Energy and Wood in the French Alps – Strategies For an Uncertain Resource

Energy Platform Workshop 2 – Energy vs. Environment

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Outline

1. Alpine Forest: Questions for a Potential
   - Forest Chip: New Issues for the Alpine Forest
   - Controversies for the Alpine Forest
2. Which Wood Energy Sector?
   - Wood Energy Sector in the French Alps
   - Sequences
3. Wood, Energy and Local Adaptation
   - Conditions for Sustainable Wood Energy
   - Modelling Supplying Areas

Introduction

"Layers of complexity" → Hybrid notion: wood or energy?

- European context: energy transition ("3x20")
- Wood energy = 1st RE in France (and Europe)
  - 7 % in primary energy consumption
  - 70 % of renewable energies
  - 55 % increase for 2020
- Hierarchy of uses
- Territory – Forest – Energy – Climate
- Local → European scale
- Alpine forest and multifonctionnality

WHICH CONDITIONS FOR WOOD ENERGY DEVELOPMENT?

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Forest Chip: New Issues for the Alpine Forest

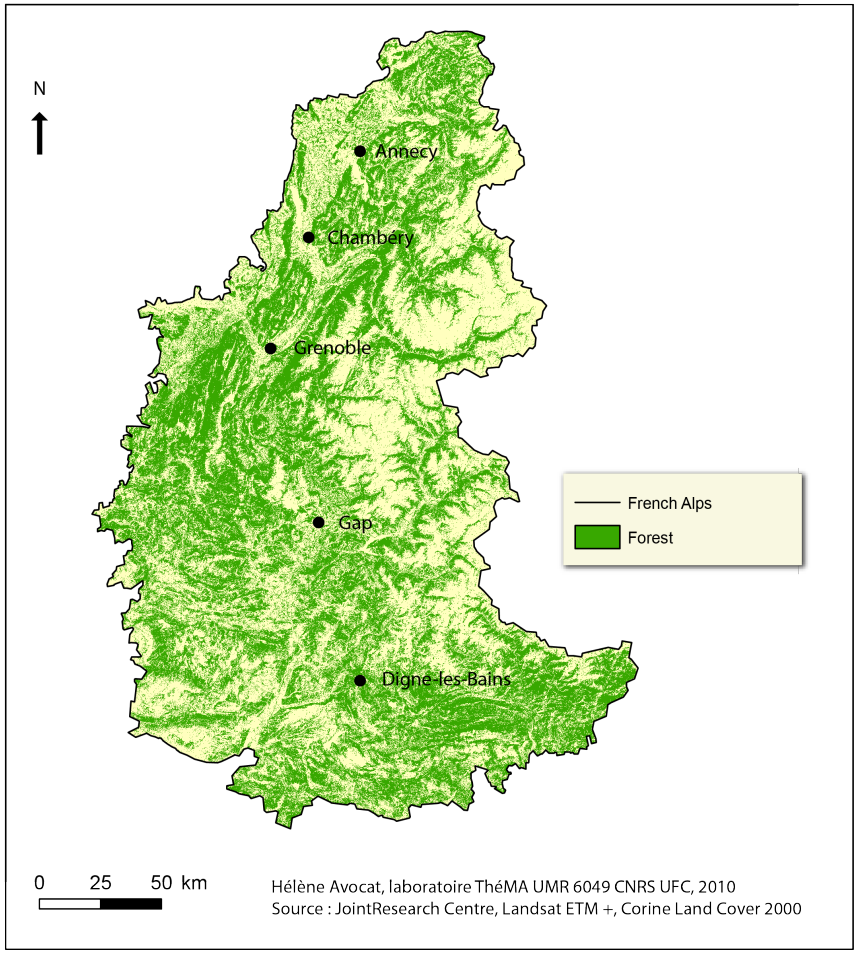

Figure : Forest cover in the French Alps

- Local asset underused: 41 % cover
- French Alpine Strategy (CIMA-POIA, CFT...)
- Increasing demand
  - 2009 : 85 000 t in Rhône-Alpes
  - 2013: 130 000 t (480 MW)
- 62 %: difficult to exploit (slope, forest division...)

