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THE BIO-CIRCULAR ECONOMY:
“GETTING ENVIRONMENTAL BUY-IN”

IS BIOENERGY AN ESSENTIAL CLIMATE SOLUTION?

IS BIOENERGY AN ESSENTIAL CLIMATE SOLUTION? YES!

- ▶ “Modern bioenergy is the overlooked giant of the renewable energy field. Its share in the world’s total renewables consumption is about 50 percent today, in other words as much as hydro, wind, solar and all other renewables combined.” - Faith Birol, Executive Director, International Energy Agency

IS BIOENERGY AN ESSENTIAL CLIMATE SOLUTION? YES!

Bioenergy leads growth in renewable energy consumption to 2023: IEA

Nina Chestney

3 MIN READ



LONDON (Reuters) - Bioenergy from liquid biofuels and biogas will lead growth in renewable energy consumption to 2023, due to its rising use in the heating and transport sectors, according to the International Energy Agency (IEA).

Overall, renewable energy will continue to grow to 2023, accounting for 40 percent of energy consumption growth as countries cut their greenhouse gas emissions to try and keep global warming in check.

While growth in solar and wind power is set to continue in the electricity sector, bioenergy will remain the largest source of renewable energy, the IEA said in an annual report on renewables.

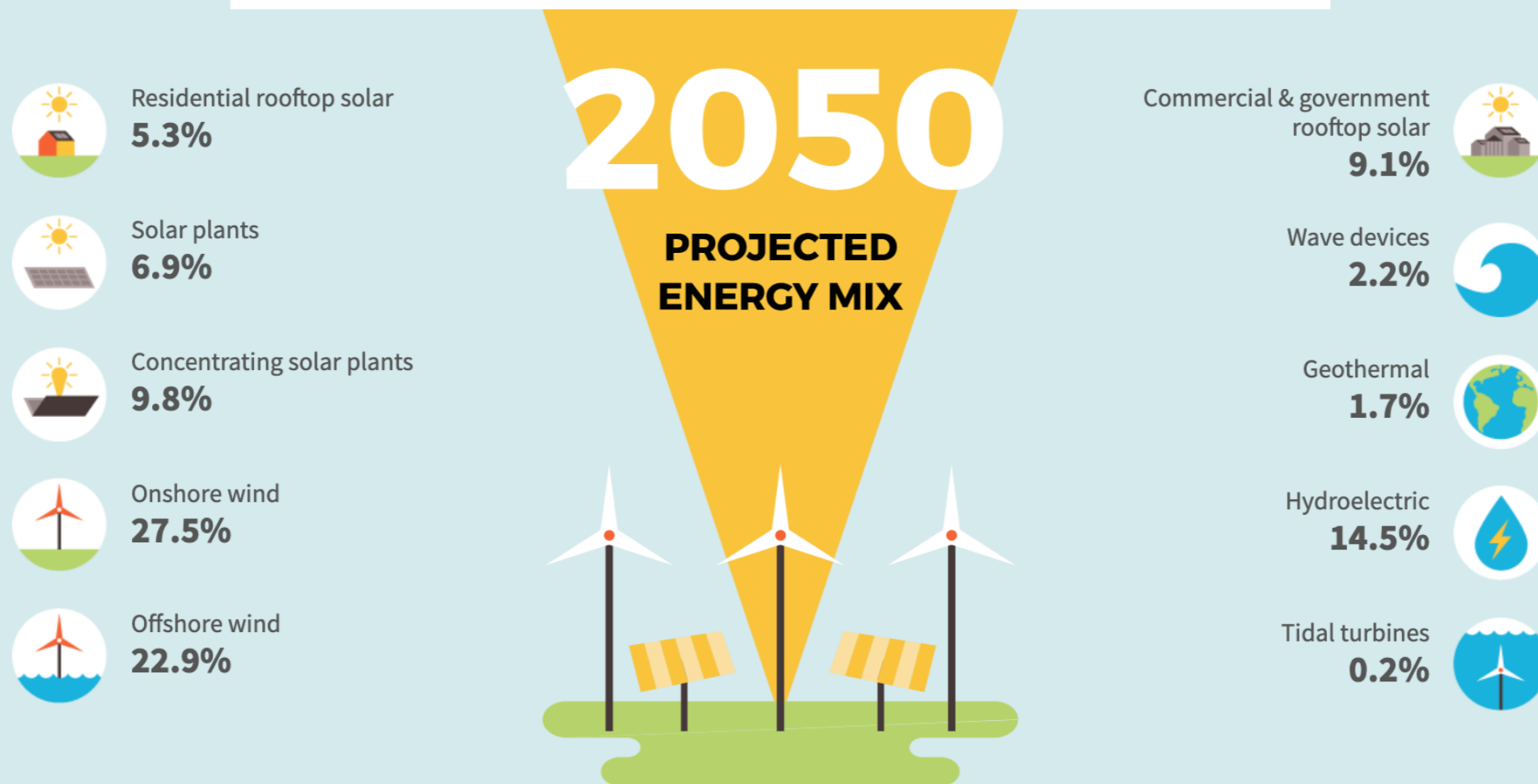
IS BIOENERGY AN ESSENTIAL CLIMATE SOLUTION? NOPE!

