Industrial Scale Biomass: A Sustainable, Affordable Solution

Ben Moxham, Director, Europe, Enviva

Nagano Bioenergy Conference, May 24, 2017

FORWARD-LOOKING STATEMENTS AND INDUSTRY DATA

FORWARD-LOOKING STATEMENTS:

This presentation contains “forward-looking statements” within the meaning of the securities laws. Such statements are subject to a number of assumptions, risks, and uncertainties, many of which are beyond the control of Enviva, that may cause actual results to differ materially from those contemplated by the forward-looking statements. These include the risk factors set forth in the Enviva Partners, L.P.’s Annual Report on Form 10-K for the year ended December 31, 2016 and its other filings with the Securities and Exchange Commission.

INDUSTRY DATA:

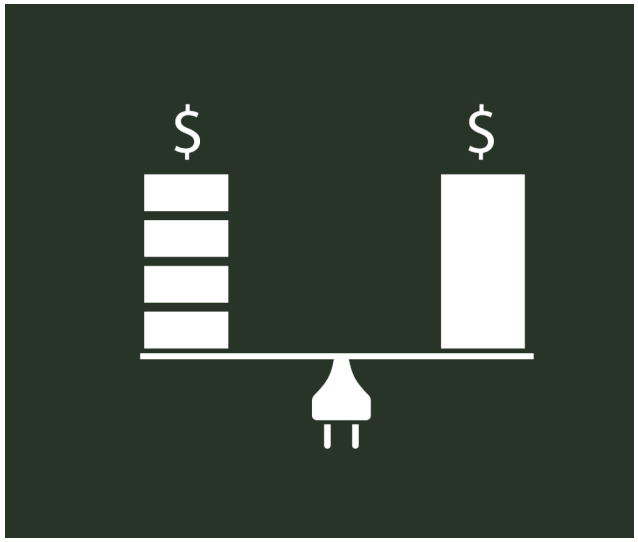
This presentation includes industry data and other statistical information from third-party sources, including industry publications, government publications, and other published sources. Although Enviva believes these third-party sources are reliable as of their respective dates, Enviva has not independently verified the accuracy or completeness of this information. Some data are also based on Enviva’s good faith estimates, which are derived from its review of internal sources as well as the third-party sources described above.

AGENDA

Assuring biomass sustainability at industrial scale

The competitive position of biomass electricity

Government policy lessons learned



enviva®

ENVIVA OVERVIEW

- World's largest producer of industrial grade wood pellets: almost 3 million tonnes production currently
- Employs 600 people with facility investment in excess of $500 million
  - Six wood pellet production plants in four U.S. states – North Carolina, Virginia, Florida and Mississippi
  - Two owned port facilities – Chesapeake, VA and Wilmington, NC
- Major customers currently located in Europe: UK, Denmark & Belgium with further near-term growth opportunities in The Netherlands and Japan

DELIVERING SUSTAINABILITY AT SCALE: STAKEHOLDER ASSURANCE

SECURITY OF SUPPLY

FOREST STEWARDSHIP

TRANSPARENCY

COMMITMENT TO SAFETY

CERTIFICATION

TRANSPARENCY: ENVIVA TRACK & TRACE INITIATIVE

- Enviva collects detailed information about every truckload of wood we take
- Information collected includes detailed data on:
  - Precise geographic location of each forest tract we take from
  - Acreage
  - Forest type
  - Species mix
  - Age
  - Share of wood from each harvest that goes to Enviva versus other consumers
- Starting in January 2017 Enviva has been publishing this data on our website

