



Exporting Inflation: The Domestic Cost of Tariff-Linked Energy Deals in the United States

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Abstract

Tariff-linked energy purchase agreements, such as the recent \$750 billion U.S.–EU deal, are framed as victories for American trade policy. In reality, these arrangements act as a dual tax on U.S. households—once through import tariffs and again through upward pressure on domestic energy prices caused by expanded exports. Using household-level models for California’s PG&E service area, combined with U.S. Department of Energy export elasticity data, this paper estimates that plausible scenarios could raise annual residential energy costs by \$350–\$650 before accounting for transportation fuel impacts. When gasoline and diesel price effects are included, total annual household burdens can reach \$500–\$850. The export chain itself consumes 10–20% of liquefied natural gas (LNG) energy content, accelerating drawdown of finite reserves[6]. These policies also risk compromising long-term energy security by hastening the need for imports, imposing higher costs on future generations. The emerging growth in artificial intelligence (AI) and data center electricity demand—projected to reach 200–250 TWh annually by 2030[7]—compounds these challenges, as export-driven energy losses could otherwise power all projected AI needs several times over. Coupled with the oil and gas industry’s more than \$104 million in federal lobbying expenditures in 2025[4], these trends raise fundamental questions about national interest, economic equity, intergenerational responsibility, and strategic energy allocation.

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Introduction

The 2025 U.S.–EU trade agreement, widely promoted as a 'massive win,' commits the European Union to purchase \$750 billion in U.S. energy products by 2028 and invest \$600 billion in the U.S. economy. While marketed as a strategic coup, the deal and similar proposals represent a political choice to prioritize large-scale fossil fuel exports over domestic price stability, consumer welfare, and resource stewardship. This paper evaluates the economic and energy-security costs of such policies from the standpoint of U.S. households.

Literature Gap

Research on the economic impacts of tariffs is well developed, with multiple studies documenting substantial pass-through of tariff costs to domestic consumers. Amiti, Redding and Weinstein demonstrate near-complete incidence of U.S. import tariffs on American buyers [1], while subsequent analyses from the Congressional Budget Office and the Penn Wharton Budget Model estimate that the 2025 tariff regime will cost the average household thousands of dollars annually [2], [3]. However, these studies focus on aggregate welfare losses and trade price effects; they do not extend their analysis to the intersection of tariffs and specific commodity export arrangements.

Similarly, the literature on liquefied natural gas (LNG) exports has explored domestic price consequences in detail. The U.S. Department of Energy's 2024 LNG export impact studies model scenarios in which unconstrained exports could increase wholesale natural gas prices by more than 30% in tight supply years, with partial pass-through to retail residential rates [6]. Energy Information Administration (EIA) projections and independent analyses by the Center for Strategic and International Studies (CSIS) corroborate that price impacts depend heavily on supply growth, infrastructure capacity, and global demand [5]. These works, however, treat export policy as an independent variable and rarely connect it to trade agreement structures or tariff-linked purchase commitments.

Other strands of research address the relationship between oil exports and domestic fuel prices, as well as the regressive effects of higher energy costs on low- and middle-income households. Environmental justice scholarship and advocacy reports highlight the disproportionate burden of energy cost increases on vulnerable populations. Yet, these analyses typically occur in the context of climate policy or environmental regulation, not as a byproduct of trade negotiations.

What is notably absent from the current literature is an integrated assessment that links tariff policy, binding or aspirational foreign purchase agreements for U.S. fossil fuels, domestic price effects across electricity, heating, and transportation, and the net-energy costs of the export chain itself. No existing study

combines these dimensions into a household-level model that quantifies the total cost burden, situates it within the context of finite domestic reserves, and identifies the distributional winners and losers of such policy choices.

This paper addresses that gap by synthesizing insights from tariff incidence research, LNG and oil export economics, household energy modeling, and resource depletion analysis to provide a comprehensive evaluation of tariff-linked fossil fuel export deals. In doing so, it offers a novel, multidimensional framework for understanding the domestic economic consequences of trade-driven energy export policy.

Tariffs: Who Really Pays

A consistent body of empirical research shows tariffs are overwhelmingly paid by the importing country's buyers, not the foreign exporters. Studies of the 2018–2019 tariff rounds found near-complete pass-through into U.S. import prices [1]. For households, this is an implicit tax. National models from the Congressional Budget Office and the Penn Wharton Budget Model place the total household cost of the 2025 tariff package in the low thousands annually [2][3]. In California's PG&E territory, where baseline energy costs are already among the highest in the continental U.S., household-level modeling shows:

- Scenario A (EU-style deal only): +\$351/year in electricity and gas bills
- Scenario B (stacked deals + LNG capacity expansion): +\$626/year in electricity and gas bills.

