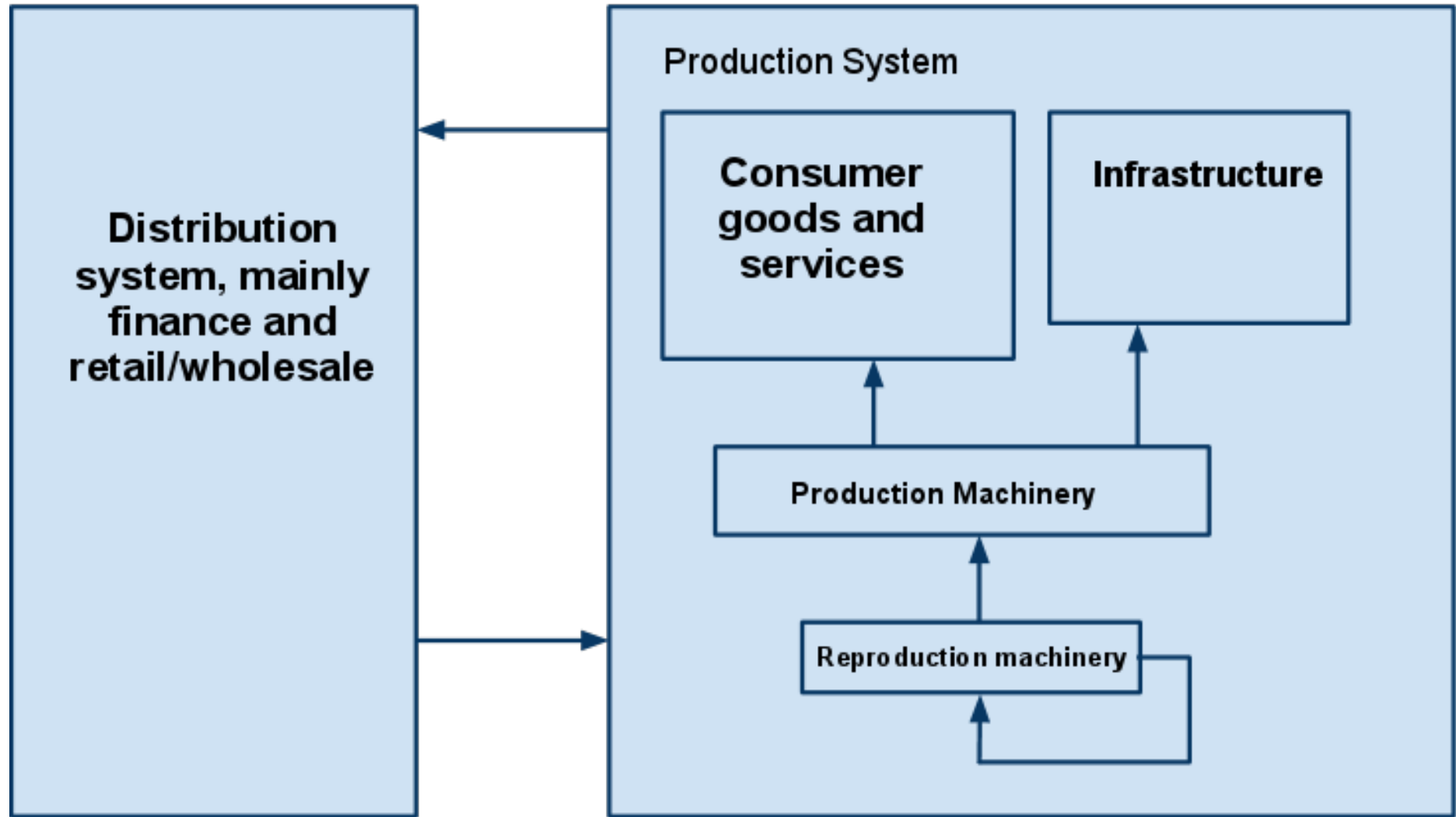
What are the goals?

- Eliminate unemployment and poverty or, guarantee everyone a good job
- Indefinitely sustainable economic growth for the entire population
- Environmentally sustainable – over eons
 - Carbon-free
 - Pollution and garbage free
 - Without using up natural capital
- Economic and political democracy

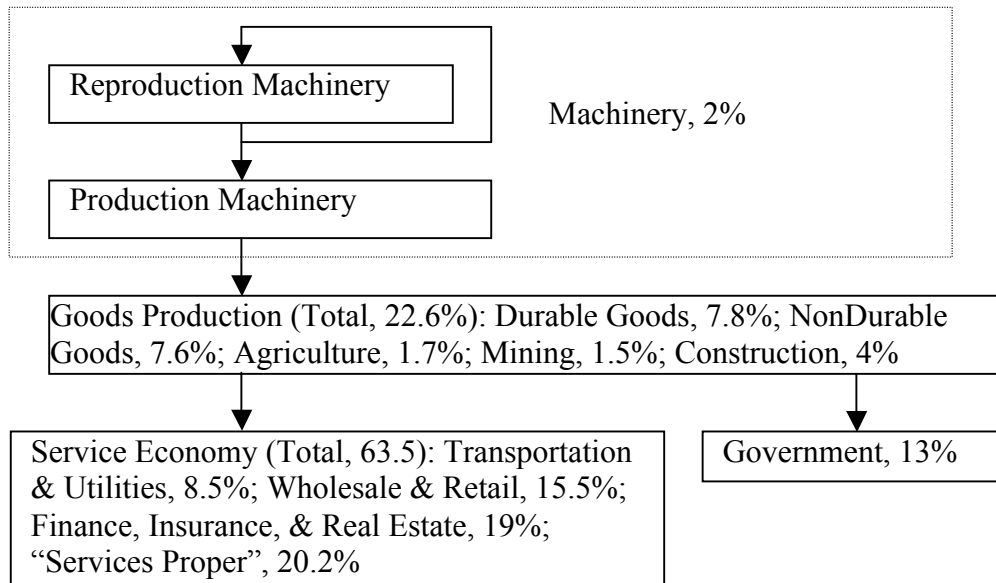
How does the economy work?