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Controversies for the Alpine Forest

- Improving forest management
- Working out forest – energy – territory balance
- "Traditional" issues:
  - Tensions on forest sector
  - Hierarchy of uses
- "Specific" issues:
  - Protection
  - Ecosystem protection
  - Constraints of exploitation: new technical and managerial approaches (skidding, fiscal...)

Figure : cable skidding demonstration near Grenoble

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Wood Energy Sector in the French Alps

Different planning tools:

1. Forest
2. Energy
3. Local development

But strong asymmetries:

1. Temporalities
2. Knowledge – know-how
3. Leverages

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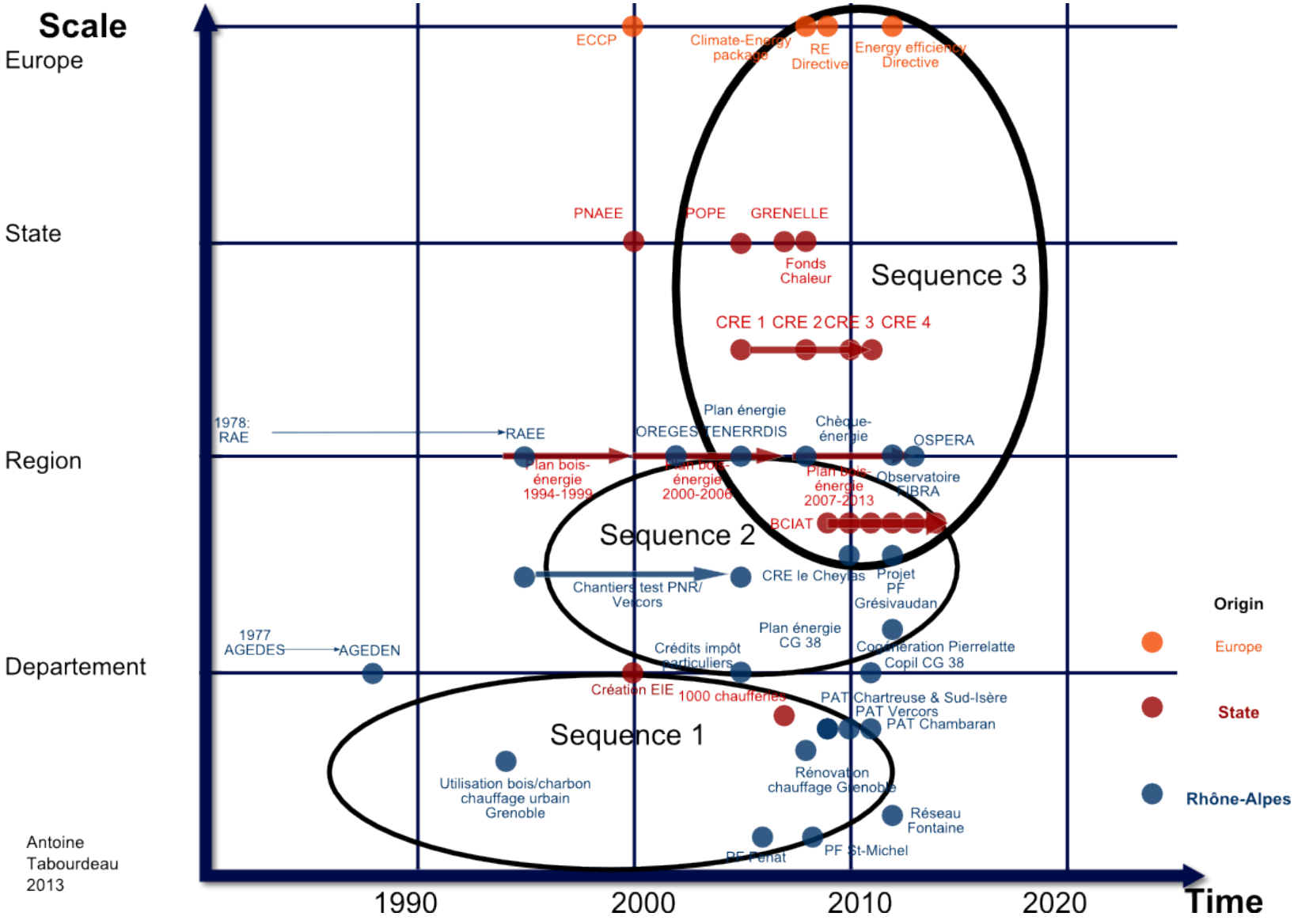
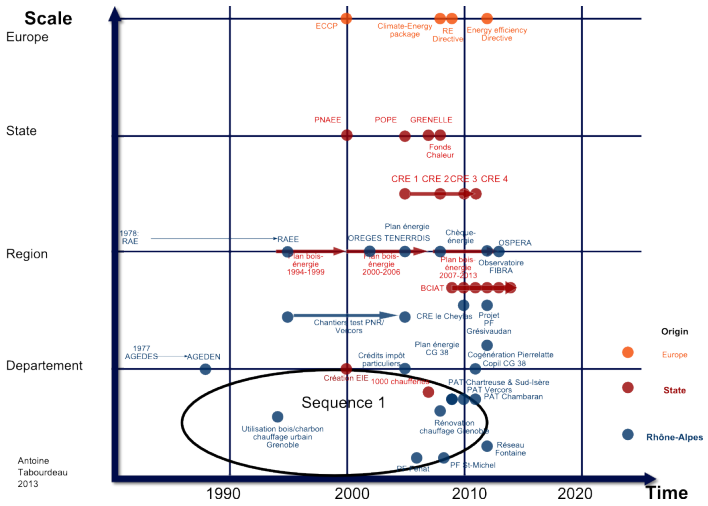


