

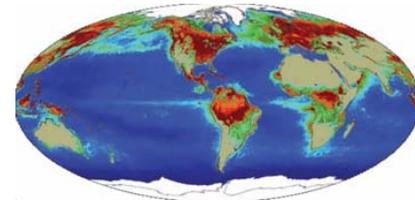
Greater Transportation Energy and GHG Offsets from Bioelectricity than Ethanol

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Ethanol vs. Electricity

The Land

Only a limited area of cropland is available to grow biofuel crops without causing an increase in food prices or deforestation.



The Choice

The plant biomass grown on this limited land could be used for transportation via different energy pathways such as ethanol and electricity.



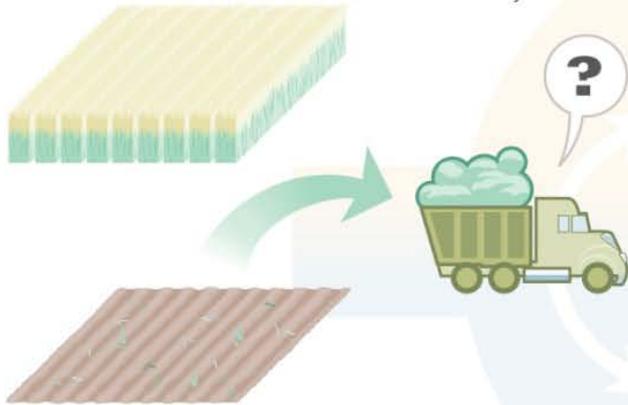
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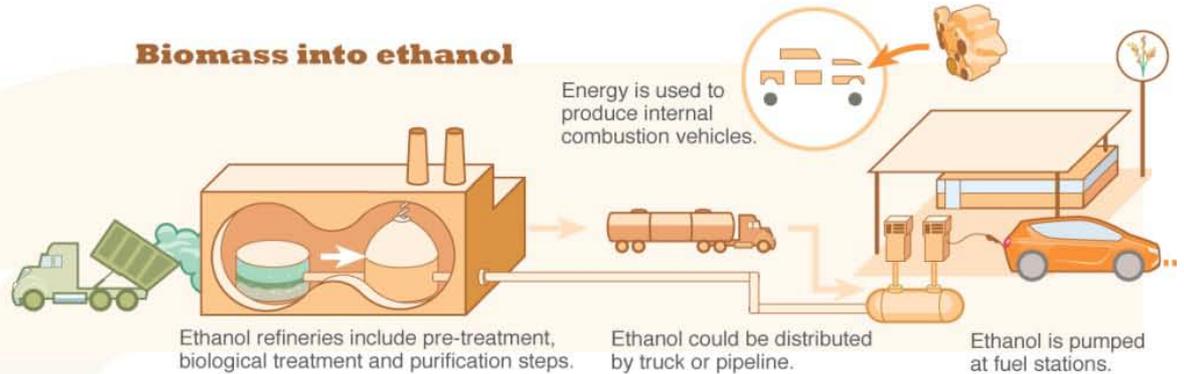
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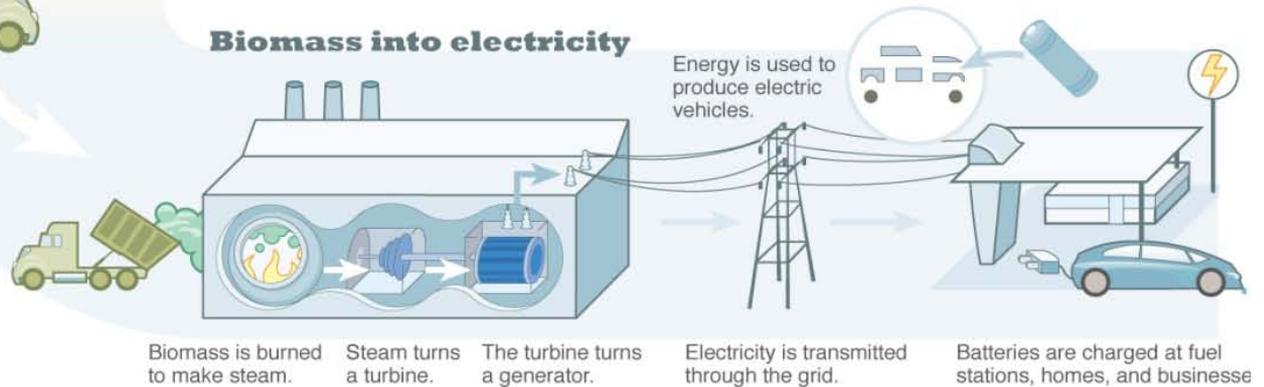
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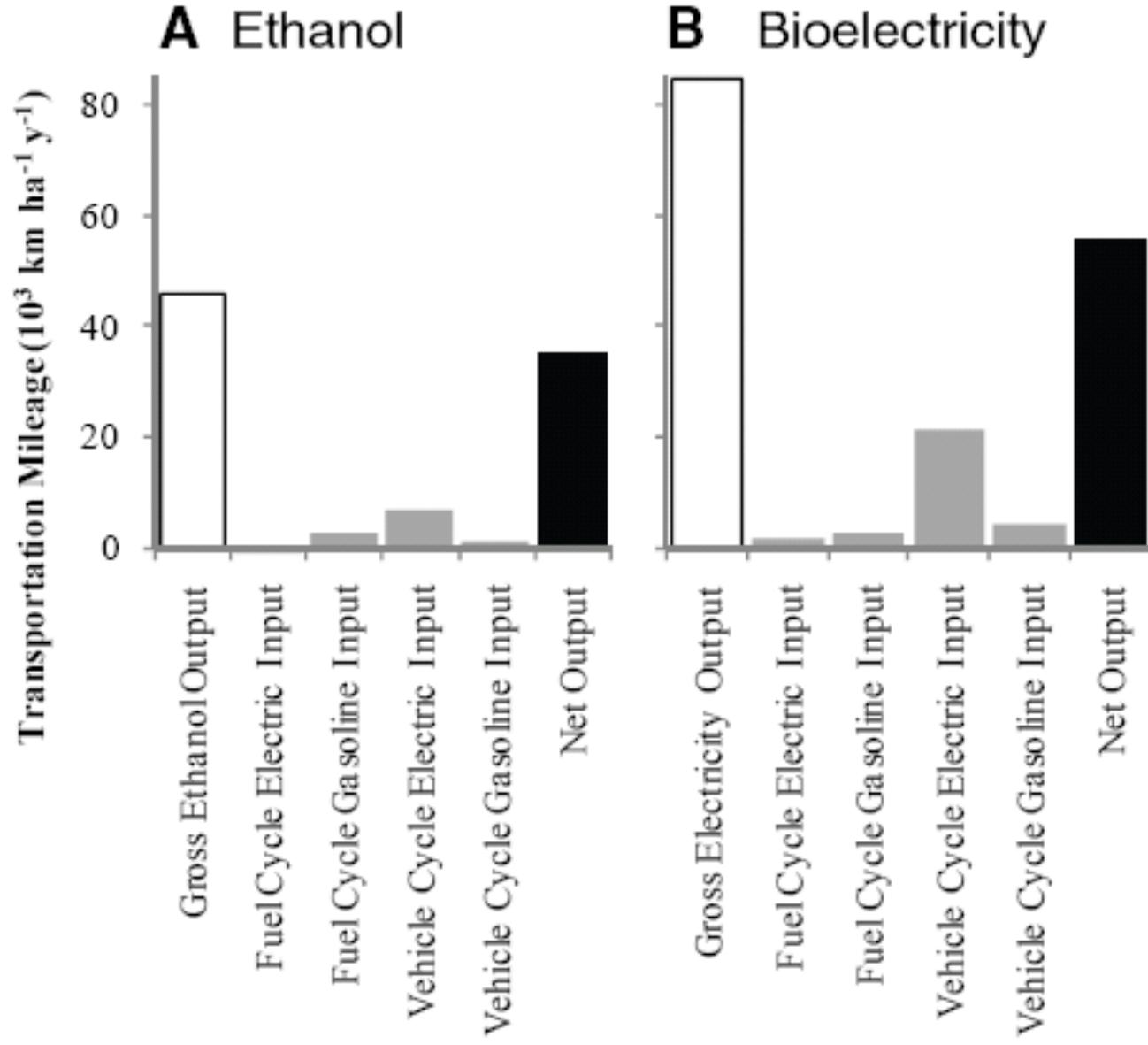