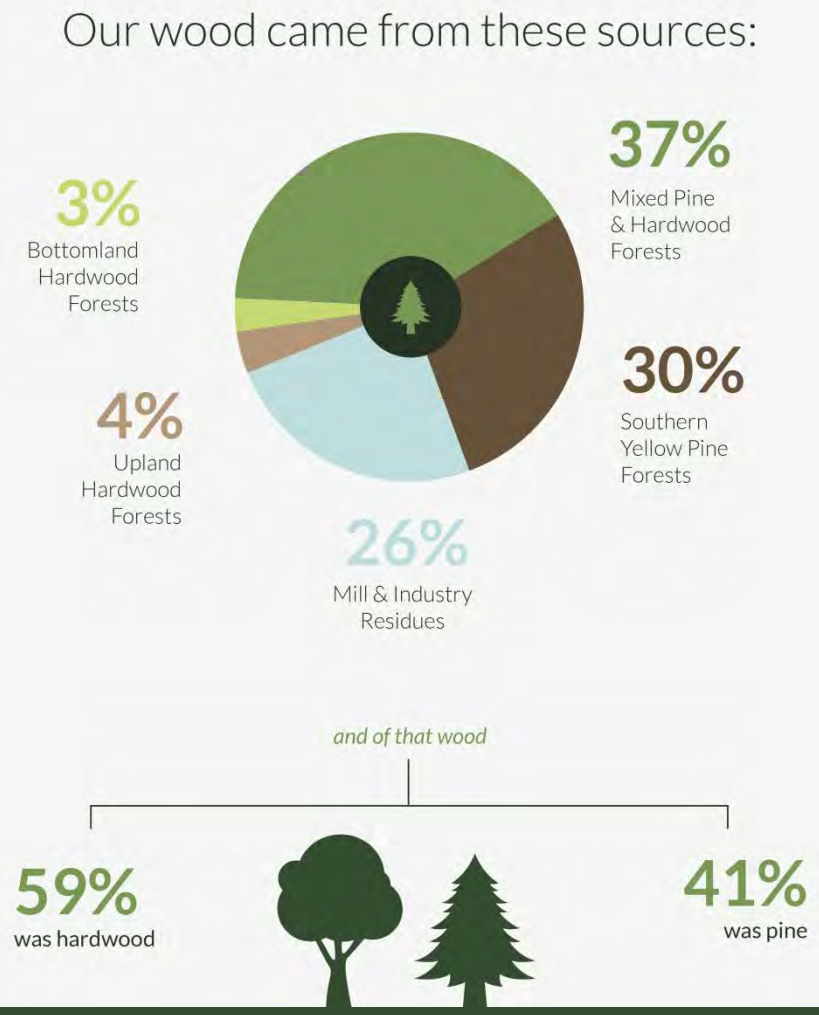
ENVIVA TRACK & TRACE DATA COLLECTION 2H 2016

1150+
individual tracts

81
counties

05
southern states

TRANSPARENCY: ENVIVA TRACK & TRACE RESULTS 2H 2016



Average age of forests on these tracts at time of final harvesting:

35 years

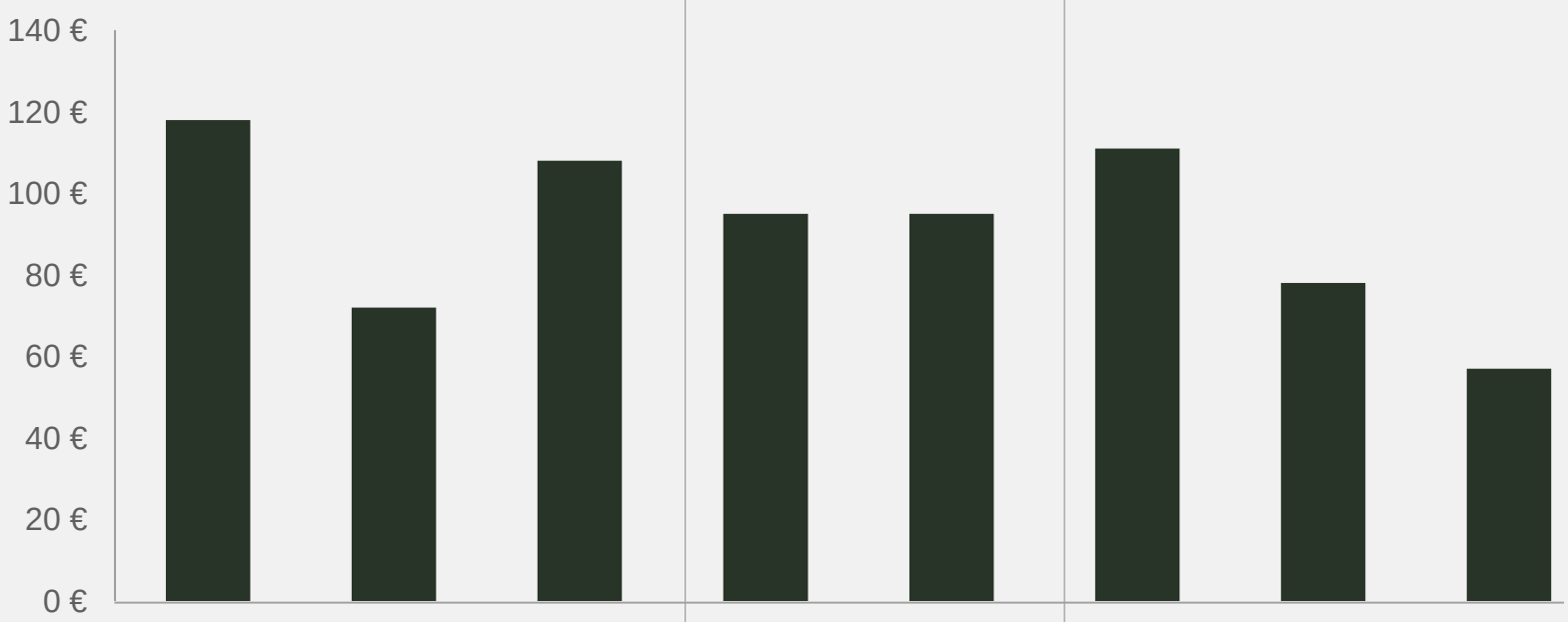
Volume of material Enviva takes on a typical forest harvest site:

20-30%

U.S. WOOD PELLETS: SMALL PART OF A LARGER FOREST SYSTEM

Since Enviva opened our first U.S. mill in 2011, the volume of forest inventory in our primary supply area has increased by 10%

ESTABLISHED MEASURE: LEVELIZED COST OF ENERGY – GERMANY



LEVELIZED COST OF ENERGY (LCOE) / MWh[1]	Offshore Wind	Onshore Wind	Solar	Biomass Conversion	Biomass Conv. (CHP)	CCGT[3]	Hard Coal[3]	Lignite
	118	72	108	95 [2]	95 [2]	111	78	57

1) Averages of 2015 VGB LCOE estimates. LCOE values for all technologies except biomass based on exemplary third-party study and should be considered illustrative. LCOE figures across studies vary substantially as technology, location, regulatory, financial and market conditions affect the final valuation. Quantification of net system value delta adjustments are independent of LCOE estimates. 2) Running 6,305 full-load hours p.a. under an EEG reference value of 100 EUR/MWh, ten-year lifetime after conversion.

Source: VGB, Aurora Energy Research.

HOWEVER LCOE IS INCOMPLETE

The standard measurement of energy technology costs, Levelized Cost of Energy or LCOE, is incomplete: failing to take into account important system costs.

Enviva asked leading independent energy analyst Aurora Energy Research to analyse the following additional costs for the German electricity market:

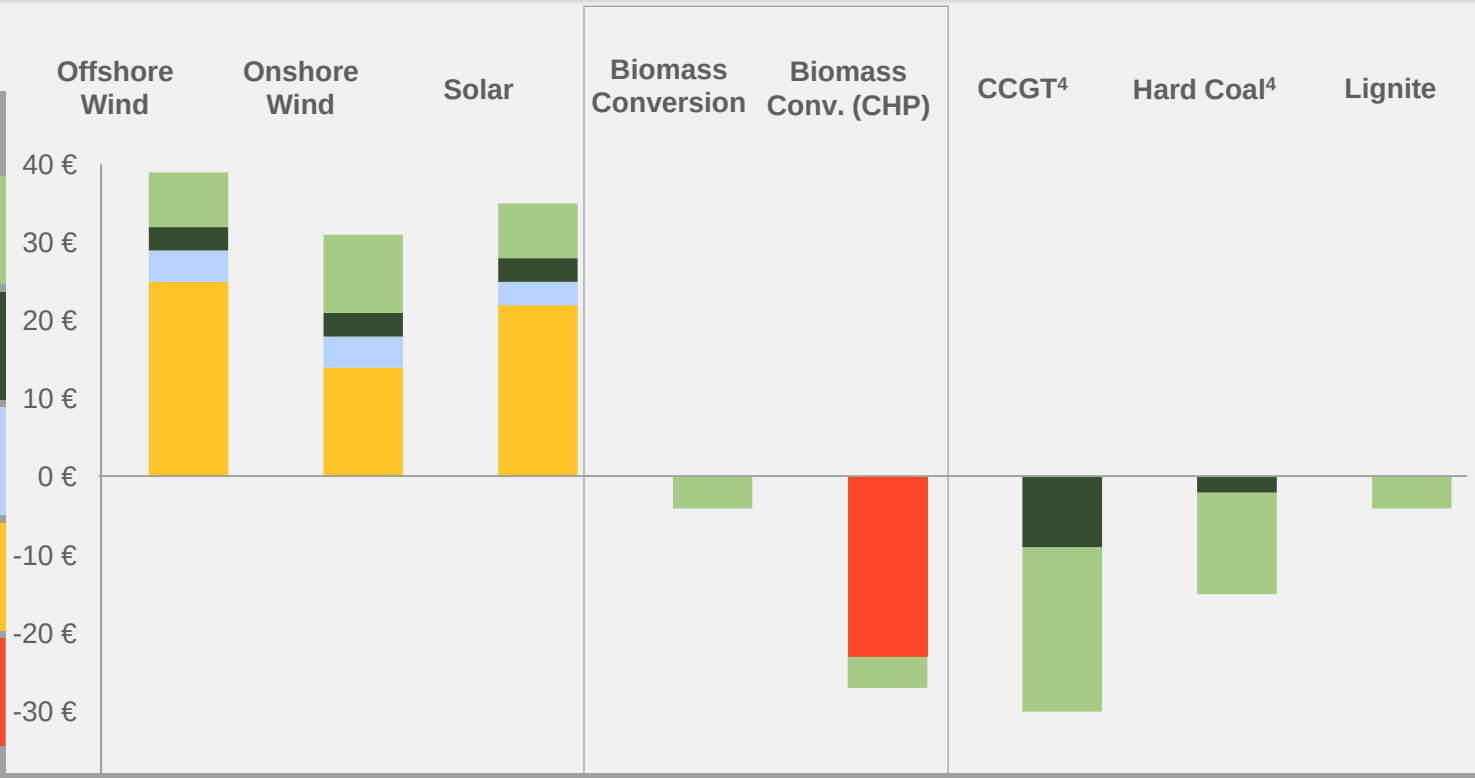
Intermittency Costs	"Not all MWhs are created equal – timing matters – and dispatchable MWhs (including biomass) are more valuable than intermittent wind & solar MWhs"
Security of supply Costs	"Wind and solar plants need backup capacity for when the wind doesn't blow and the sun doesn't shine"
Balancing Costs	"Wind and solar plants impose higher costs in balancing markets than dispatchable plants"
Transmission Costs[1]	"Wind and solar plants impose higher grid costs than other technologies"
Heat Costs (CHP only)	"Biomass CHP plants produce heat as a byproduct, a source of value not recognised in LCOE."

1) Electricity grid only

Source: VGB, Aurora Energy Research.

enviva®

MEASURING AFFORDABILITY: TOTAL SYSTEM COST OF ENERGY



NET SYSTEM VALUE DELTA	Offshore Wind	Onshore Wind	Solar	Biomass Conversion	Biomass Conv. (CHP)	CCGT[4]	Hard Coal[4]	Lignite
Intermittency Costs								
Security of supply Costs								
Balancing Costs								
Transmission Costs[1]								
Heat Costs (CHP only)								
TOTAL SYSTEM COST ADJUSTMENT / MWh	37	31	34	- 4	- 27	- 31	- 16	- 4
LEVELIZED COST OF ENERGY (LCOE) / MWh[2]	118	72	108	95 [3]	95 [3]	111	78	57
TOTAL SYSTEM COST OF ENERGY (TSCE) / MWh	**155**	**103**	**142**	**91**	**68**	**80**	**62**	**53**

1) Electricity grid only. Newbuilt CCGT plant could require gas grid expansions, which are not considered here. 2) Averages of 2015 VGB LCOE estimates. LCOE values for all technologies except biomass based on exemplary third-party study and should be considered illustrative. LCOE figures across studies vary substantially as technology, location, regulatory, financial and market conditions affect the final valuation. Quantification of net system value delta adjustments are independent of LCOE estimates. 3) Running 6,305 full-load hours p.a. under an EEG reference value of 100 EUR/MWh, ten-year lifetime after conversion, 4) CHP version in section 6.

Source: VGB, Aurora Energy Research.

enviva®

POLICY LESSONS LEARNED

- Governments should re-design electricity market regulations around the more complete technology cost measure of TSCE, not the flawed and outdated LCOE
- Financial controls governing policy incentives help create sustainable market growth
- Governments should be proactive in enacting sustainability regulations
- Greater effort is required to give NGOs confidence in bioenergy

THANK YOU