Figure : Wood energy sequences

Sequence 1: 1980s–1994, local initiatives



Changes:

- Ponctual experiments and testings
- Important uncertainties (costs, availability, environmental impact)
- Personal committment
- "Intuitive potential"

Wood energy strongly dependant on:

- Local scale
- Forest sector
- Local public authorities
- Very few energy actors

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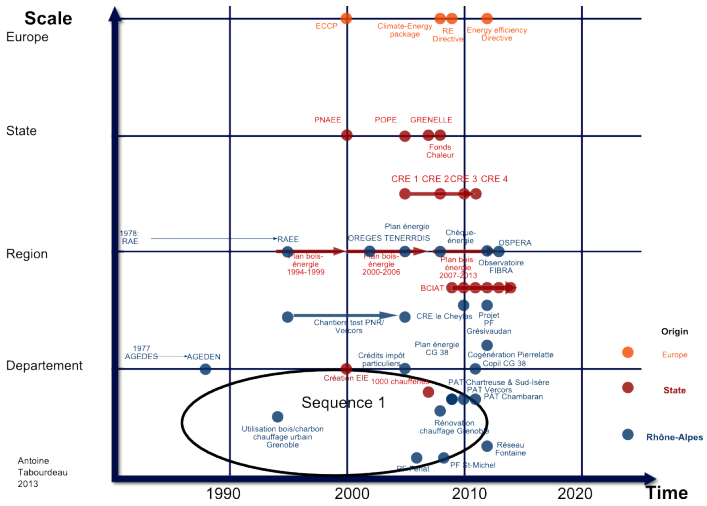

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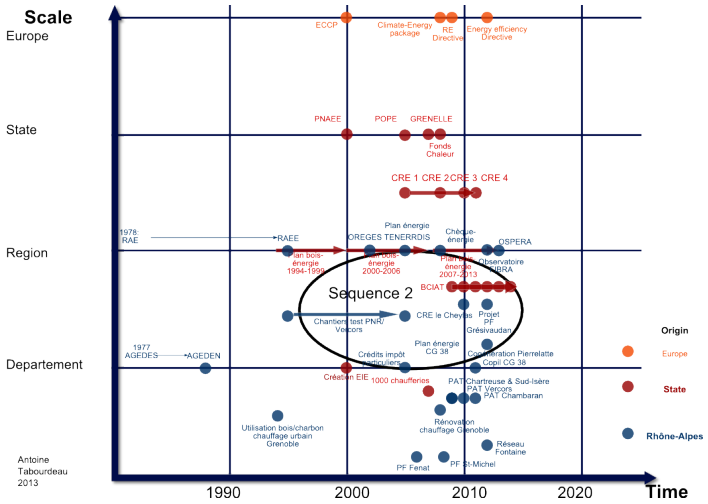