- The economy is a system – an ecosystem
- An economy has many functional parts
- Each part is critical
- Each part needs to be physically close
- If we look at the economy as a system of production, manufacturing is at the center, as plants are at the center of an ecosystem
- Retail and finance distribute that which production system creates

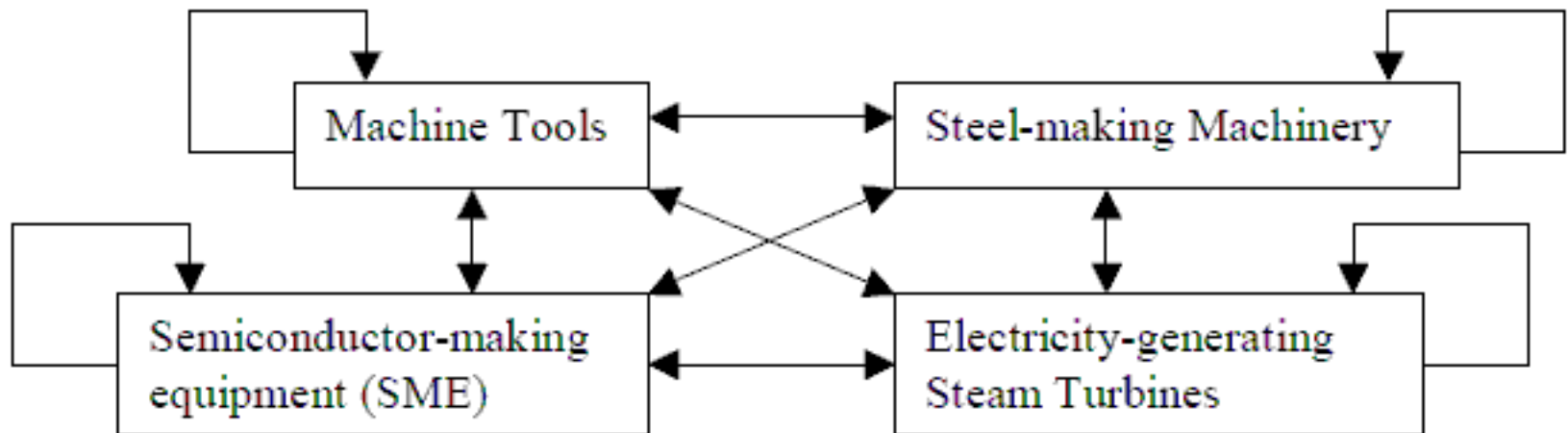
Economy as a production and distribution system



The production system



Reproduction machinery is the source of economic growth



Services are what you do with manufactured goods

Service	GDP	% of GDP	Trade Balance (billions)
Wholesale and Retail	1,415,845	12.87%	N/A
Transportation Services	319,284	2.90%	-18
TV, Radio, & Publishing	169,357	1.54%	0
Movies and Music	41,195	0.37%	10
Telecommunications	200,879	1.83%	0.8
Legal	160,587	1.46%	2.5
Accounting	69,450	0.63%	0
Engineering Services	106,458	0.97%	1.9
Software, Computer Services	208,958	1.90%	5.9
Management Services	267,927	2.43%	0.5
Scientific R&D	51,422	0.47%	4
Advertising	57,435	0.52%	-0.4
Other Professional Services	94,736	0.86%	N/A
Health Care	89,342	6.26%	2.1
Educational Services	94,511	0.86%	11
Arts, Entertainment, & Recreation	106,597	0.97%	-0.05
Hotels and Restaurants	383,057	3.48%	8
Employment Services	84,491	0.77%	N/A
Building Services (e.g., Janitors)	38,725	0.35%	N/A
Business Support (Call Centers)	107,412	0.98%	N/A
Travel, Security, Other	54,276	0.49%	N/A
Administrative services			
Repair and Maintenance	106,389	0.97%	4.3
Personal and Laundry Services	57,474	0.52%	N/A
Organizations & Social Assistance	166,527	1.51%	N/A
Finance	626,886	5.70%	13
Insurance	256,010	2.33%	-21
Real Estate and Leasing	1,367,399	12.43%	5.4
Trade in other services, not elsewhere categorized	0	0	7
Nonsoftware Royalties	0	0	24
Total Services	7,302,630	66.36%	61

