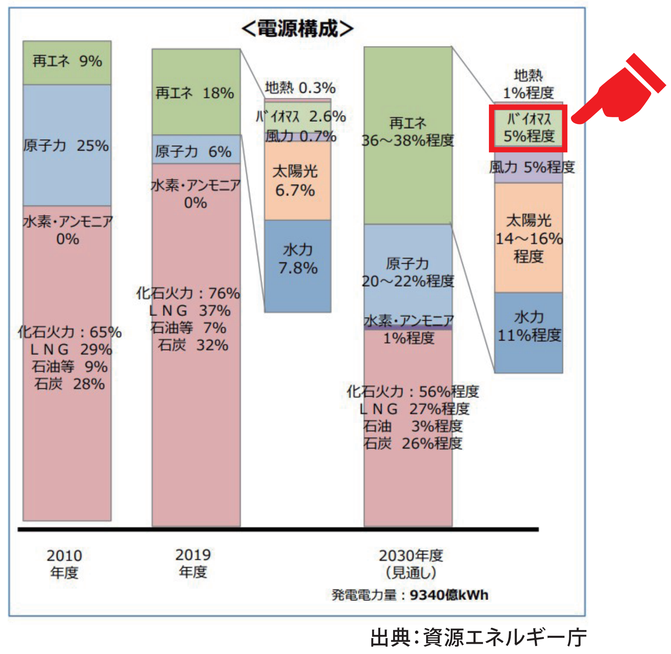
Biomass Energy

Bioenergy power generation trends

- Bioenergy power generation is one of the crucial challenges that should be led by the government in the point of improving energy security and solving the global warming issue.
- According to 2030 energy mix vison in the 6th Basic Energy Plan, biomass is responsible for around 5% while renewable energy accounts for 36-38%

2030年度の電源構成（エネルギーミックス）

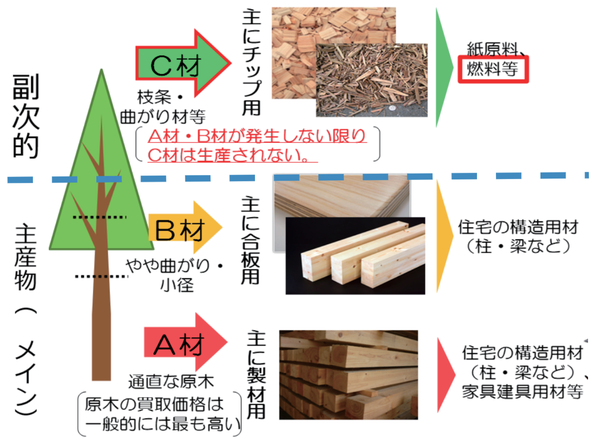


出典：資源エネルギー庁

Challenges and solutions for woody biomass utilization

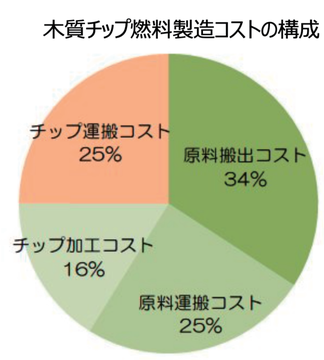
Challenge ①

Since domestic woods are used for building construction and fuel use is regarded as a secondary choice,
1. Predicting supply is difficult because of volatile market trend of building materials
2. Production/Transportation system for conifers as building materials is too much for fuels
3. No standard to evaluate fuel quality with unified measurement



建材（A材、B材）が主流、燃料用途は二次的取扱。商慣行として、燃料用途のみを目的とした伐採は行われていない（安定供給上の支障）。

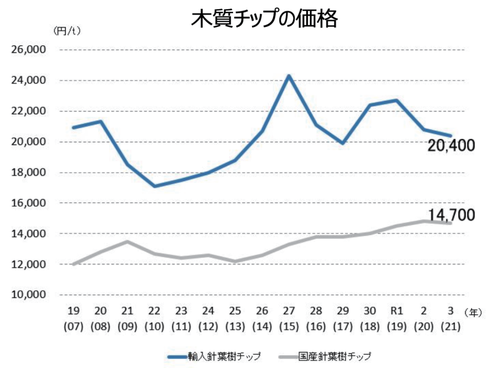
木質チップ燃料製造コストの構成



出典：平成25年度木質バイオマス利用支援体制構築事業 発電・熱供給・熱電併給推進のための調査

木質チップ燃料製造コスト構成のうち、運搬コストと加工コストが全体の約2/3を占める。（製造・輸送システムの効率化が必要）。

木質チップの価格



出典：令和３年度森林・林業白書(抜粋)

発電所での需要増により国産チップの利用量・価格は上昇傾向。また、燃料材は、発電所が長期的に一定額で購入する形をとっているため、どんな燃料材が来ても、基本的には決まった購入価格で取引されている状況。
（品質規格が存在しない）

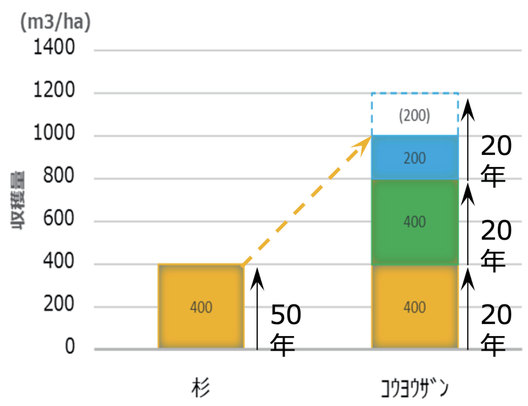
Issues and countermeasures in wood biomass utilization

Challenge ②

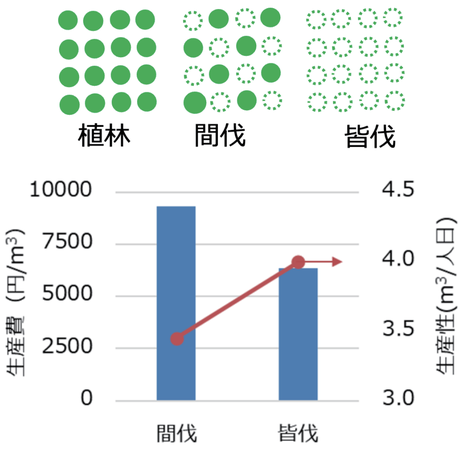
(1) Broad-leaf trees are tremendous but not fully utilized at the moment
(2) Fast-growing trees have features of fast-growing and coppicing that reduce burdens of forest management but it is not decided how to utilize them

【Solutions】
- Afforestation of fast-growing trees and broad-leaf trees to create fuel-use forest. (fuel potential development)
- Establishment of the most suitable supply chain for fuel-use (optimization of transporting/processing system)
- Formulation of quality standards (Standards suitable for domestic tree species and usage)

＜早生樹の収穫量＞
早生樹は、成長が早く
針葉樹の2.5倍の収穫量



＜間伐・皆伐のイメージ＞
皆伐は間伐に比べて生産性が良く
コストが2/3



＜木材育成費削減のイメージ＞