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- 1st specific planning tools
- Institutionalization
- Priority to small projects

Wood energy characterized by:

- Energy as an opportunity for local development
- Forest actors still dominant, regional public authorities

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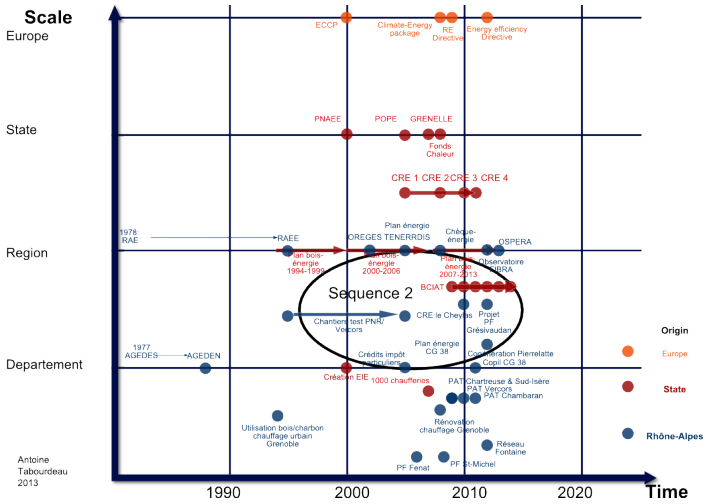

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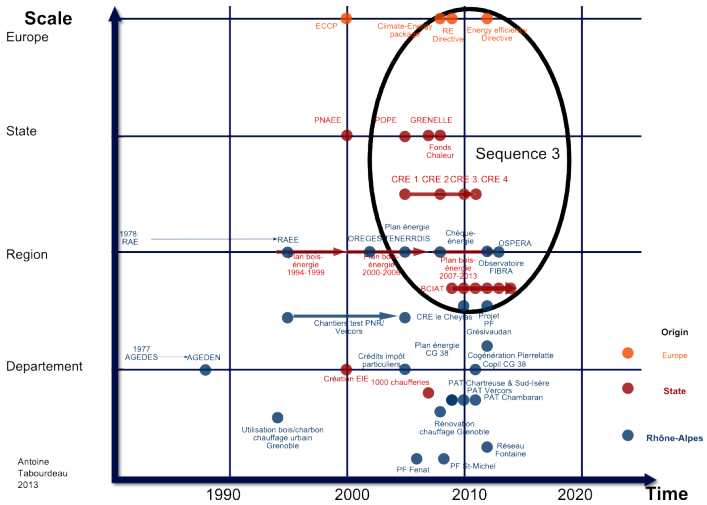

Changes:

- European directives and packages
- Adjustment energy
- Priority to large projects (CHP, urban district heating): feed-in tariffs

Wood energy:

- Empowerment of energy actors – local benefits?
- Research of new competences (database, observatories...)
- No dedicated policy but policies (energy, climate, forest, etc.) with different goals
- Controversies (LCA, pollution and renewability)
- Rationalization of "intuitive potential"