A wealthy country can't trade services for goods

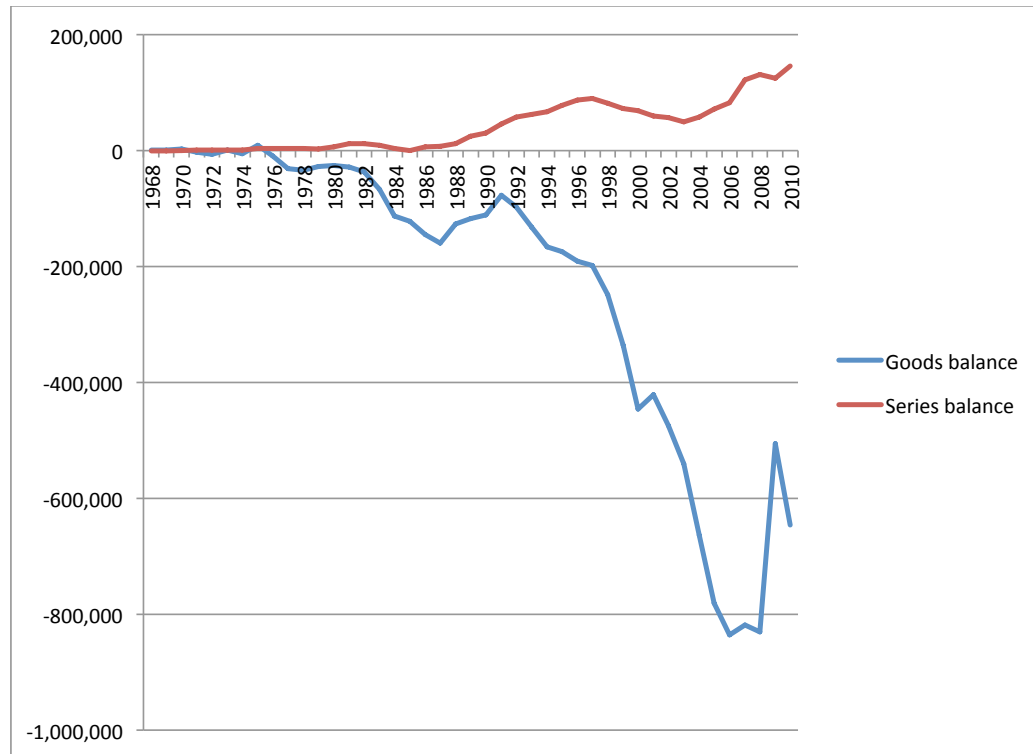


Figure 3. Trade Balance of the United States, Goods in blue, Services in Red, 1968 to 2010, in millions of dollars. Source: U. S. Department of Commerce, Bureau of Economic Analysis, see

Manufacturing anchors the middle class

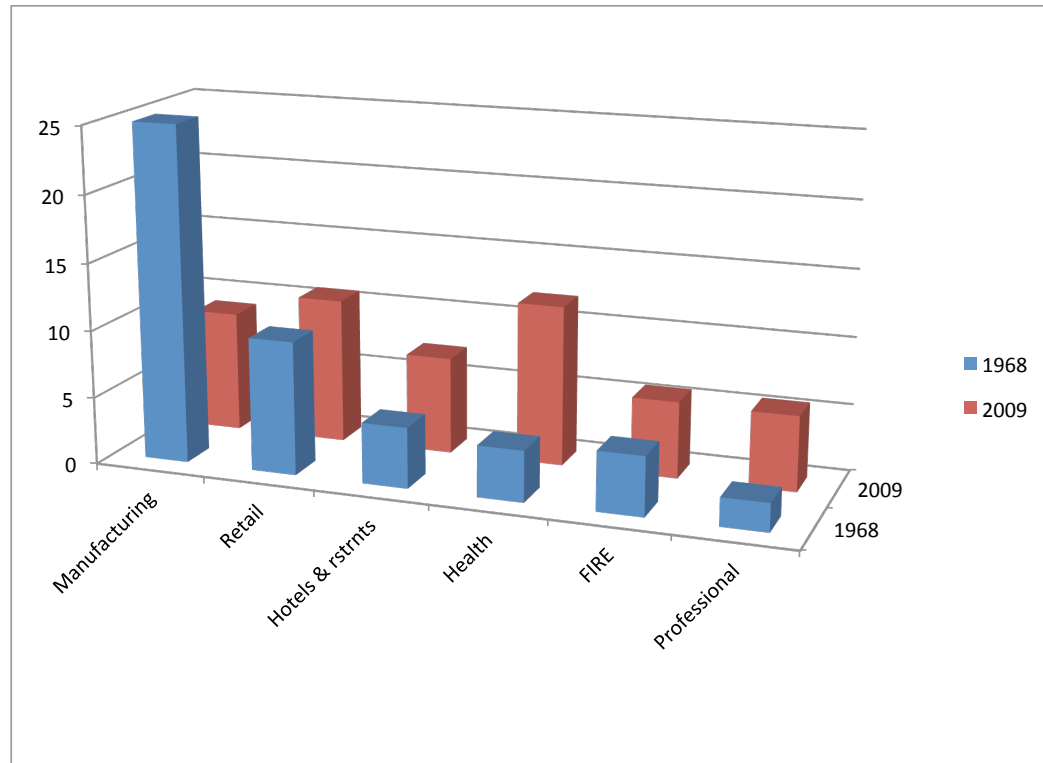


Figure 6. Change in employment for selected sectors, as a percentage of the work force, from 1968 (blue) to 2009 (red). Note the shrinkage in manufacturing and rise in low-paying services.