Export-Driven Domestic Price Pressure

LNG exports have an energy-intensive value chain—liquefaction consumes roughly 7–15% of feed gas, voyage boil-off averages about 0.12% per day (~1–2% to Europe), and regasification/handling adds roughly 1%. In total, about 10–20% of the gas's energy is consumed before the foreign buyer uses it [6]. Department of Energy modeling shows that unconstrained LNG exports can raise wholesale U.S. natural gas prices significantly in tight supply years. Retail pass-through is partial but meaningful—about 60% for gas bills and about 30% for electricity bills in gas-dominant regions [6].

Transportation Fuel Impacts

Expanded oil exports link U.S. pump prices more closely to global crude benchmarks. A sustained \$10/

bbl crude increase often translates to about \$0.24/gal higher gasoline prices[5]. For a California driver averaging 12,000 miles per year at 25 mpg, each \$10/bbl adds about \$115/year in fuel costs. If export-driven tightening added \$10–\$20/bbl to crude prices in stressed markets, households would face \$115–\$230/year extra just for driving—on top of higher electricity and gas bills.

Resource Depletion and Energy Security

At year-end 2023, U.S. proved reserves stood at roughly 46 billion barrels of crude oil and 604 trillion cubic feet of natural gas[5]. Current production rates yield reserve-to-production ratios on the order of 9–10 years for oil and 16–18 years for gas[5], absent new discoveries or re-bookings. While reserves are dynamic, long-term export contracts accelerate drawdown and reduce flexibility to respond to domestic supply shocks or geopolitical crises.

Intergenerational Energy Security

The accelerated export of finite domestic oil and natural gas reserves poses a direct threat to long-term U.S. energy security. By depleting these resources at a faster rate to meet short-term foreign purchase commitments, the United States increases the likelihood that future generations will face greater reliance on energy imports. Such dependence would expose the nation to volatile global markets, potential supply disruptions, and unfavorable trade balances. The economic costs of this shift — including higher import prices, reduced energy affordability, and vulnerability to geopolitical leverage — would be borne disproportionately by today's children as they enter adulthood. In effect, current policy choices prioritize immediate corporate gains over the preservation of strategic resources, transferring the risks and penalties of depletion to future citizens.

Emerging Competing Demands: AI and Energy Security

Rapid advances in artificial intelligence (AI) and digital infrastructure are creating a new and rapidly expanding category of domestic energy demand. In 2022, U.S. data centers consumed an estimated 100 terawatt-hours (TWh) of electricity — roughly 2.4% of total U.S. demand (International Energy Agency [IEA], 2023). Projections suggest that by 2030, AI-related computing and data centers could require 200–250 TWh annually, doubling their share of national

consumption[7]. This growth is driven by both the training of large-scale AI models and the increasing prevalence of AI-assisted applications in business, healthcare, logistics, and national defense.

In parallel, the liquefied natural gas (LNG) export chain — liquefaction, shipping, and regasification — consumes an estimated 1,000–2,000 TWh of energy annually when scaled to meet current U.S. export commitments[6]. The energy losses from this process alone could power all projected AI and data center needs several times over. If a substantial portion of domestic fossil fuel output is diverted to foreign buyers, the United States may face a strategic trade-off: constrain AI and other emerging technology sectors, increase reliance on higher-cost imports, or compromise climate and electrification goals.

This emerging overlap between AI-driven electricity demand and fossil fuel export policy underscores a critical crossroad in national energy planning. Exporting large volumes of finite fossil fuel resources today may compromise the ability to meet future domestic energy needs — not only for households and transportation, but for strategic technological infrastructure. The consequence would be a structural vulnerability, where future economic competitiveness and national security are undermined by decisions made to capture short-term export revenues.

Distributional and Policy Considerations

The distributional effects are regressive. Likely winners include upstream oil and gas producers, LNG terminal owners, and shipping companies—industries with deep lobbying reach. Specifically, the oil and gas industry spent over \$104 million (Federal) and \$15 million (California) in 2025 [4]. The irony is among the biggest winners are foreign owned oil, gas producers and sovereign wealth funds which collectively control approximately 25% of all production. Likely losers include consumers (especially low- and middle-income), energy-intensive manufacturers, and climate policy objectives. These dynamics mirror the 'resource curse' literature, in which extractive industries exert influence at the expense of broad-based welfare.

Conclusion and Policy Recommendations

Tariff-linked fossil fuel export deals increase household costs, accelerate resource depletion, and concentrate gains among a narrow set of corporate actors.