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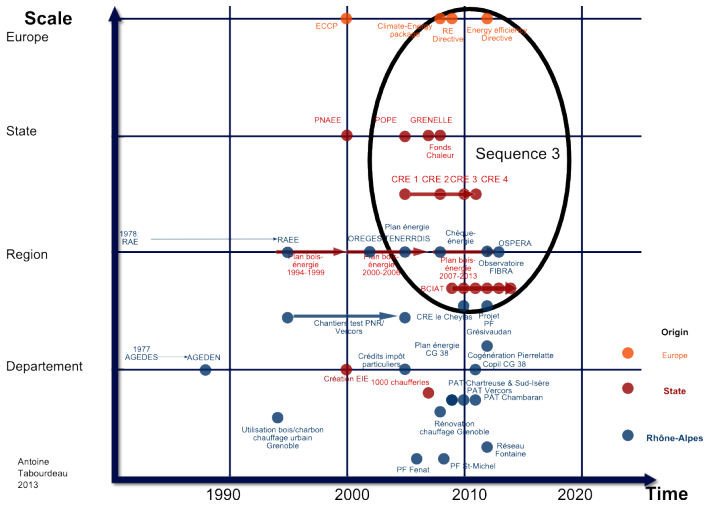

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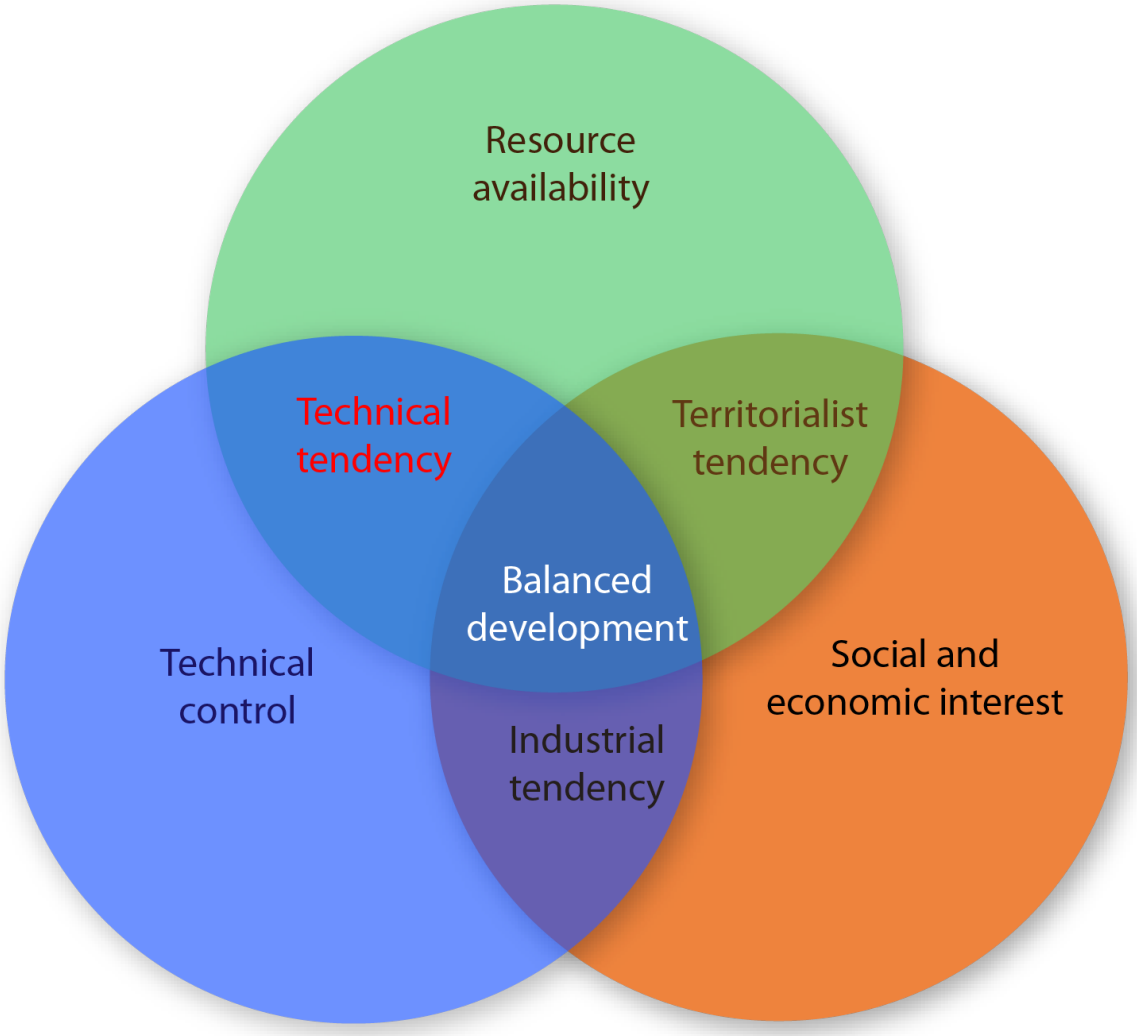
Wood, Energy and Local Adaptation