Manufacturing should anchor the GDP, not Finance

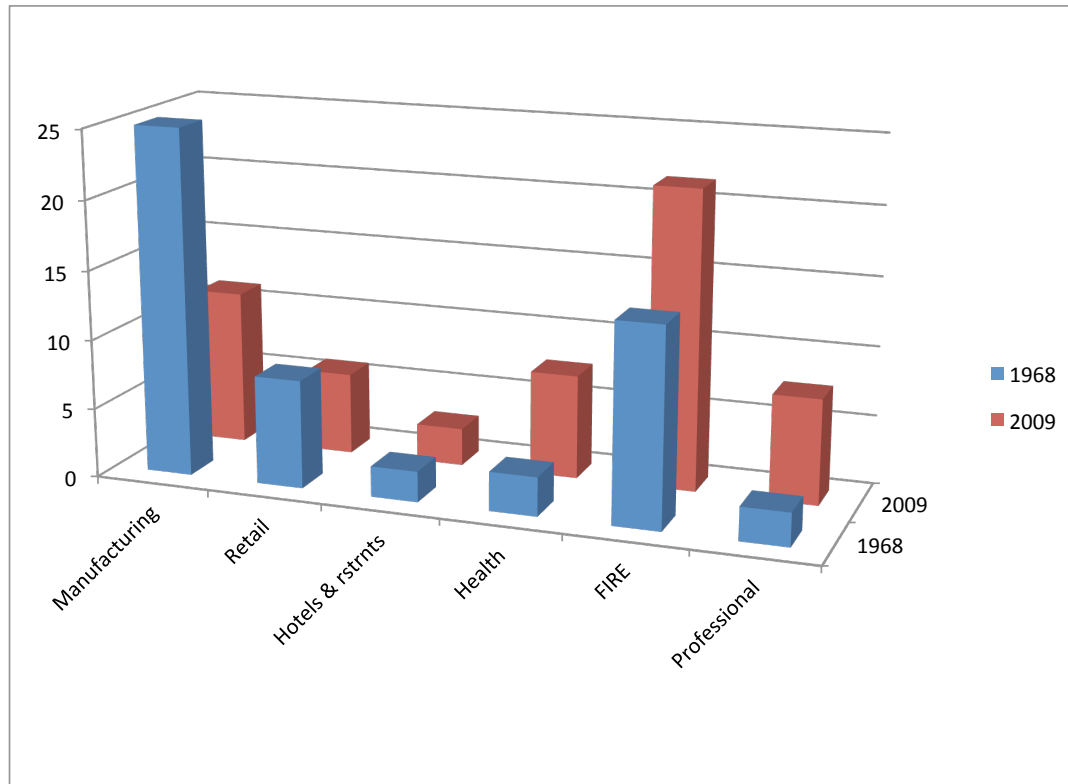


Figure 7. Change in Gross Domestic Product (GDP) for selected sectors, as a percentage of the GDP, from 1968 (blue) to 2009 (red). Note the decline in manufacturing and the increase in low-employment, high-paying services. Source: Department of Commerce, Bureau of Economic

Manufacturing middle class, finance upper class

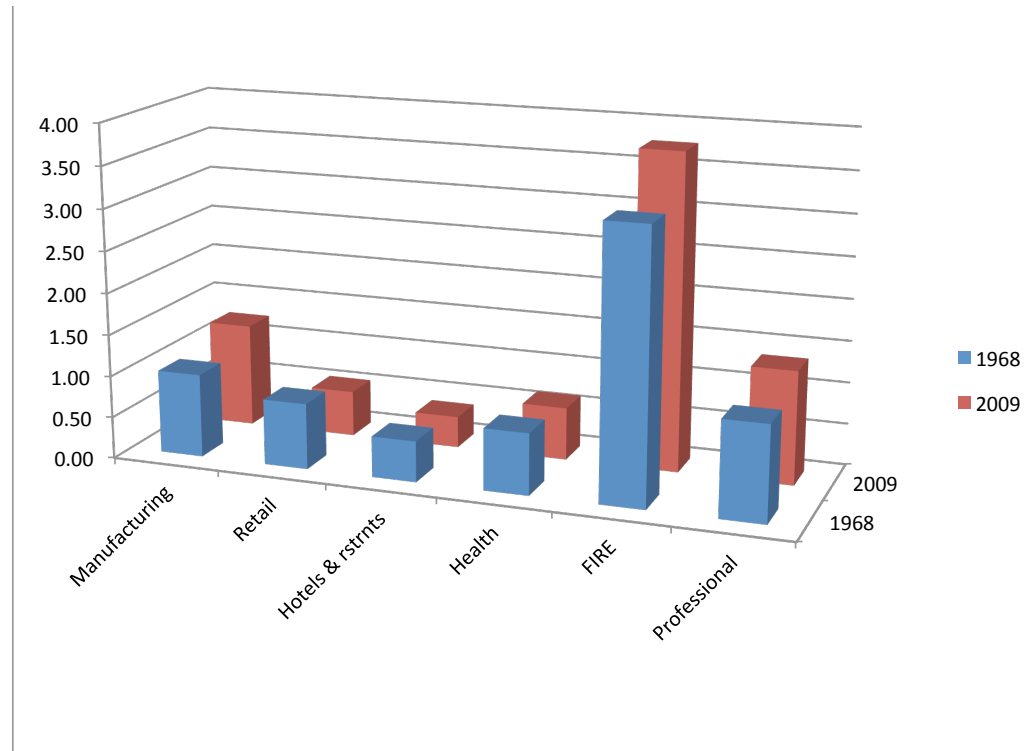
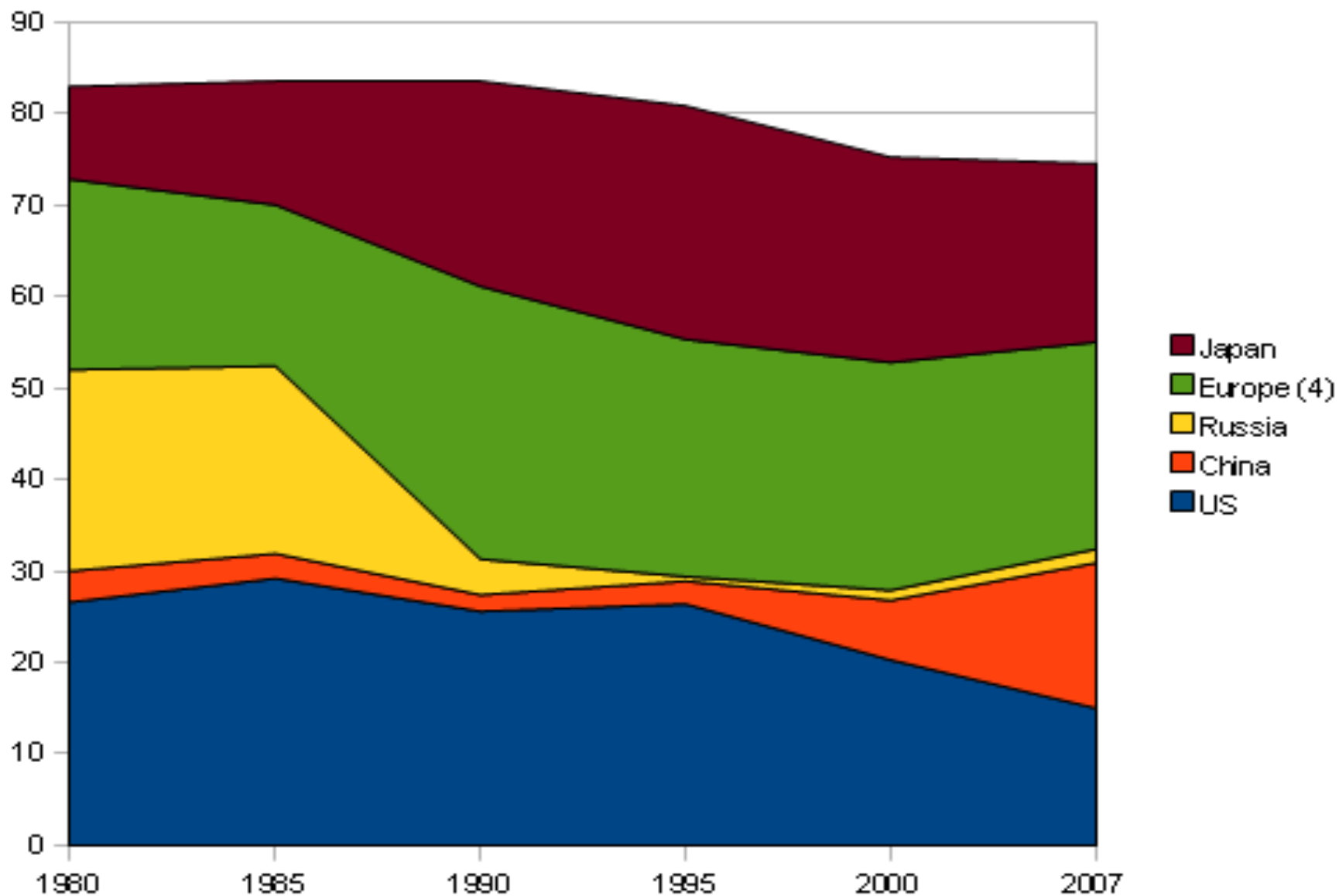


