2015
ANNUAL REPORT

icct
THE INTERNATIONAL COUNCIL
ON CLEAN TRANSPORTATION

the year in review

Portable emissions measurement system (PEMS) setup in the Volkswagen Jetta that ICCT had tested as part of the project that eventually led to VW's admission that it had installed defeat devices on 11 million vehicles worldwide.

2015 marked another milestone anniversary for the ICCT: Ten years since our transition from an informal network of policy experts and policy makers to a formally incorporated independent nonprofit research organization. As we've grown over that decade, we have consistently aimed to provide high-quality, data-driven analysis and timely, accurate, policy-relevant information directly to regulators and policy makers.

The most important transportation story in 2015 resoundingly affirmed that approach. The Volkswagen "dieselgate" scandal originated in a vehicle testing project conceived and managed by ICCT researchers in Berlin and Washington. That still-unfolding story, which has galvanized public awareness, has profoundly shifted the landscape of clean transportation policy not only in the United States and Europe but around the world.

So too has the Paris Agreement signed by 195 countries in December 2015 at COP21. That historic pact at last charts a course toward climate stabilization. We at the ICCT understand the urgency of supporting policy implementation to realize the goals agreed to in Paris. In particular, we know—and the dieselgate story reminds us—that without serious compliance and enforcement strategies, efforts to control greenhouse gas emissions cannot be as effective as they must be. Making sure that policy makers have the knowledge and the technical resources to implement those strategies will be a renewed focus of the ICCT in 2016 and beyond.

PROGRAM HIGHLIGHTS

"If you're looking for environmental heroes—and who isn't—take a look at mine: Peter Mock, Europe managing director of the **obscure but well-informed International Council on Clean Transportation**, and John German, a senior fellow at the council."

—Enviroblog

clean air

"The greatest threat to us in Delhi today is the **air** that we are breathing."

—The Times of India

There are more than 8 million vehicles on Delhi's roads already, and 1,400 new ones are added every day. Most of those new vehicles burn diesel fuel and face relatively weak emission standards, belching out clouds of the tiny $PM_{2.5}$ particles that can be most harmful to health.

As extreme pollution events in China and India especially have heightened public concern, the ICCT has revamped our clean air program to be intermodal and interdisciplinary, engaging across various other teams within the organization to enable us to function most effectively in this realm of

Early morning rush hour traffic in New Delhi, India. (Manx Shearwater)

LED screens in Tiananmen Square show the contrast of blue sky amidst dangerous levels of air pollution blanketing Beijing.

policy. The clean air program taps knowledge from the passenger vehicle and heavy-duty vehicle teams on tailpipe emissions and fuel quality, and the marine team on ports, just to name a few. As an NGO partner in the Climate and Clean Air Coalition (CCAC) we also contribute expert knowledge on short-lived climate pollutants.

Vehicles are the largest source of $PM_{2.5}$ (primary and secondary) in Beijing, Hangzhou, Guangzhou and Shenzhen. In 2015, China accelerated the schedule for implementation of 10ppm sulfur fuel, which has potentially large ramifications for vehicle emission standards. Highly polluted regions would be ready to implement regional emission control strategies and could move towards Euro 6/VI standards even faster than anticipated. The new **China Clean Air Law** enhanced

"When the AQI reached 755 the air felt like industrial smoke—chemical-tasting, **eye-watering**."

—The Guardian

The air-quality index (AQI) measures five main pollutants: particulate matter, ground-level ozone, carbon monoxide, sulfur dioxide and nitrogen dioxide. A reading over 300 indicates "hazardous" conditions that will affect the entire exposed population. Readings in the 800s and 900s were recorded in Beijing.

A barge passes the smog-ridden Port of Shanghai, the world's busiest container port. (Eric Isselée)

Haze fills the New Delhi skyline.

environmental agencies' authority over enforcement, including the authority to recall vehicles for emission violations.

In 2014, the World Health Organization ranked Delhi the most polluted city in the world. Concentrations of dangerous $PM_{2.5}$ in Delhi's air average up to 15 times higher than the permissible limit. In **India** ICCT's clean air program focus has been to support a move to Bharat VI emission standards, and complementary fuel-quality standards, by 2020. In **Europe** the Real-Driving Emissions (RDE) regulation will be a key to addressing high real-world emissions of nitrogen oxides (NO_x) from diesel cars, though its success will depend on the ability of regulators to adjust its stringency level to drive changes in emission control technology.