- ▶ “Combusting forest and industry residue and other forms of biomass to provide electricity and heat results in higher CO₂e emissions and much more air pollution emissions than does using wind-water-solar (WWS) technologies. Some forms of biomass also require much more land than do WWS technologies. As such, using biomass for energy represents an opportunity cost. Paying for BECCS/U instead of WWS means less energy production, a longer time lag between planning and operation, more air pollution, greater land use (for some crops), and less carbon removal (because less BECCS/U than WWS technologies can be installed for the same money). “ - Mark Jacobson, Atmosphere/Energy Program Director, Stanford University & Co-Founder of the Solutions Project

IS BIOENERGY AN ESSENTIAL CLIMATE SOLUTION? NOPE!

100% Canada

A vision for the transition to 100% wind, water & solar energy



IS BIOENERGY AN ESSENTIAL CLIMATE SOLUTION? MAYBE?

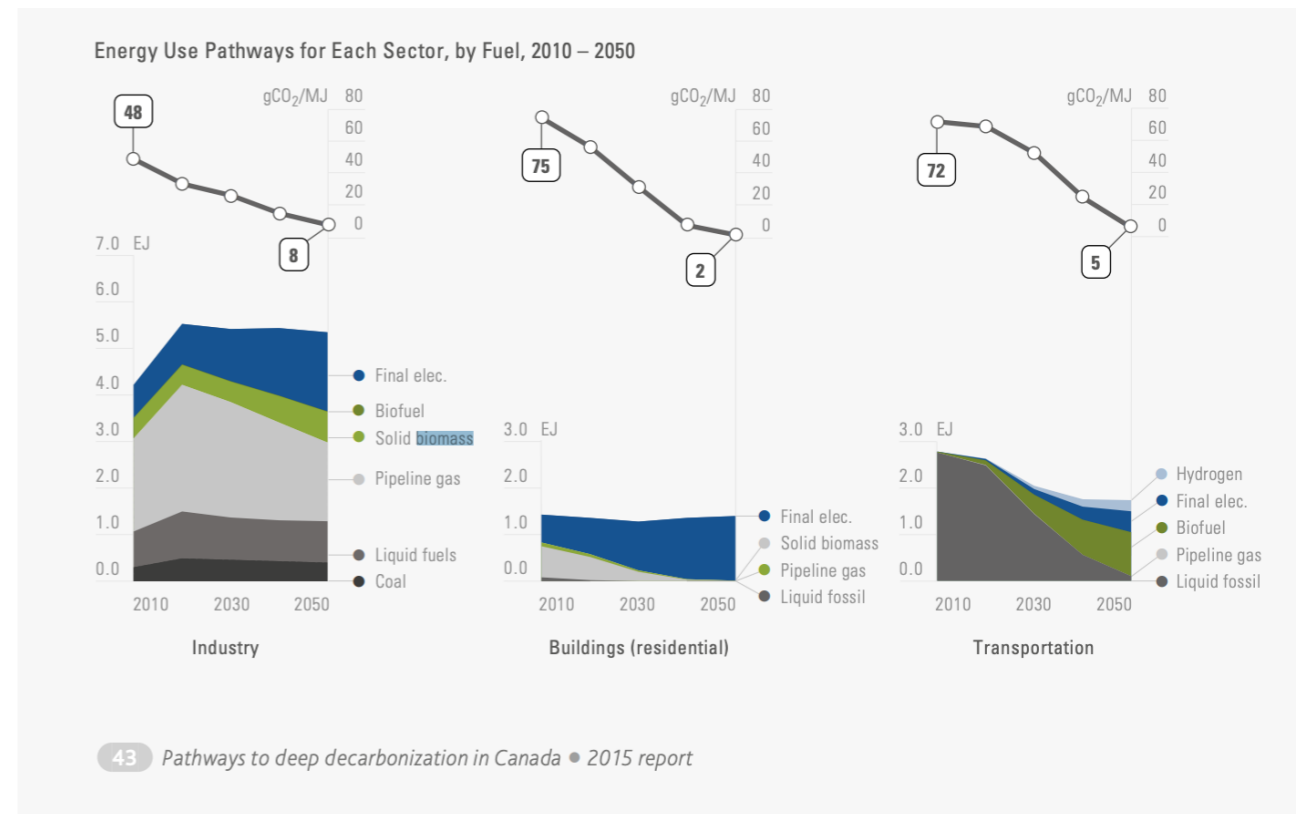
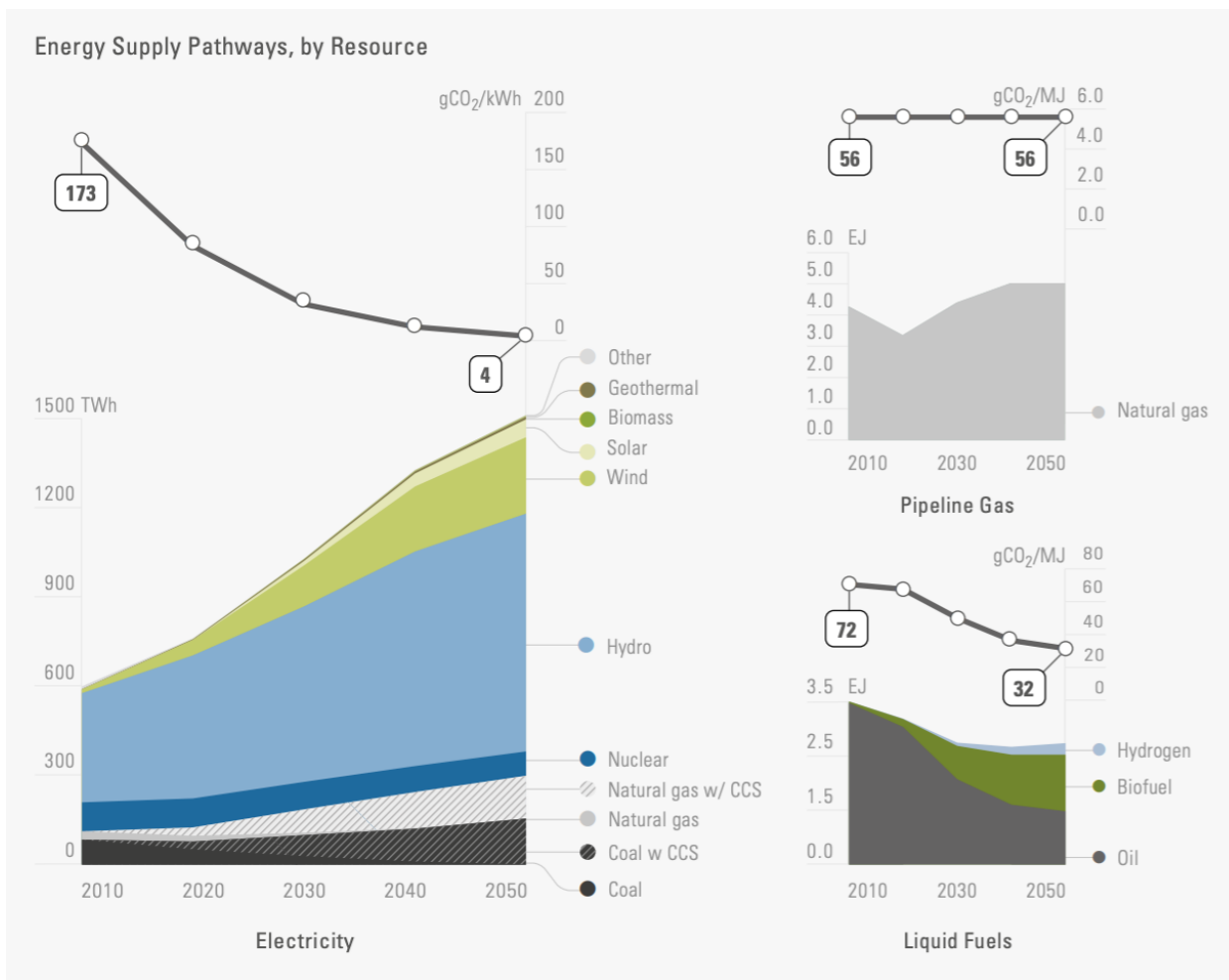
- ▶ Intergovernmental Panel on Climate Change's Special Report on Global Warming of 1.5 Degrees

