Charles Komanoff

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Summary

- Developer of traffic-modeling tools for analyzing urban and regional road pricing and related policies to rationalize and revitalize urban transportation.
- Developer of models to evaluate a broad spectrum of carbon emissions pricing proposals.
- Cost-benefit modeler of fiscal costs, business costs and the full range of externality costs pertaining to transport, energy and environment.
- Authority and quantifier on energy, transport and climate; road pricing, public transit and urban transportation; electricity generation economics; climate policy; energy usage and supply; bicycling; air pollution; traffic crashes; cost-benefit analysis; policies to internalize societal costs of energy and transport.
- Pioneering advocate for "livable streets" policies to increase bicycling, promote pedestrians' rights, and generally advance policies to reduce automobile dependence.
- Author (four books), blogger, essayist, journalist, speaker, educator, communicator.

Komanoff is director of the consulting firm **Komanoff Energy Associates**, founder-director of the **Carbon Tax Center**, a founding trustee of the **Tri-State Transportation Campaign**, "re-founder" of the pioneering bicycle-advocacy organization **Transportation Alternatives**, and traffic modeler and transit advisor for the **Nurture Nature Foundation**. His work combines expertise in policy analysis, mathematical creativity and rigor, a flair for conveying data in concrete terms, and a passion for progressive social change.

Komanoff graduated with honors from Harvard College in 1968 with a B.A. in Applied Math.

Developer of traffic-modeling tools to support road pricing and livable streets

Komanoff is creator and curator of the "Balanced Transportation Analyzer (BTA)," an interactive, integrated spreadsheet model that quantifies travel-speed gains, toll revenues and other benefits of road-pricing and ancillary measures (e.g., transit investments; surcharges on taxis and ride-hail vehicles; highway expansions or shrinkages) for a city or metro region.

The BTA is geared to New York City and has been used by public officials and transit advocates there to assess congestion pricing as well as transit service expansions and cutbacks and for-hire vehicle surcharges. It has subsequently been adapted to assess the impacts of similar measures in two other U.S. cities.

The BTA now (2023) has nearly 100 intermeshing worksheet "tabs" that are stocked with baseline travel data and connected by 160,000 equations. These tabs "communicate" with each other based on user inputs that correspond to proposed congestion tolls and/or other potential policies. Policy inputs are made in a single tab, allowing them to be easily processed and understood, and the calculation of results is instantaneous.

BTA model results include:

- gross and net revenues from congestion or other traffic pricing
- changes in average travel speeds (differentiated among times of day, between weekdays and weekends, and within vs. outside the urban core)
- changes in vehicle volumes (similarly separated)
- monetization of travel-time savings, fewer traffic crashes, and reduced air and carbon emissions, as well as the "amenity" that drivers lose from opting out of some tolled car trips.

The engineering firm that advised New York State's "Fix NYC" congestion pricing task force from Fall 2017 to Spring 2019, when the state legislature approved congestion pricing as part of the budget bill, used the BTA as its primary analytical tool to prepare its final report. The report's appendix lavished praise upon the model.

The BTA is continually updated. The current version is always available on the Internet via this link: http://www.nnyn.org/kheelplan/BTA_1.1.xls.

The BTA was apparently not deployed by the Traffic Mobility Review Board, the six-person panel that in November 2023 recommended a comprehensive congestion pricing toll schema that the MTA officially adopted days later, in December. However, the board's recommendations closely, almost uncannily, matched the tolling framework outlined by Komanoff in a detailed paper released in July 2023 — a phenomenon noted (and applauded) by Komanoff in a post cheekily titled IMHO, TMRB Is A-OK.

In a laudatory profile of Komanoff, *Wired* magazine pronounced the BTA a "masterpiece" for capturing the interactivities among different travel modes, for reflecting the feedbacks between drivers' tolls costs and time savings, and for estimating the "social delay costs" caused by the proverbial incremental car trip into the urban core. The model has also been written about and lauded in Traffic Technology International, Motherboard/Vice, New York magazine and the Atlantic.

Komanoff, whom the *Wired* profile called "the man who could unsnarl Manhattan traffic," has presented the BTA model to city officials in New York, San Diego and Seattle; at high-level transport meetings in Washington and Paris; to city and university officials in Guangzhou, China, and to national and regional transportation ministers in Beijing and Hangzhou, China.

Developer of models to evaluate alternative carbon emissions pricing proposals.