"The extraordinary air pollution in Beijing right now demonstrates just how much remains to be done to make policies to tackle climate change **work in practice**."

—The New York Times

passenger vehicles

Selection of news and feature stories on Volkswagen's admission that it had deployed defeat devices on millions of diesel-engine cars worldwide, featuring ICCT staff whose research laid the groundwork for the investigations by US EPA and CARB. https://youtu.be/kZ5R8a30ZAw

In September 2015 the U.S. Environmental Protection Agency (EPA) and the California Air Resources Board (CARB) issued notices of violation to Volkswagen for installing defeat devices on several diesel vehicle models. The agencies' action had roots in an ICCT research project done in collaboration with West Virginia University during 2013 and 2014, which aimed to evaluate real-world operating emissions from light-duty diesel vehicles in the United States.

The "dieselgate" story highlights the importance of tackling real-world emissions around the world. The VW scandal may have surfaced in the U.S., but the diesel emissions problem is very much a European affair. Diesel cars account for more than 50% of new passenger car registrations in the EU every year, compared with less than 1% in the U.S. And NO_x emission limits for diesel cars were always less stringent in the EU than those for gasoline cars.

"Excessive pollutant emissions during real-world driving is not something confined to the United States. . . . This is a **global problem** that will require a coordinated global solution."

—Drew Kodjak, Executive Director

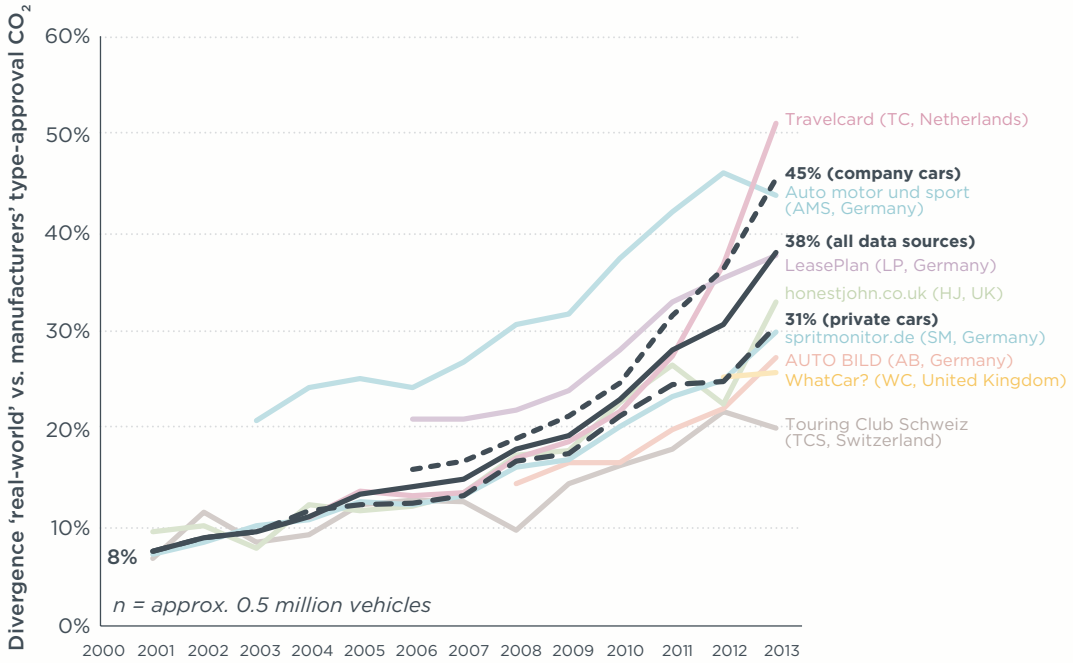
"The huge discrepancy in real-world performance among these vehicles makes it clear that without vigilant enforcement of air pollution laws, companies that comply with the standards will be placed at a competitive disadvantage. If left unchecked that **could undermine the whole regulatory framework**. That's why the actions by EPA and CARB are so important."

—John German, senior fellow

LAB TO ROAD 2015

While excess NO_x emissions finally received the attention they deserve in 2015, the analysis delivered in our 2015 Laboratory to Road update spotlighted once again the problem of excess CO_2 emissions in real-world driving compared with regulatory testing. The Lab to Road project, begun in 2012, documents the widening gap between official vehicle CO_2 emissions and real-world CO_2 emissions in Europe—a gap that grew from 9 percent in 2001 to 42 percent in 2015.