Biomass into ethanol



Biomass into electricity





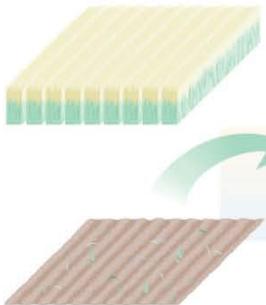
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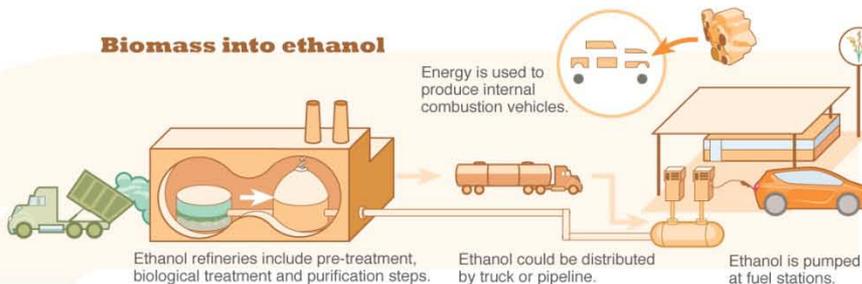
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Biomass into ethanol

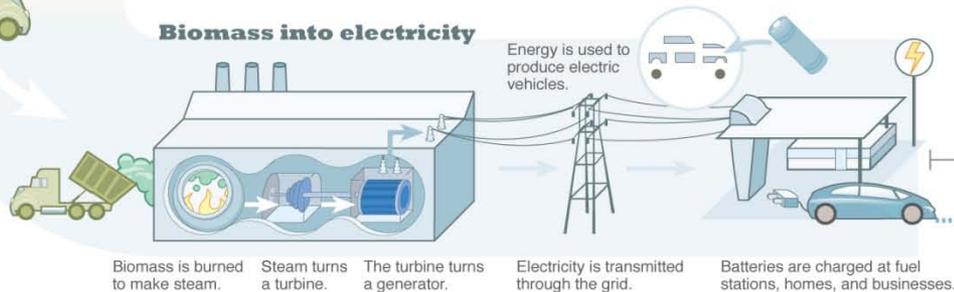


The Result

Using the biomass to produce electricity for electric vehicles would produce 81% more transportation than using the same amount of biomass to produce next-generation ethanol for internal combustion engine vehicles. The electricity option also has a greater potential for reducing CO₂ emissions than ethanol.

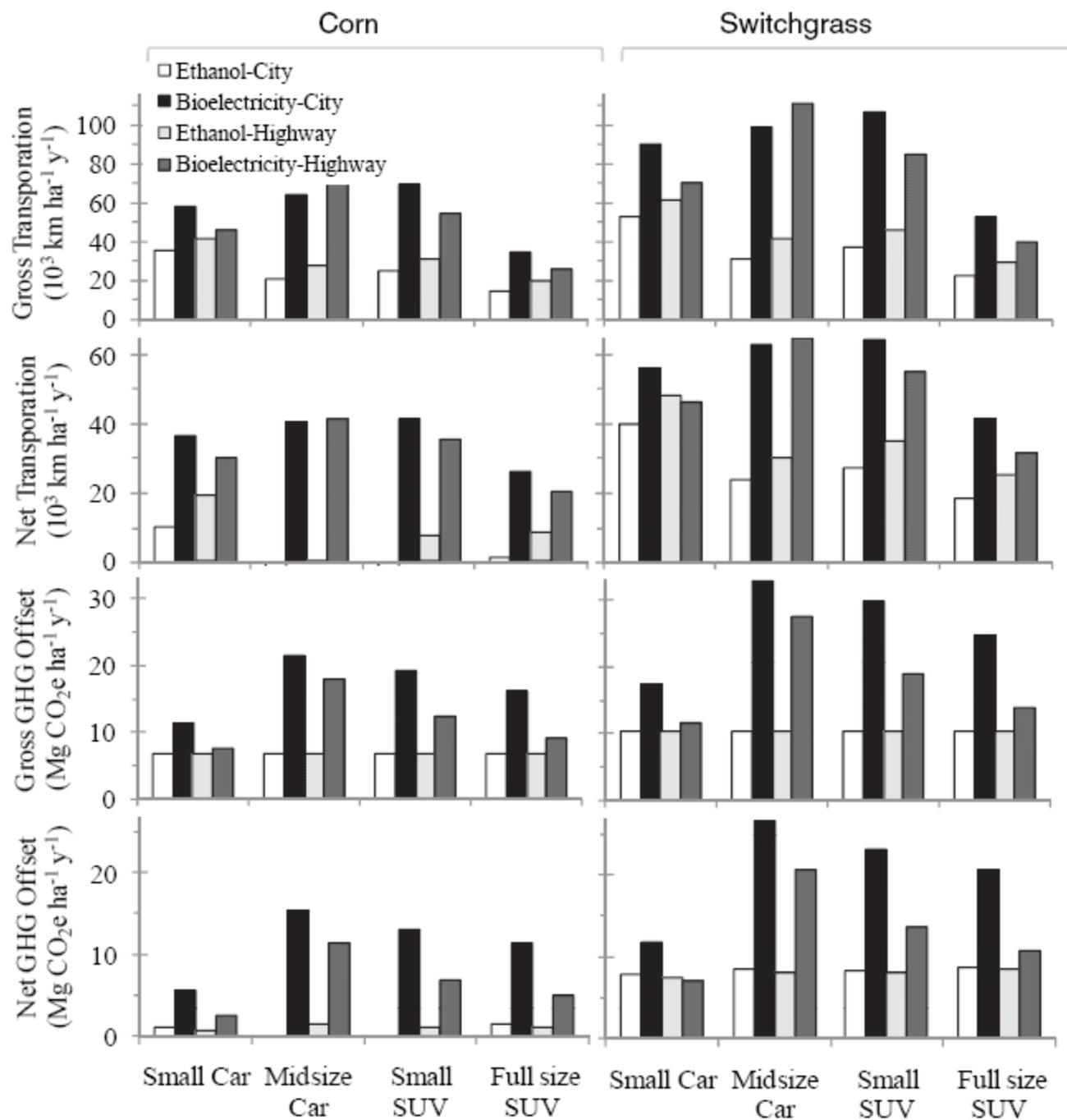
8,000 miles per acre

Biomass into electricity



The miles that could be driven using the annual harvest from one acre of cropland vary for different factors such as crop yield and vehicle class. The example shown here is for a switchgrass crop and a small SUV.

15,000 miles per acre



The result:

Bioelectricity vs Bioethanol

- 81% more km Ha⁻¹
- 108% more GHG offsets
- Significant technology hurdles for both 2nd generation ethanol and electric vehicles