Komanoff's carbon-tax Excel spreadsheet, begun in 2008 and continually updated, calculates these outcomes for any user-specified carbon tax trajectory:

- annual fuel usage and carbon emissions for each of the major sectors comprising U.S. energy usage (electricity, passenger travel, freight movement, air travel, heating and industry)
- year in which any specified carbon emissions goal will be reached

- breakout of the price-driven carbon reductions between demand and supply side
- rate of uptake of electric passenger vehicles, freight vehicles and air travel as a function of carbon emissions price

The current version of Komanoff's carbon-tax model may be viewed and downloaded via this link: http://www.komanoff.net/fossil/CTC_Carbon_Tax_Model.xlsm

Cost-benefit practitioner

Komanoff's mathematical precision and wide-ranging grasp of changing social and environmental conditions enable him to quantify the fiscal costs, business costs and the full range of externality costs for a wide variety of transport modes, energy technologies and policy proposals.

His full powers in this area are on display in his BTA congestion pricing spreadsheet, where he quantifies no fewer than 25 different cost and benefit elements, including motorist time savings; transit-user time savings; health and environmental benefits of reduced crashes, noise, petrol use, tailpipe emissions and carbon emissions; and the gains in wellness from increased active travel (cycling and walking); and, on the other side of the ledger, user costs of the congestion tolls, cost of toll administration, and the "lost amenity" of the car and truck trips that are predicted to be "priced off the road" by the congestion charges.

In any cost-benefit context, Komanoff's modeling encompasses all relevant variables and quantifies them rigorously and meticulously.

Authority on energy, transport and environment

Throughout his more than 4-decade career as a policy analyst, Komanoff has addressed the two largest sources of environmental and social harm in industrial societies: misallocation of resources in electricity generation, and failure to balance motor vehicle transport with other travel modes including public transit.

Transport

Komanoff has been a mainstay of citizen campaigns to implement road tolling as a means to reduce traffic gridlock and create a robust new revenue source for public transportation. (See discussion above of the BTA spreadsheet.) He was principal author of the Nurture Nature Foundation's pathbreaking 2008 report, *Balancing Free Transit and Congestion Pricing.* The New York City Council in 2021 commissioned and published two reports by Komanoff. Curbing For-Hire Vehicle Stockpiling in the Manhattan Core proposed per-minute charges on empty Ubers and Lyfts as a way to decongest Manhattan and aid the ailing taxi industry. Taming New York City's E-Delivery Gridlock: Time-Based Charges for Street Space proposed time-based, geographically differentiated pricing of e-commerce delivery vehicles whose proliferation is exacerbating NYC traffic congestion.

Komanoff was a founding trustee of the Tri-State Transportation Campaign, an NGO dedicated to reforming transport planning and financing in the New York region. He edited and co-authored Tri-State's founding document, the *Citizen Action Plan*, a holistic approach to regional transport

emphasizing road pricing, center-oriented development and strategic transit upgrades.

Komanoff conceived, managed and edited the *Bicycle Blueprint*, the most ambitious bicycle-transport plan ever published for any U.S. city. He contributed a volume, *Environmental Benefits of Bicycling and Walking in the United States*, to FHWA's *National Bicycling and Walking Study*. He has spelled out road-pricing proposals in a report for the Energy Foundation and numerous periodicals ranging from the *Pace Environmental Law Review* to numerous newspapers and magazines. He composed the chapter on bicycling for the *Encyclopedia of Energy*.

Energy, Electricity and Climate

Throughout the 1970s and '80s — a period of ferment and debate over the economics of nuclear power — Komanoff was the leading U.S. source of credible information on reactor costs. Through painstaking data collection, rigorous analysis, a stream of articles and books, and clear articulation to journalists, he helped policy-makers and the public grasp the dimensions of nuclear power's spiraling costs in the United States.

During this period, Komanoff consulted for two Congressional agencies, the U.S. Department of Energy, and close to two dozen states including New York, California, Texas and Florida; presented expert testimony before the U.S. Nuclear Regulatory Commission and 20 Public Utility Commissions; testified before four Committees of Congress and the Select Committee on Energy of the House of Commons (U.K.); and tutored a generation of journalists on the extent and causes of cost escalation in the U.S. nuclear power industry.

Recently, the persistence and seeming untractability of the climate crisis prompted Komanoff to reappraise the value of already-operating nuclear reactors in avoiding carbon emissions. Since 2020, he has argued for retaining existing U.S. nuclear power plants in venues ranging from magazine articles (*Gotham Gazette*, *The Nation*) to open letters and other public statements. Komanoff's appeals may have helped persuade California Gov. Gavin Newsom to rescind the ill-advised agreement to shutter that state's Diablo Canyon nuclear station. (Komanoff's articles and other statements may be found later in this c.v. and on his personal website's nuclear power page.)