View the complete series here: http://www.theicct.org/series/laboratory-road



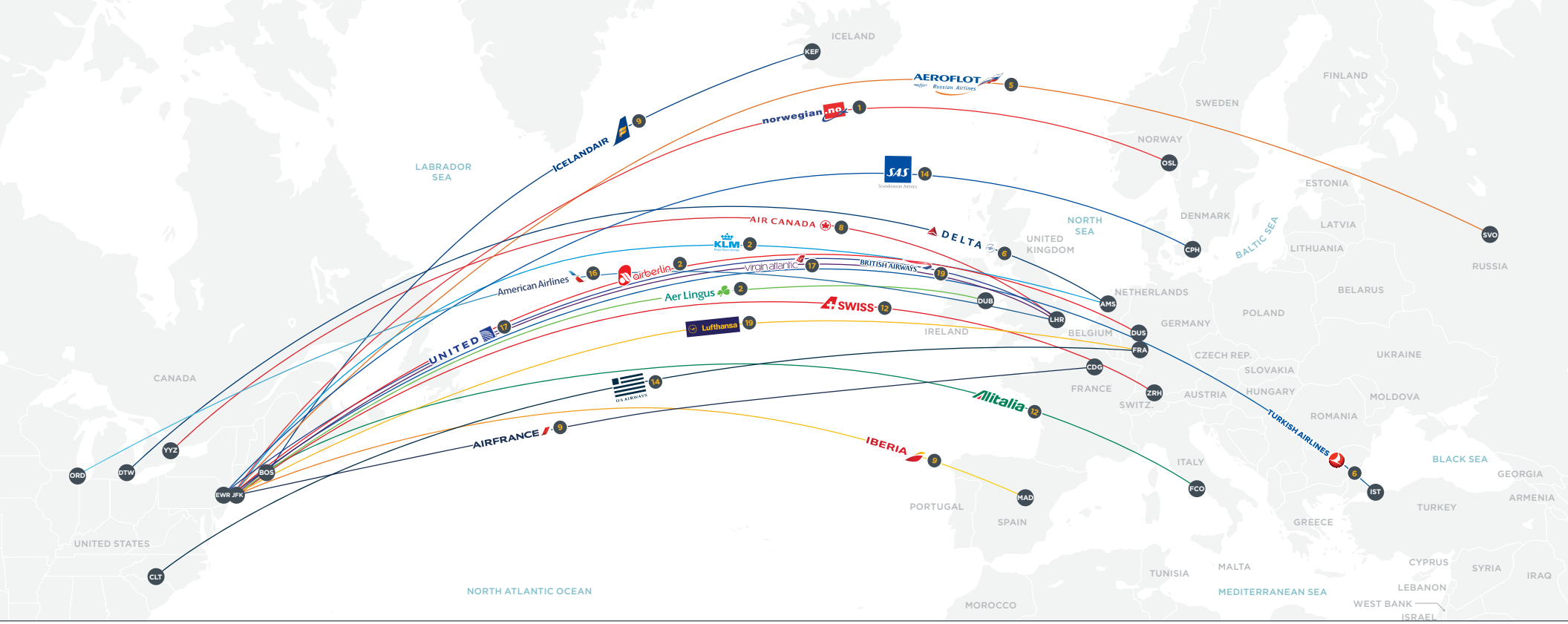
aviation

For several years ICCT's aviation team has ranked U.S. domestic passenger airlines according to overall in-service fuel-efficiency, using publicly available data and accounting for differences in business operations across airlines. The 2014 ranking showed a 25% gap in efficiency between the best and worst airlines.

In 2015, we released our first transatlantic airline fuel efficiency ranking, comparing the fuel efficiency, and therefore carbon intensity, of the top 20 airlines on routes between North America and Europe. This is the first analysis of its kind, combining the highest quality publicly available and commercial operations data with sophisticated aircraft fuel burn modeling to benchmark the fuel efficiency of carriers on a passenger kilometer basis. The fuel efficiency gap between the most and least fuel-efficient airlines on 2014 transatlantic operations was 51%, roughly twice the performance gap between the best and worst U.S. airlines on domestic operations.

"It's surprising to see such **large differences in fuel efficiency among airlines** on longhaul flights over the Atlantic. The airline you fly, and the aircraft they choose to operate, really matters if you're concerned about the climate."

