

Mapping Fossil-Fuel Subsidies: Lessons from Case Studies of China, Germany, Indonesia, and the United States

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*Increasing the Momentum of Fossil-Fuel Subsidy
Reform: Developments and Opportunities*

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Fossil Fuel Subsidies: Not Just Another Development Strategy



TWO GLACIERS ALONG A 1/2 MILE OF US STATEWIDE 270 SQUARE MILES. (BY THE PETROLEUM ENERGY HUMBLE SUPPLIES TODAY MELT IT AT THE RATE OF 7 MILLION TONS A DAY)

EACH DAY HUMBLE SUPPLIES ENOUGH ENERGY TO MELT 7 MILLION TONS OF GLACIER!

This giant glacier has remained unmelted for centuries. Yet, the petroleum energy Humble supplies—it converted into heat—could melt it at the rate of 80 tons each second! To meet the nation's growing needs for energy, Humble has applied science to nature's resources to become America's Leading Energy Company. Working wonders with oil through research, Humble provides energy in many forms—to help heat our homes, power our transportation, and to furnish industry with a great variety of versatile chemicals. Stop at a Humble station for new Enco Extra gasoline, and see why the "Happy Motoring" Sign is the World's First Choice!

HUMBLE
OIL & REFINING COMPANY
America's Leading Energy Company

ENCO
Happy Motoring

“Each day Humble supplies enough energy to melt 7 million tons of glacier!”

-Humble Oil & Refinery Company (now part of Exxon) advertisement in *Life* Magazine, 1962.

Study Objectives

- Expand ability to map fossil fuel subsidies.
 - Subsidy reform requires information not currently accessible.
 - Historical focus on consumer subsidies:
 - Understates scope and magnitude of fossil fuel subsidies.
 - Incorrectly conveys a problem within the developing world rather than a global one.
- Test challenges of compiling producer data.
 - Mix of case studies (country size, energy market composition, transparency of governance).
 - Researcher pitfalls to identify training tasks.
 - Level of difficulty for planning future work.
- Develop model approaches.
 - To fill in subsidy estimates.
 - To guide researchers in new countries.
- Assess patterns in data coverage and gaps across countries.

Check-List Approach: Subsidy Data Review Table

- 1. General resources on energy policy, industry structure, prices.** Needed for comparables, allocation factors.
- 2. Government owned energy minerals.** Leasing process, extraction subsidies, inaccurate payment or collection of royalties due.
- 3. Government ownership of energy-related enterprises.** Energy security-related enterprises, bulk fuel transport, ownership of assets.
- 4. Market price support and regulation.** Consumption mandates or restrictions; price controls; border protection; regulatory loopholes.
- 5. Direct spending.** Energy-related ministries; outside contracts; funding R&D.
- 6. Tax breaks and special taxes.** Tax expenditures; excise taxes or special targeted taxes on energy industry
- 7. Credit support.** Below-market loans and loan guarantees, including to SOEs or export credit agencies.
- 8. Insurance and indemnification.** Liability caps, below market provision of risk management services, including to SOEs.
- 9. Health and safety oversight.** Oversight of existing extraction operations; legacy health costs
- 10. Environmental issues, site closure, and post-closure care.** Legal structure for financial assurance, rights to litigate for compensation, enforcement stringency for existing laws.
- 11. Emerging issues.** "Watch" list of emerging issues of potential benefit to fossil fuel industries. Examples include grants of carbon credits; poorly characterized impacts of new energy technologies.

Benefits of Requiring Systematic Review of Policy Types

- **Can't focus on the easy items.** Check list approach forced review of all potential categories of support.
- **Data holes clearly visible** since table blank or nearly so. Overcomes tendency to mask gaps in report prose.
- **Structured questions for each policy type:**
 - Federal vs. provincial.
 - Larger benefit for particular fuel type.
 - Known issues with data quality.
 - Higher subsidies for emerging plants than existing.
- **Bias for over-review.** Some policies may fit in more than one category, especially with regard to SOEs.
- **Data review**, not full subsidy analysis.
- **Iterative process** of review to build information base.

G20: Self-Reporting Without Enforcement Unlikely to be Successful

	G20 Annex Submittals		Producer Subsidies	IEA Consumer Subsidy Estimates		Fuel Underpricing 2008, % of US Reference Price	
	Subsidies subject to phase-out	New reforms pursuant to G20?		Approximate Subsidies, 2007	Fuel composition of power sector, 2007	Diesel	Gasoline
China	Yes (1 item)	No		\$38 billion (mostly oil, then electricity)	81% coal; 2% O&G	129%	177%
Germany	Yes (2 items)	No	At least €1.7billion	n/e		200%	279%
Indonesia	Yes (~4 items)	No		n/e		54%	89%
United States	Yes (12 items)	No	\$52 billion	n/e; normally assumed zero.		100%	100%

n/e = not estimated

Source: Koplou forthcoming, based on data from IEA, GTZ and Earth Track.

Direct Spending: Even Tracking the Easy Stuff Can be Hard

- Positive trend. More budget data being released.
- Quality and degree of current disclosure varies.
 - Program level details, released on a timely basis, often audited (US and Germany).
 - More aggregate data only, with limited ability to attribute to specific government programs (Indonesia and China).
- None of the countries offered easy way to do topical searches of disaggregated spending across all programs.
- Sub-national information fragmented, of widely varying quality.

Credit and Insurance Subsidies: Distortionary but Often Invisible

- Best-case: US credit programs required to estimate expected subsidies under FCRA.
 - Excludes program administration.
 - Can't be attributed to specific loans (or energy type).
 - Ignores intermediation value.
 - Not applied to many federally-owned energy ventures.
- Most common baseline:
 - Implicit extension of sovereign credit and indemnification, with no explicit assessment or pricing – especially for state-owned enterprises.
 - Masks real price of energy services produced; impedes market access of lower risk substitutes.

Tax Breaks: Valuation and Benchmark Challenges

- Generally recognized as subsidies.
 - However, disagreement on “energy-related” versus “baseline” provisions remains.
 - Even on same energy-related provisions, estimate variance is high: \$7.2 billion absolute value difference between JCT/Treasury estimates in US.
- Overlapping tax systems.
 - German eco-tax exemptions for energy need to be evaluated in the context of the European emissions trading system.
 - High VAT on energy in Europe versus no national sales tax at all in US.
- State-owned enterprises often operate tax-free, though may compete with firms that are taxed.

Subsidies to High-Cost Regions or Industries: Better Ways to Help?

- Common in all countries evaluated. Examples:
 - Subsidized bulk fuel transport (e.g., China rails, US inland waterways).
 - Extension of energy networks (e.g., Indonesian pipelines, US Rural Utility Service, China grid extension and maintenance).
 - Support to uneconomic industries (German hard coal; Chinese setting of power prices, mitigation of SOE losses; US royalty relief in Alaska).
- Data often sparse.
- Keep end-goal; force transparency and competition for how to reach.

Lessons for the G20 process

- FF subsidies not only a *developing* world problem, but nor are producer subsidies are not only a *developed* world problem.
- Data access and accuracy remain significant problems.
- Data collection, valuation, and publication all have political elements.
 - All problems need not be solved to move forward on transparency.
 - Iterative process can build data set over time; narrow areas of contention on valuation and reform.
- Data validation, variance reporting, and enforcement of inaccurate reporting must be built in from outset.