Policymakers should: (1) cap strategic energy exports to safeguard domestic price stability; (2) implement windfall profit taxes on export-driven gains to offset household energy costs; (3) invest in domestic energy resilience—grid modernization, renewable capacity, and storage; and (4) require transparent cost-benefit analyses of any trade-linked energy commitments, including household-level impacts.

Appendix A: Data Sources

Dataset	Variable	Notes	Retrieval Date	Source URL
PG&E Electric Rate Advisory (typical 500 kWh)	Average monthly bill and ¢/kWh (non-CARE)	Used to scale to user’s baseline (50% higher)	08-08-2025	https://www.pge.com/
PG&E Gas Rate Advisory (typical ~31 therms)	Average monthly gas bill (non-CARE)	Used to scale to user’s baseline (50% higher)	08-08-2025	https://www.pge.com/
EIA Electric Power Monthly	Average retail electricity price (¢/kWh), consumption	Cross-check on CA averages and national context	08-08-2025	https://www.eia.gov/electricity/monthly/
EIA Petroleum & Gas Data	Proved reserves; production; exports	R/P calculations; export context	08-08-2025	https://www.eia.gov/
DOE LNG Export Studies	Wholesale price effects of unconstrained LNG exports	Upper-bound sensitivity for wholesale prices	08-08-2025	https://www.energy.gov/
Amiti, Redding, Weinstein (Tariff Pass-Through)	Tariff incidence and price pass-through to importers	Evidence for near-complete pass-through	08-08-2025	https://www.nber.org/
CBO / Penn Wharton Budget Model (2025 Tariffs)	Macroeconomic & household impact estimates	Used to cross-check household burden ranges	08-08-2025	https://www.cbo.gov/ , https://budgetmodel.wharton.upenn.edu/

Appendix B: Assumptions & Formulas

Household Energy Bill Impact

$$\text{Added_Electricity_}\$ = \text{Baseline_Electricity_}\$ \times \text{Elec_}\% _ \text{Increase}$$

$$\text{Added_Gas_}\$ = \text{Baseline_Gas_}\$ \times \text{Gas_}\% _ \text{Increase}$$

$$\text{Total_Added_}\$ = \text{Added_Electricity_}\$ + \text{Added_Gas_}\$$$

Export-Chain Net-Energy Loss (LNG)

$$\text{LNG_Total_Loss_}\% = \text{Liquefaction_}\% + (\text{Boiloff_}\% _ \text{per_day} \times \text{Voyage_days}) + \text{Regas_}\%$$

$$\text{LNG_Loss_MMBtu_per_day} = (\text{LNG_Volume_Bcf_per_day} \times 1.037\text{e}6 \text{ MMBtu/Bcf}) \times$$

$$\text{NG_Total_Loss_}\%$$

Export-Chain Net-Energy Loss (Oil Shipping)

$$\text{Oil_Loss_MMBtu_per_day} = (\text{Oil_Volume_bbl/day} \times 5.8 \text{ MMBtu/bbl}) \times \text{Shipping_Loss_}\%$$

Wholesale-to-Retail Pass-Through

Wholesale_Gas_Δ % = Elasticity × Supply_Reduction_%

Retail_Gas_Δ % = 0.6 × Wholesale_Gas_Δ %

Retail_Elec_Δ % = 0.3 × Wholesale_Gas_Δ % (reflects fuel-cost share)

Driving Cost Impact

Pump_Price_Δ \$ per gallon = 0.24 × (Crude_Δ \$ per bbl / 10)

Annual_Driving_Δ \$ = Pump_Price_Δ × (Miles_per_year / MPG)

Appendix C: Scenario Results Tables

C1. PG&E Baseline and Scenario Impacts (User bills are 50% above typical)

Scenario	Electricity Increase %	Gas Increase %	Added Electricity (\$/yr)	Added Gas (\$/yr)	Total Added (\$/yr)	All-in Annual Bill (\$/yr)
Scenario A: EU-style deal only	5.00%	10.00%	190.13	160.92	351.05	5762.93
Scenario B: Stacked deals + LNG capacity	8.00%	20.00%	304.21	321.84	626.05	6037.93

C2. Export-Chain Energy Losses (Annual)

Route	LNG Annual Loss (MMBtu)	Oil Annual Loss (MMBtu)	Total Annual Loss (MMBtu)
Europe	235430110.0	33872000.0	269302110.0
Asia	235430110.0	42340000.0	277770110.0

C3. Household Impacts Including Export-Chain Overhead (Elasticity Sensitivities)