—Dan Rutherford, program director for aviation



Rank	Airline	Airport pair	pax-km/L	kg CO_2 per round-trip itinerary
1	norwegian	JFK ⇄ OSL	42	720
2	airberlin	DUS ⇄ JFK	36	840
2	KLM	AMS ⇄ JFK	36	830
2	Aer Lingus	DUB ⇄ JFK	36	720
5	AEROFLOT Russian Airlines	JFK ⇄ SVO	35	1100
6	TURKISH AIRLINES	IST ⇄ JFK	34	1200
6	DELTA	AMS ⇄ DTW	34	1000
8	AIR CANADA	LHR ⇄ YYZ	33	870
9	ICELANDAIR	BOS ⇄ KEF	32	620
9	IBERIA	JFK ⇄ MAD	32	920

Rank	Airline	Airport pair	pax-km/L	kg CO_2 per round-trip itinerary
9	AIRFRANCE	CDG ⇄ JFK	32	930
12	Alitalia	FCO ⇄ JFK	31	1100
12	SWISS	JFK ⇄ ZRH	31	1000
14	US AIRWAYS	CLT ⇄ FRA	30	1200
14	SAS	CPH ⇄ EWR	30	1000
16	American Airlines	LHR ⇄ ORD	29	1100
17	virgin atlantic	JFK ⇄ LHR	28	1000
17	UNITED	LHR ⇄ EWR	28	1000
19	Lufthansa	FRA ⇄ JFK	27	1200
19	BRITISH AIRWAYS	LHR ⇄ JFK	27	1100

This figure compares the fuel efficiency of carriers on specific routes rather than on an overall airline basis. It shows fuel efficiency (passenger-km per liter), along with the absolute carbon dioxide emissions, for a nonstop round-trip itinerary on the most prevalent transatlantic route flown for each airline.

Busy ports contribute to localized pollution in some of the most heavily polluted cities in the world through emissions from dirty diesel bunker fuel.

An old truck in Latin America spews pollution into the air. Diesel exhaust from old trucks is one of the leading causes of urban air pollution in the developing world.

heavy diesel engines

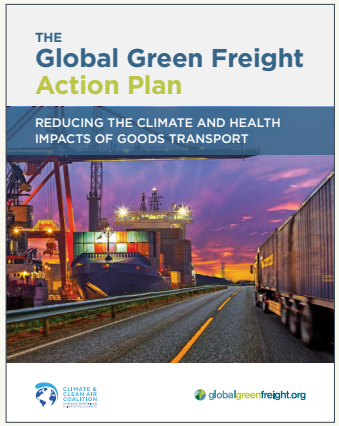
The Heavy-Duty Diesel Vehicles and Engines Initiative (HDDI) of the Climate and Clean Air Coalition to Reduce Short-Lived Climate Pollutants (CCAC) was initiated in early 2013, but really took shape in 2015. The ICCT serves as both a co-lead and a co-implementer (with the UN Environment Program) of the initiative. The HDDI focuses on reducing black carbon emissions by catalyzing the adoption of clean fuel and vehicle regulations and supporting policies worldwide. Elements of this strategy include a global effort to promote and coordinate **green freight programs;** the **global fuel sulfur strategy** addressing the main hurdles facing low-sulfur fuels today, from financing to obstructive subsidies and political inertia; the **Soot-Free Urban Bus Fleets project** targeting the implementation of official commitments to shift to soot-free buses in twenty target cities; and multi-pronged efforts to add address emissions from **marine vessels and ports** where they dock by helping to define, measure and control black carbon emissions to benefit the climate and public health.

- 19% of black carbon emissions in the world come from the transportation sector
- 75% of particulate matter emissions from older diesel vehicles is typically black carbon

"With the latest emission and efficiency technology, there is **no need to trade-off public health for a vibrant freight sector**."

—Fanta Kamakaté, chief program officer

The soot-free bus initiative aims to help twenty cities around the globe renovate and modernize their bus fleets as an effective way to reduce harmful air pollution. (Photo: Ray Minjares, ICCT)



The Global Green Freight Project was initiated by the Climate and Clean Air Coalition as part of a large-scale effort to reduce the climate and health impacts, and improve the energy and economic efficiency, of transporting goods and materials. The ICCT is among the organizational partners in this effort, and manages globalgreenfreight.org, an online portal to information and expertise on green freight and green freight programs around the world.