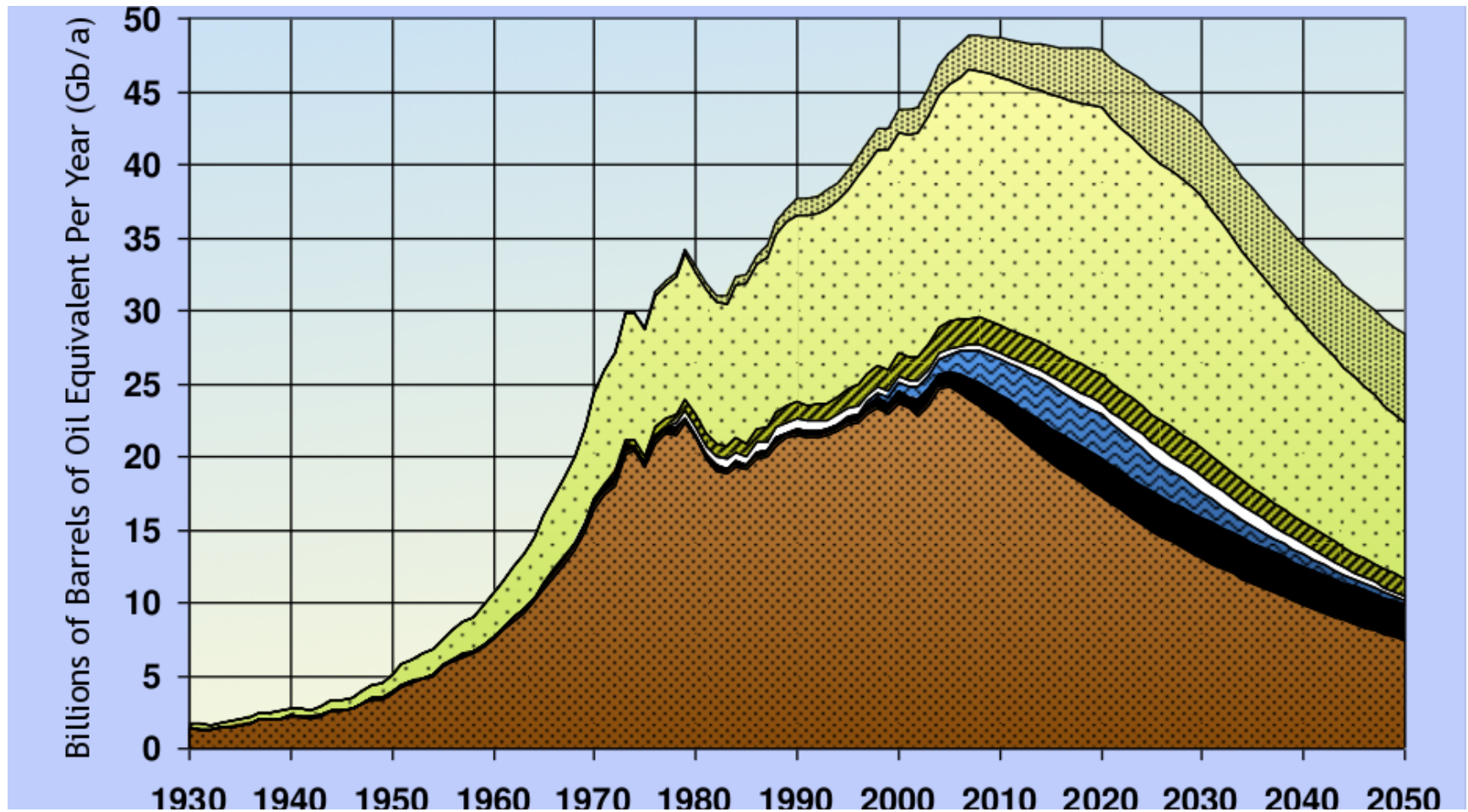
Figure 8. Change in ratio of Gross Domestic Product (GDP) to employment percentage for selected sectors, from 1968 (blue) to 2009 (red). Because of their high ratio, since finance, insurance and real estate grew in GDP, they didn't add very much in employment, squeezing the rest of the workforce. Source: Department of Commerce, Bureau of Economic Analysis, see note

The wealthiest economies have the biggest production machinery sectors

Industrial Machinery, 1980-2007



Peak Oil hurting economy



Other eco-problems hurting the economy

- Global warming causing droughts, etc.
- Agriculture destroying soil, polluting water
- Natural gas fracking threatening water
- Oil polluting oceans, threatens fresh water
- Coal major pollution problem
- Shortages in other materials like phosphorus

How to restore the economy?