Antoine Tabourdeau, PACTE/Irstea 2012

Figure : 3 conditions for sustainable wood energy

Wood Energy and Local Adaptation

3 conditions for a sustainable and coherent fuelwood sector:

1. Resource availability (by-products, forest chips)
2. Technical and scientific control (database, environmental impact)
3. Social and economic interest (local development, energy independance, reducing CO_2 emissions)

3 drifts:

1. Territorial tendency
   - Local development as a justification for itself
   - Multiplication of labels
2. Industrial tendency
   - Resource availability issues underestimated
   - Top-down: energy-based sectorial approach
3. Technical tendency
   - Focus on environmental impacts
   - Forest-based sectorial approach

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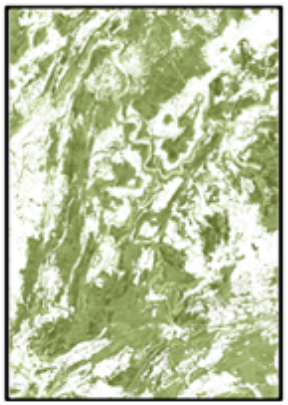
Hélène Avocat:

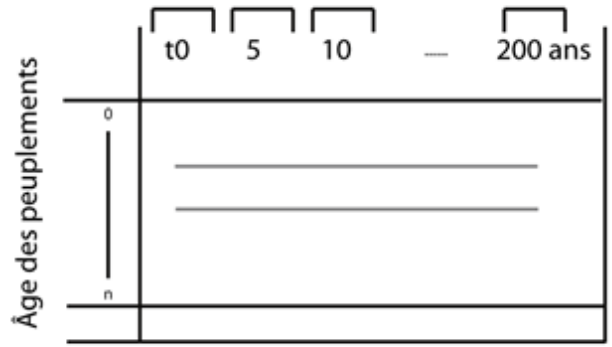
Modelling supplying areas

1 Identifying, characterizing and quantifying woody resource



Combining satellite imaging and dendrometric data

2 Quantifying sustainable wood energy removals for every forest stand in a given area

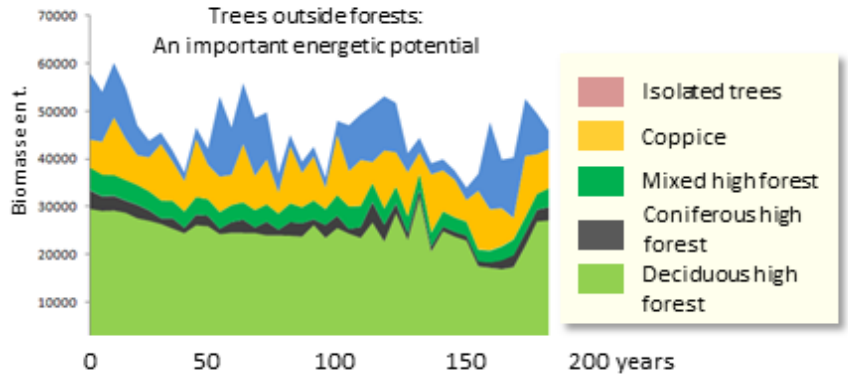


Simulating stand and possible removals increments
→ **sustainability**

Yield table

3 Identifying local and sustainable supplying areas

Measuring spatial competition effects and stand contribution



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Conclusion

1. Socio-technical potential
2. Redefinition of scales
3. Sectors and environmental inputs
   - No dedicated wood energy policy
   - Scientific lacks: CO_2 emissions
4. Need for a "Common Language"
   - Observatories
   - Rationalization

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