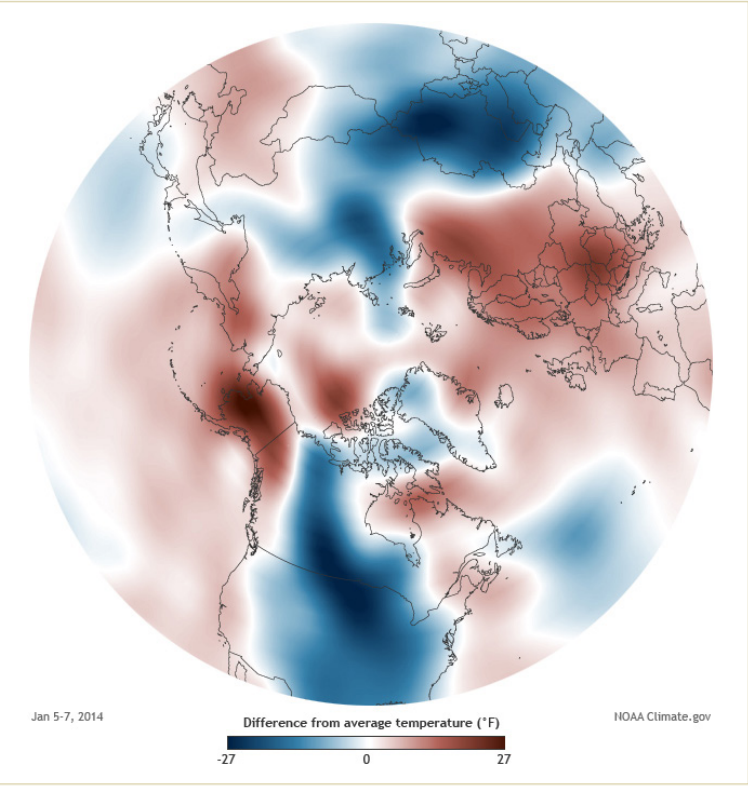
The GGF Action Plan, formally launched 27 May 2015 at the International Transport Forum Annual Summit in Leipzig, is meant to facilitate collaboration among governments, the private sector, and civil society to enhance the efficiency of global goods movement.

BLACK CARBON AND THE ARCTIC

Marine vessels are significant sources of diesel particulate matter and black carbon, the second most important climate pollutant after carbon dioxide and a particular concern in the Arctic. Black carbon emissions above 40°N latitude have an intensified climate-forcing impact, because in addition to the warming effects in the atmosphere the particles settle on the snow, reducing the albedo and increasing solar energy absorption and therefore melting, which further reduces the surface albedo in a vicious circle.

Heavy diesel engines on ships present a promising opportunity for mitigating climate pollution. Pollutant emissions from ships in the Arctic could increase as much as 600% by 2025, given current trends. But currently available technologies, combined with well-established best practices, can prevent up to 90% of diesel particulate and black carbon emissions from marine engines.

In late 2014 the ICCT embarked on a two-year project, funded by the Climate and Clean Air Coalition, to develop a refined global marine black-carbon emissions inventory and a technology performance database for black-carbon mitigation strategies.



Air temperatures (1000mb) for January 5-7, 2014, compared to the 1981-2010 average. Map by NOAA Climage.gov, based on NCEP Reanalysis data provided by NOAA ESRL Physical Sciences Division. (Source: NOAA, https://www.climate.gov/news-features/event-tracker/polar-vortex-brings-cold-here-and-there-not-everywhere)

FINANCIALS

audited financials

BALANCE SHEET

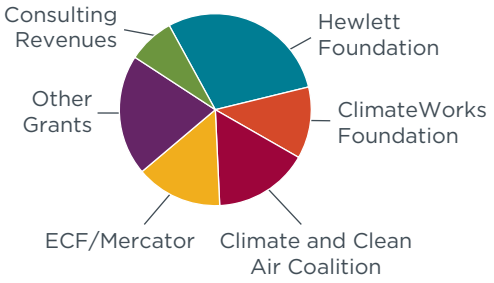
ASSETS	12/31/15	12/31/14
CURRENT ASSETS		
Total Checking/Savings	6,379,636	4,099,497
Grants & Accounts Receivable	6,468,402	5,244,927
Prepaid Expenses	122,196	70,065
Fixed Assets, net	296,729	420,841
Other Assets	108,289	23,383
TOTAL ASSETS	13,375,253	9,858,713
LIABILITIES & EQUITY		
LIABILITIES		
Accounts Payable & Accrued Expenses	833,832	950,709
Deferred Rent	89,267	84,280
TOTAL LIABILITIES	923,099	1,034,989
EQUITY		
Unrestricted Net Assets	6,001,107	2,119,260
Temp Restricted Net Assets	6,451,047	6,704,464
TOTAL LIABILITIES & EQUITY	13,375,253	9,858,713