- As manufacturing goes, so goes the economy
- Middle class is dependent on manufacturing
- Government revenues dependent also
- Manufacturing needs stable demand
- Needs more than trade protection
- Need to stop using fossil fuels
- Need sustainable agriculture
- Need to keep ecosystems intact

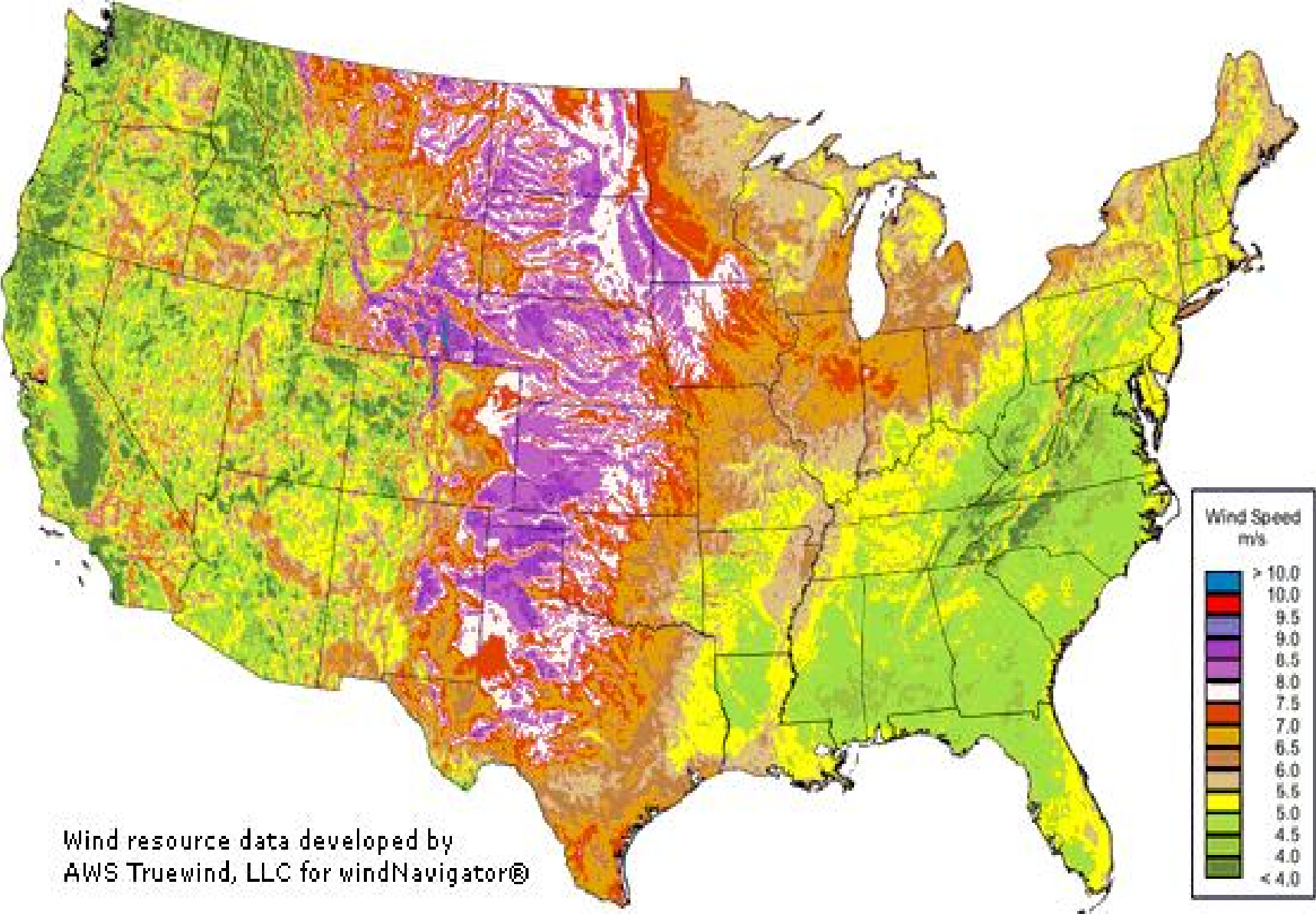
Need to solve ecological and economic problems together

- Market can't solve long-term, systemic problems
- Only government can design and finance
- Government can guarantee 20 year program
- Government can require domestic content
- Even WTO says “general infrastructure” is OK to subsidize and require domestic content
- By rebuilding the infrastructure, can rebuild manufacturing; by rebuilding manufacturing, can rebuild economy

