

The energetic potential of abandoned land

Converting land abandonment to energy

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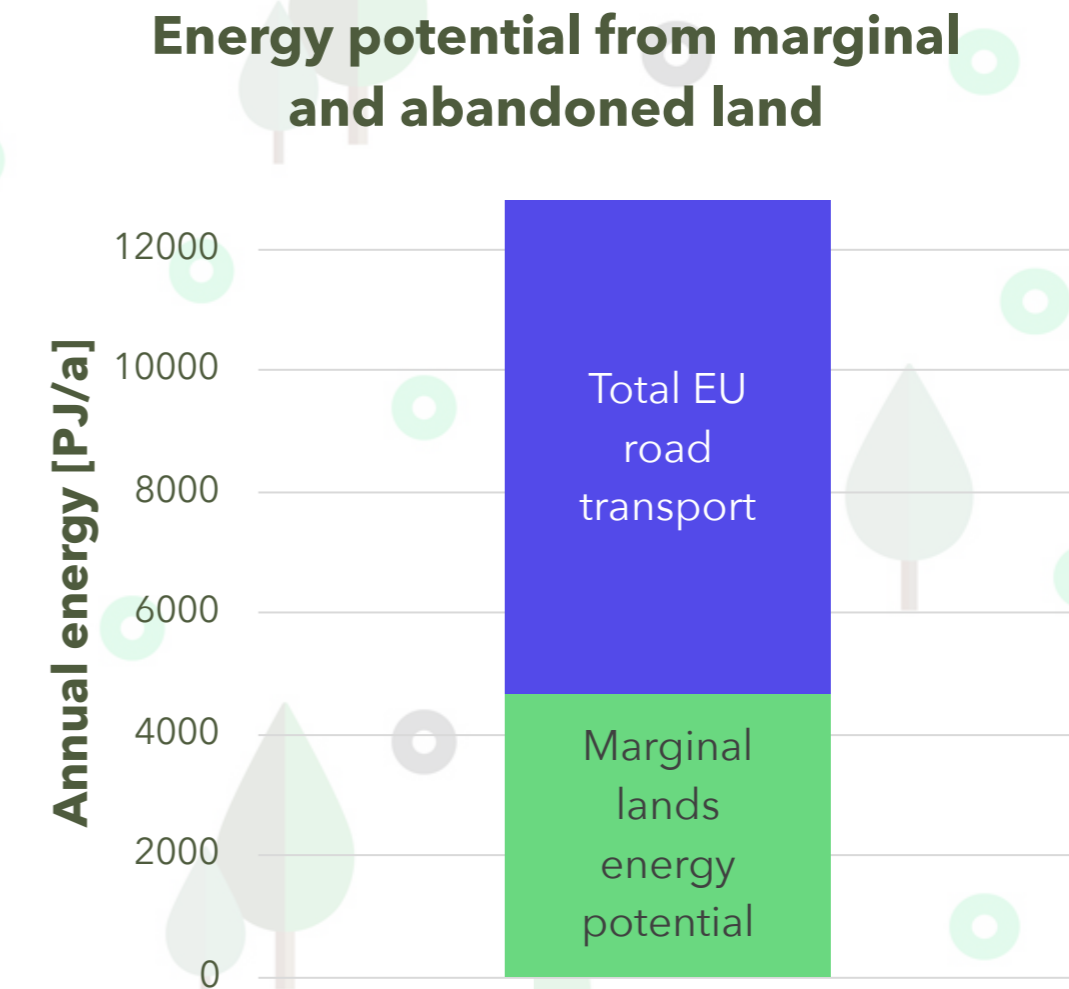
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What if: Energy potential of marginal lands

- Abandoned and marginal land is abundantly available in Europe
- Potential for dedicated bioenergy crop growth without land competition with food
- Energy potential = Area × Biomass yields × Energy content of Biomass
- Area:
 - Drastic agricultural land abandonment since 1975 [1]
36 million ha
- Biomass yields:
 - Average of simulated, low input crop yields from WUR S2BIOM per region [2]
~5 - 7 t/ha/a
- Energy content of biomass [3]
16.7 - 17.9 GJ/t

What if: Energy potential of marginal lands

- Up to **4,680 PJ/a** from marginal lands
- In 2018, European road transport demands were **12,800 PJ/a** [1]
- 36 % of EU transport energy can be potentially substituted by dedicated energy crops grown on marginal and abandoned land
- Increasing electrification of the European car fleet will further decrease road transport needs



¹⁾ European Commission (2020) - Statistical Pocketbook. Transport in Figures

Recent data on underutilised land (2015 - 2019)

- Land estimation via satellite remote sensing technique
- Estimation **5.3 million ha** of underutilized land available for bioenergy production
 - Up to **700 PJ/a**
- Average patch sizes of **23.2 - 49.6 ha** [1]
- Land abandonment still occurs today
 - Meaningful amounts of energy can be harvested from good-quality land



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