STATEMENT OF REVENUES AND EXPENSES

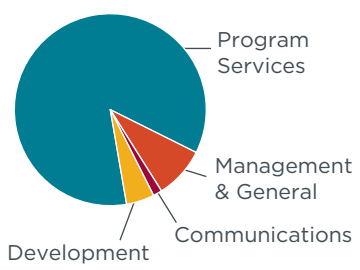
Year ended December 31

	2015	2014
REVENUES		
Grants & contributions	10,904,039	10,419,352
Contract Income	927,428	573,074
Other Income	14,184	7,780
TOTAL REVENUE	11,845,651	11,000,206
EXPENSES		
Program Services	7,195,844	5,855,705
Management & General	735,798	479,240
Communications	127,053	280,338
Development	398,523	573,992
TOTAL EXPENSES	8,457,218	7,189,275
CHANGE IN NET ASSETS	3,388,433	3,810,931
NET ASSETS, BEGINNING OF YEAR	8,823,724	5,012,793
NET ASSETS, END OF YEAR	12,212,157	8,823,724

2015 Revenue Sources



2015 Expenses



funding

The ICCT is funded primarily by foundations, with additional support from government contracts and international bodies.

2015 Funders and Partners

The 11th Hour Project of the Schmidt Family Foundation
ClimateWorks Foundation
European Climate Foundation
Energy Foundation China
FIA Foundation for the Automobile and Society
Latin America Regional Climate Foundation
Pisces Foundation
Rockefeller Brothers Fund
Shakti Sustainable Energy Foundation
Stifung Mercator
The William and Flora Hewlett Foundation
The David and Lucile Packard Foundation

"ICCT is grateful for a small group of sophisticated funders that recognize that **good policy must be built on a solid foundation** of good analysis and effective communication."

—Drew Kodjak

staff

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Fanta Kamakaté, Chief Program Officer

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Chris Malins, Ph.D., lead, fuels
Josh Miller, researcher, roadmap

September 2015 all staff retreat in Petaluma, California. (Photo: Irene Kwan, ICCT)

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Diane Tworog, development manager
Haifeng Wang, Ph.D., senior policy analyst, marine
Zifei Yang, researcher, passenger vehicles

VW'S EMISSIONS CHEATING FOUND BY CURIOUS CLEAN-AIR GROUP (BLOOMBERG) DIESER MANN LÖSTE DEN VW-SKANDAL AUS (STERN) AS VOLKSWAGEN PUSHED TO BE NO. 1, AMBITIONS FUELED A SCANDAL (NYT) DIE DRECKIGE WAHRHEIT ÜBER DIESELAUTOS (SPEIGEL) EPA ACCUSES VOLKSWAGEN OF DODGING EMISSIONS RULES (WSJ) HOW THIS CLEAN AIR NGO CAUGHT VOLKSWAGEN CHEATING EMISSIONS TESTS (FORTUNE) VW COULD FOOL THE EPA, BUT IT COULDN'T TRICK CHEMISTRY (WIRED) ICCT: EMISSIONS UP TO 40% HIGHER WHEN DRIVING (CNN) VW EMISSIONS SCANDAL COULD SNARE OTHER FIRMS, WHISTLEBLOWER CLAIMS (GUARDIAN) CLEAN DIESEL: TOO GOOD TO BE TRUE? (NPR) THE FEDS JUST ACCUSED VOLKSWAGEN OF AN UNBELIEVABLE SCHEME TO EVADE POLLUTION LAWS (MOTHERJONES) VW CHEATED ON U.S. POLLUTION TESTS FOR 'CLEAN DIESELS' (LATIMES) DIEZ RAZONES PARA PROMOVER EL USO DE VEHÍCULOS SOSTENIBLES (ABC.ES) LARGE VARIATION FOUND IN AIRLINES' CO_2 EMISSIONS (THE GUARDIAN) VOLARE IN PRIMA CLASSE COSTA TROPPO (ALL'AMBIENTE) (NATIONAL GEOGRAPHIC) EU TRUCKS' FUEL EFFICIENCY NO BETTER THAN A DECADE AGO—STUDY (REUTERS)