Green Transformation: Rebuild the infrastructure and manufacturing over 20 years

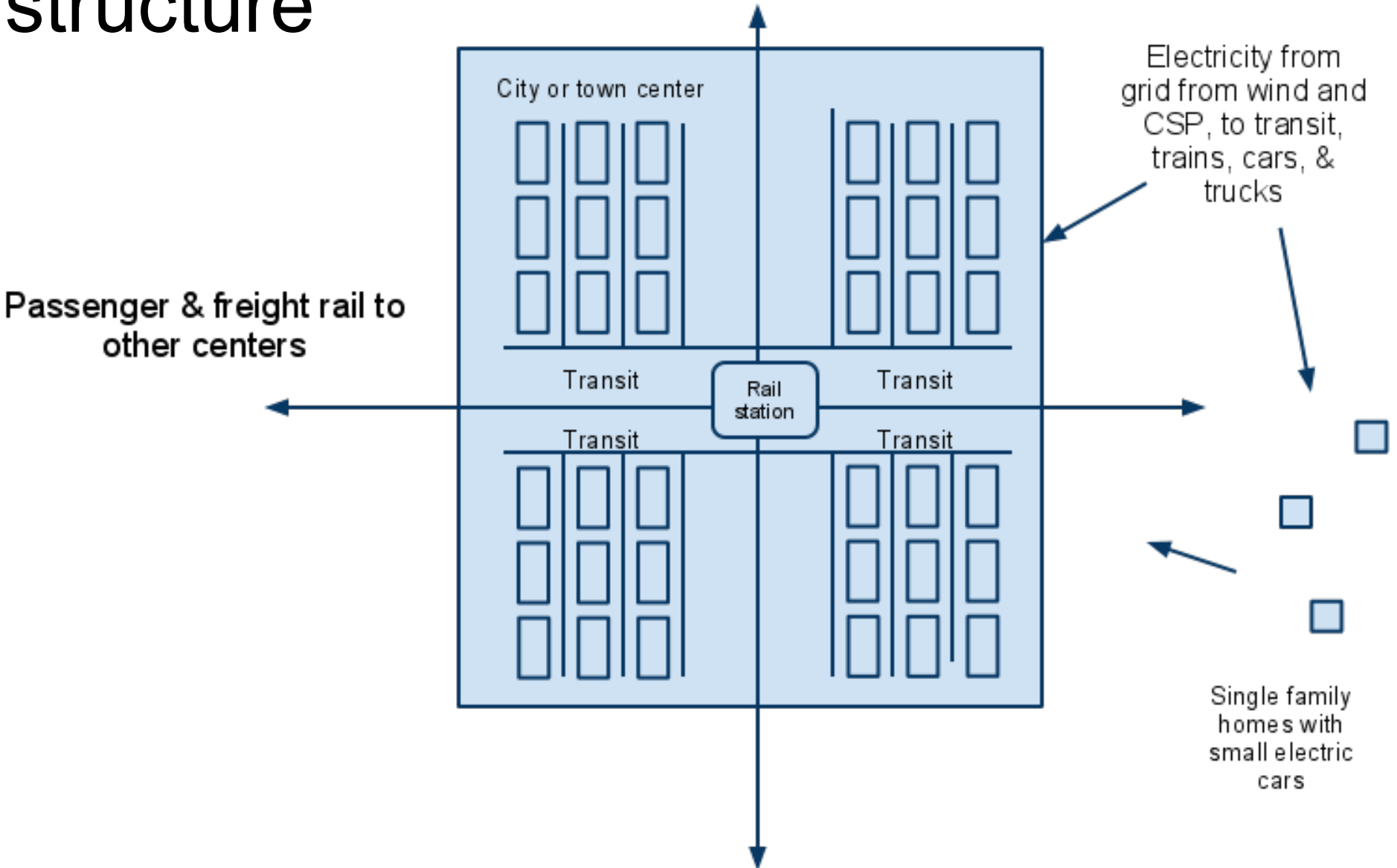
Industry	Total Jobs per year	Manufacturing jobs per year	Cost per year/billion dollars
Wind 4,000 TWhrs	1,130,000	225,000	150
New electric grid with battery storage	1,100,000	300,000	85
100,000 250-unit apartment buildings	10,000,000	2,500,000	500
100% Organic agriculture	270,000	0	N/A
Recycling	2,000,000	200,000	100
17,000 mile high-speed rail system	600,000	90,000	30
High speed rail operations	1,000,000	0	0
Electric freight train system	500,000	125,000	25
Transit capital	300,000	300,000	60
Transit operating	1,300,000	0	200
Geothermal heat pumps	1,000,000	250,000	50
Solar 1,000 TWhrs	2,500,000	600,000	150
Weatherizing	1,000,000	250,000	25
Electric car	1,000,000	500,000	0
Total	23,700,000	5,040,000	1,375

Interstate Wind System, plus an Interstate Smart Grid, plus...