During 2000-2010 Komanoff represented Manhattan community groups in evaluating and mitigating a proposal by Con Edison to expand its East 14th Street steam-and-electric station; analyzed the potential for electricity conservation in the New York area for a coalition seeking energy alternatives to the Indian Point reactors in Westchester County; and published *Ending The Oil Age*, a detailed post-9/11 policy prescription for immediately reducing U.S. oil consumption by up to 10%. He was co-developer of "Greening A Block," an ambitious effort to implement energy-efficient heating, hot water and electric systems on a community scale in buildings on Manhattan's Lower East Side. In 2019 he authored a report for the Natural Resources Defense Council, *California Stars*, documenting and quantifying California's outsize progress in decoupling economic growth from fossil fuels and carbon emissions.

In 2007, Komanoff founded the Carbon Tax Center, a clearinghouse and resource center to educate and inform policy makers, opinion leaders and the public about the benefits of and critical need for robustly rising taxes on the carbon contents of fossil fuels. CTC has established a strong

presence in Washington DC, within the environmental community and in the national civic arena. The Center's carbon-tax spreadsheet model allows activists and advocacy groups to estimate the carbon-reduction potential of different carbon tax trajectories, much as Komanoff's BTA spreadsheet quantifies benefits of congestion pricing.

Komanoff has composed hundreds of articles on the politics and benefits of carbon taxes for periodicals such as *The Nation* and *Grist* and for the Carbon Tax Center's blog.

Environment

Komanoff's work on environmental policy dates to 1971-72, when he co-directed the Council on Economic Priorities' landmark study of air and water pollution in the U.S. electric power industry, *The Price of Power*. In 1972-74, as senior environmental economist for the NYC Dept. of Environmental Protection, he composed original analyses that revealed the poor economic prospects for both the Storm King pumped-storage project in the Hudson Highlands and a vast LNG tank farm on Staten Island, contributing to the demise of both ventures. Komanoff has published popular and technical articles on air pollution from electric generation and motor vehicles and on societal paths for appreciating and advancing much-needed wind power projects.

Komanoff is also an authority on noise pollution. His monograph, *Drowning In Noise: Noise Costs of Jet Skis in America*, published by the Noise Pollution Clearinghouse, used a multi-disciplinary approach to impute dollar costs to noise from jet skis and rank mitigation options. He advised Manhattan community groups in their efforts to reduce noise emissions from a large telecommunications facility in lower Manhattan and a heliport on Manhattan's West Side.

Activist and advocate for "livable streets"

Komanoff brings to local advocacy a flair for translating data into human terms, familiarity with New York's rich history, solidarity with the city's diverse cultures, and a passion for social justice.

Komanoff "re-founded" Transportation Alternatives in 1986 and led it as unpaid (but virtually full-time) president for six ground-breaking years. He forged T.A. into a vibrant force for non-motor transportation in the New York region and made it a model for grassroots transportation advocacy in other U.S. cities. Under his leadership T.A. defeated a proposed Midtown bike ban and expanded cycling access to area bridges, roads and transit systems. *Bicycling* magazine acknowledged Komanoff's accomplishments by naming him a 1990 "Bicyclist of the Year."

After stepping down as T.A. president in 1992, Komanoff co-founded the pedestrian rights organization Right Of Way. His 1999 report *Killed By Automobile* drew on statistical analysis by Right Of Way volunteers of nearly 1,000 NYC pedestrian and cyclist fatalities. These endeavors provoked a paradigm shift from victim-blaming to driver culpability that helped reduce New York City pedestrian fatalities and paved the way for the city's "Vision Zero" initiative against traffic dangers.

Speaker, Educator, Communicator

Komanoff is a frequent guest and speaker at professional conferences, in college and university

classes, at activist conclaves and on radio and television. In 2019, he taught a joint graduate-undergraduate seminar at Hunter College's Roosevelt House, on the political economy of congestion pricing. In a return engagement commencing this fall, Komanoff will be teaching a seminar on the political, economic and legal dimensions of a possible New York City buyout of the NYC Transit Authority from the state-run MTA.

Writer: Selected Bibliography

(List is limited to printed pieces and omits dozens of Web-published posts on *Grist*; more than 190 posts on *Streetsblog*; and 200+ posts on the Carbon Tax Center's blog; some links available at www.komanoff.net.)

Books

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