

ECONEWS

Issue 220

Promoting the Vision of a Vibrant Sustainable Vancouver Island

JANUARY 2012

TRANSPORTATION: THE 99% SOLUTION

A new year is with us, and a great transformation is underway as we learn how to live on Earth with far less ecological impact.

The transformation is happening in many areas, but let's pick personal transport, cars and light trucks, to see what we can do. By how much could we reduce our ecological impact?

In 2010, Canadians used 40 billion litres of gasoline in their road motor vehicles. Each litre produces 2.34 kg of carbon dioxide when burnt, so that's 94 million tonnes of fresh carbon dioxide trapping heat in the atmosphere every year - a quarter of which will remain there for over 500 years. Long after we are gone, and only a fragment of cyber-memory remains of our lives, a quarter of the CO₂ from the gasoline we burn today will still be warming the atmosphere, offending our ancestors twenty generations down.

So here's how we can fix it, to prevent the damage from climate change from getting any worse.

In Step One, we shift 20% of our trips to bicycles and electric bikes, supported by safe bicycle lanes and city bike-sharing programs. In Copenhagen, commuters make 36% of their trips by bike, winter and all, and their goal is 50% by 2015, so 20% seems reasonable. As a bonus, we get fit, have lower health care costs, and according to the Danish evidence, our cycling kids will be happier. This will reduce our carbon burden to 75 million tonnes.

In Step Two we also shift 20% of our original trips to public transit, rail and light rail transit, assisted by a big investment in LRT and fast-charging electric buses, electronic timetables for every transit stop and smart phone, cheaper fares, comfortable bus shelters and more frequent buses. This reduces the carbon burden to 55 million tonnes.

In Step Three we shift 10% of the remaining trips to ridesharing, using

online and real-time ride-sharing tools. This reduces our carbon burden to 50 million tonnes.

In Step Four we shift 50% of our vehicles to electric drive, using renewable energy from hydro, wind, solar and geothermal power. If we were to shift *all* our vehicles to electric drive, the change would only create an 8% to



15% increase in power demand, which we could produce by making our buildings more efficient. Electric cars are coming onto the market now, and their price will decline as demand and production rises. Their ranges vary from 100 to 200 km, which will increase as batteries improve. The use of feebates could help drive the price down, with fees on the least efficient cars being applied as rebates to the most efficient ones. This will reduce the annual carbon burden to 25 million tonnes.

In Step Five we shift the remaining cars and light trucks to hybrids such as the GM Volt that combine electric drive with fuel capacity. Since 80% of our average daily driving is within range of the battery, the hybrids bring us an 80% reduction in our remaining burden, reducing it to 5 million tonnes.

We're not done yet, however, for Step Six brings light-weighting - the use of integrated design and carbon fibre to cut the weight of a car by 50% without any loss in strength or safety. This is already underway, as auto-companies seek to make their cars more efficient. A 50% weight reduction brings 50% fuel use reduction, cutting our carbon

burden to 2.5 million tonnes. That's a 97% reduction from our original 94 million tonne carbon footprint.

In terms of liquid fuel, the 40 billion litres we use today is reduced to 1.2 billion litres, which could be provided by biogas, biofuel from wastes or hydrogen. When fast charging for electric vehicles reaches the point when it takes no more than 20 minutes after a 200 km drive, we could dispense with most hybrids, eliminating 99% of the need for liquid fuel.

The cars will still have to be made, however, carries its own ecological cost. The average car is only used for 4 to 8% of the time. With peer-to-peer carsharing, which is happening in San Francisco, vehicle owners are using smart

car-sharing technology to put their own cars into the pool, earning up to \$300 a month. If car-shared vehicles are used for 30% of the time this would allow for a four-fold reduction in the number of vehicles needed on a street, while still enabling residents to get where they need to go.

We'll still need roads, and cars will still squash birds, snakes and frogs, so it may not be a 99% reduction in the full ecological impact of personal driving. But it will remove all the associated air pollution and most of the noise associated with cars.

To make all this happen, we will need a variety of policy and tax shifts, and an integrated effort by activists, city councils, transport planners, and provincial and federal politicians. The pay-off will be enormous, however - to unhook ourselves from our dependency on oil, while eliminating air pollution and our carbon burden.

It IS possible. And we are the ones who must prove it so. So let's spend our energy on creating a desirable future, and spend less time worrying about a fearful one.

Guy Dauncey