configuration of carbon-neutral energy systems projected in mitigation pathways can vary widely, but they all share a substantial reliance on bioenergy under the assumption of effective land-use emissions control. There are other configurations with less reliance on bioenergy that are not yet comprehensively covered by global mitigation pathway modelling. One approach is to dramatically reduce and electrify energy demand for transportation and manufacturing to levels that make residual non-electric fuel use negligible or replaceable by limited amounts of electrolytic hydrogen. Such an approach is presented in

assessed in this report (but is, for example, in Frank et al., 2017). Whether bioenergy has large adverse impacts on environmental and societal goals depends in large parts on the governance of land use (Haberl et al., 2013; Erb et al., 2016b; Obersteiner et al., 2016; Humpenöder et al., 2018). Here IAMs often make idealized assumptions about effective land management, such as full protection of the land carbon stock by conservation measures and a global carbon price, respectively, but variations on these assumptions have also been explored (Calvin et al., 2014; Popp et al., 2014a).

IS BIOENERGY AN ESSENTIAL CLIMATE SOLUTION? MAYBE?

► Deep Decarbonization Pathways Project Canada, 2015



GETTING REAL

- ▶ There are a lot of differing views, a lot of claims and assumptions being made (on all sides), and not enough transparent dialogue
- ▶ The affix “bio” doesn’t necessarily make something green
- ▶ Environmental/sustainability credibility needs to be earned
- ▶ Creating spaces for that transparent dialogue would be of great benefit



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THANK YOU