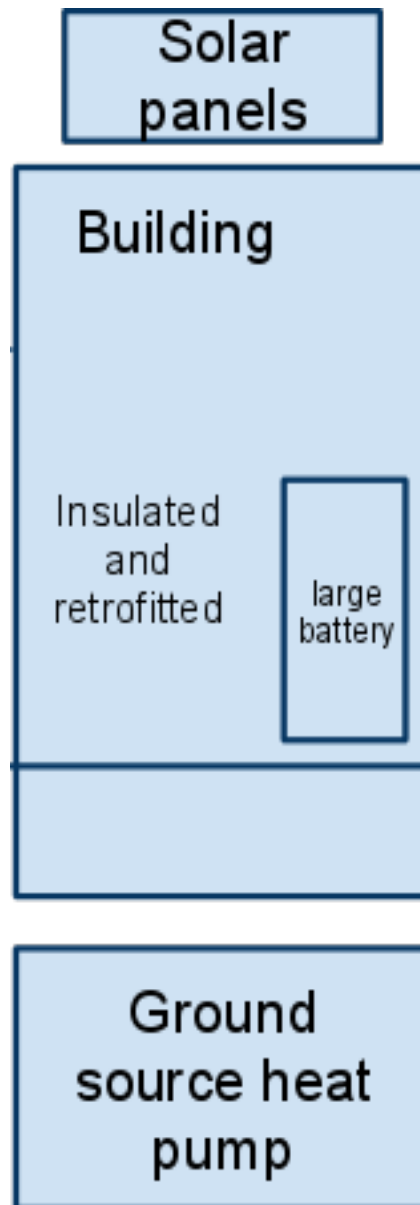


Wind resource data developed by
AWS Truewind, LLC for windNavigator®

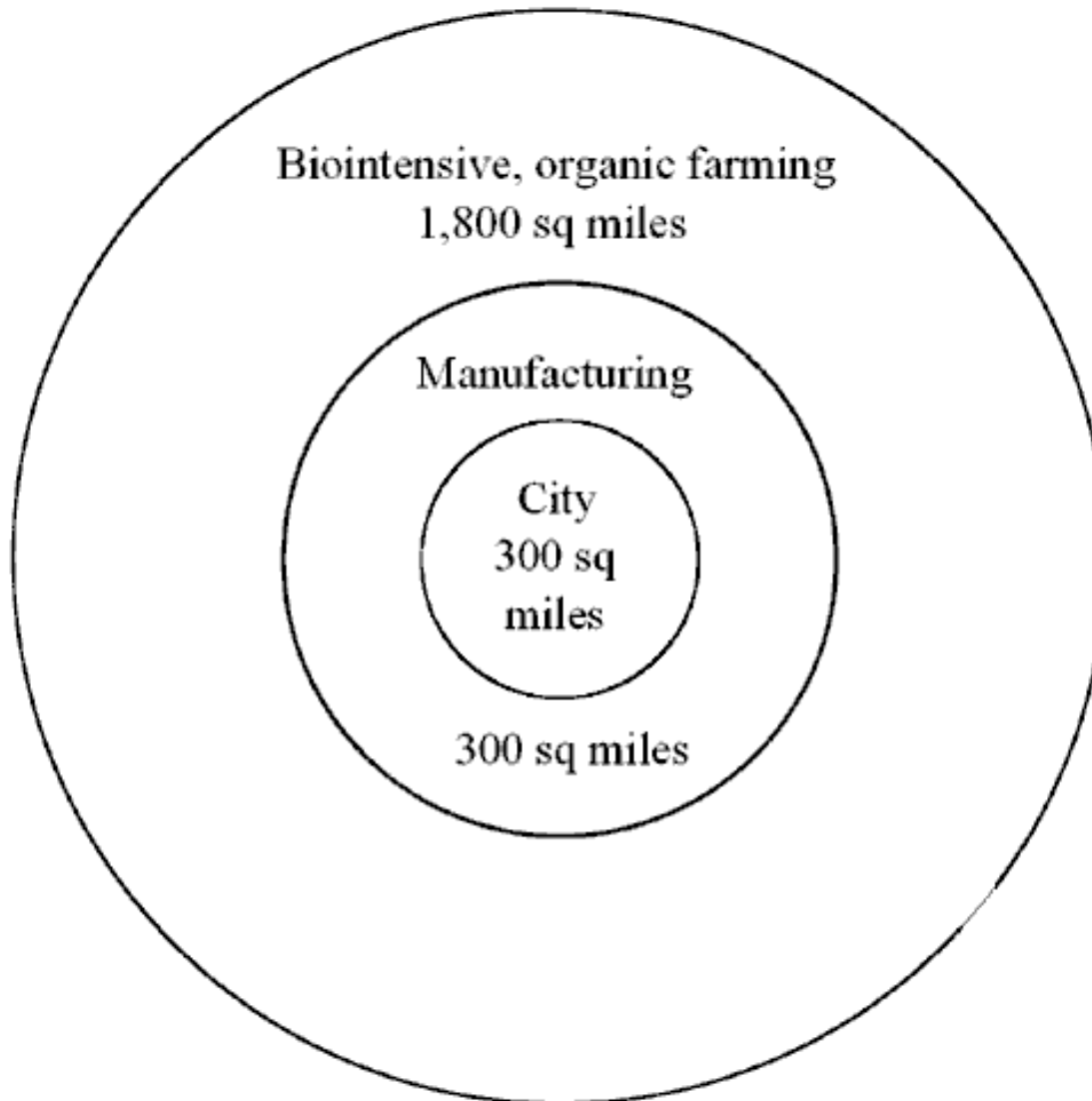
Eliminating fossil fuels, in urban structure



Sustainable buildings: Solar panels on top, heat pump below, insulated with battery



For urban area the size of NYC, with 20% of population in intensive organic farming



How can government help?

- Recycling would be government function
- Efficiency bank for building improvements
- Manufacturing service for no-pollution and conversion to reusable and recyclable production
- Government financing for relocation to city region
- Government financing for intensive organic farming, including subsidized produce
- National employment system, guaranteeing job

This preserves physical and eco-capital

- Approximately 30 major urban regions would only use about 2% of the land area of U.S.
- Most of the rest of the 98% could revert to natural ecosystems, e.g. prairies and forests
- Urban regions would be linked by Interstate Systems
- No fossil fuel use, little or no mining
- Manufacturing rebuilt

We need to rebuild human capital

- Universal health care system
 - Medicare for all, expanded Medicare
 - National system of clinics
 - Buy out health insurance companies
- Federal Education System
 - Provide half of payroll to get class size to 15
 - Provide payroll for science, tech, art teachers
 - Universal childcare from birth through preschool
 - Free public college
 - Technical school/college/apprenticeship system

How democratize economy?

- Must be part of an economy that can generate wealth, that has manufacturing sector
- Must be part of an economy that is ecologically sustainable
- Encourage employee ownership
- Democratize the financial system

National Employee Ownership System

- Based on Mondragon Cooperative System
 - Firms 100% owned by employees
 - Can't sell shares
 - Bank at center of system, helps startups
- Each Congressional District (CD) has its own Mondragon-like system
 - Congressperson as head of board
 - Regional and National versions
- Seed money from Federal government
- Use with Green Transformation program

Congressional Districts