Scenario	Elasticity Case	Wholesale Gas Δ (%)	Retail Gas Δ (%)	Retail Elec Δ (%)	Incremental from Export Chain (\$/yr)	Total Added vs Baseline (\$/yr)	All-in Annual Bill (\$/yr)
Scenario A: EU-style deal only	Low	0.4	0.24	0.12	8.43	359.48	5771.36
Scenario A: EU-style deal only	Mid	0.8	0.48	0.24	16.85	367.9	5779.78
Scenario A: EU-style deal only	High	1.6	0.96	0.48	33.7	384.76	5796.64
Scenario B: Stacked deals + LNG capacity	Low	0.4	0.24	0.12	8.43	634.48	6046.36

Scenario B: Stacked deals + LNG capacity	Mid	0.8	0.48	0.24	16.85	642.9	6054.78
Scenario B: Stacked deals + LNG capacity	High	1.6	0.96	0.48	33.7	659.76	6071.64

C4. Driving Cost Impacts for \$10 and \$20/bbl Crude Increases

Crude Increase (\$/bbl)	Pump Price Increase (\$/gal)	Annual Driving Cost Increase (\$/yr)
10.0	0.24	115.2
20.0	0.48	230.4

Appendix D: Reproducibility Code (Python)

Household Scenario Impacts

Baselines

elec_base = 3802.68 # \$/yr

gas_base = 1609.2 # \$/yr

Scenarios

scenarios = {'Scenario A: EU-style deal only': {'elec_pct': 0.05, 'gas_pct': 0.1}, 'Scenario B: Stacked deals + LNG capacity': {'elec_pct': 0.08, 'gas_pct': 0.2}}

```
for name, s in scenarios.items():
    add_elec = elec_base * s["elec_pct"]
    add_gas = gas_base * s["gas_pct"]
    total_add = add_elec + add_gas
    print(name, add_elec, add_gas, total_add)
```

Export-Chain Energy Losses (LNG & Oil)

lng_volume_bcf_per_day = 5.0

lng_liquefaction_loss = 0.1

lng_boiloff_loss_per_day = 0.0012

lng_voyage_days = 12

lng_regas_loss = 0.01

oil_volume_mbd = 2.0

oil_shipping_fuel_frac_europe = 0.008

oil_shipping_fuel_frac_asia = 0.01

mmbtu_per_bcf_gas = 1037000

mmbtu_per_barrel_oil = 5.8

days_per_year = 365

```

lng_total_loss_frac = lng_liquefaction_loss + (lng_boiloff_loss_per_day * lng_voyage_days) + lng_regas_loss
lng_energy_exported_mmbtu = lng_volume_bcf_per_day * mmbtu_per_bcf_gas
lng_energy_loss_mmbtu = lng_energy_exported_mmbtu * lng_total_loss_frac
lng_annual_loss_mmbtu = lng_energy_loss_mmbtu * days_per_year

```

```

oil_energy_exported_mmbtu = oil_volume_mbd * 1_000_000 * mmbtu_per_barrel_oil
oil_annual_loss_mmbtu_europe = (oil_energy_exported_mmbtu * oil_shipping_fuel_frac_europe) * ays_per_year
oil_annual_loss_mmbtu_asia = (oil_energy_exported_mmbtu * oil_shipping_fuel_frac_asia) * ays_per_year

```

```

print(lng_annual_loss_mmbtu, oil_annual_loss_mmbtu_europe, oil_annual_loss_mmbtu_asia)

```

Elasticity Pass-Through to Household Bills

```

supply_reduction_pct = 0.008
elasticities = {'Low': 0.5, 'Mid': 1.0, 'High': 2.0}
gas_retail_pass = 0.6
elec_retail_pass = 0.3

```

```

for label, elast in elasticities.items():
    wholesale_gas_up = elast * supply_reduction_pct
    retail_gas_up = gas_retail_pass * wholesale_gas_up
    retail_elec_up = elec_retail_pass * wholesale_gas_up
    incr_gas = gas_base * retail_gas_up
    incr_elec = elec_base * retail_elec_up
    incr_total = incr_gas + incr_elec
    print(label, wholesale_gas_up, retail_gas_up, retail_elec_up, incr_total)

```

Driving Cost Impacts

```

miles_per_year = 12000

```

```

mpg = 25
gallons_per_year = miles_per_year / mpg
gas_price_increase_per_10_bbl = 0.24

```

```

for delta_bbl in [10, 20]:
    price_up = (delta_bbl / 10.0) * gas_price_increase_per_10_bbl
    annual_cost = price_up * gallons_per_year
    print(delta_bbl, price_up, annual_cost)

```

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