From:	Thomas Buchholz				
То:	Lazorchak, Jane; "Miller, Liz"; Miller, Liz; Poor, TJ; O"Toole, Megan; Richard Hopkins; Dow, Judy; Har				
	Charlie; Charlie Hancock; Coster, Billy; Patrick Field				
Cc:	Smythe, Collin; Adam Sherman				
Subject:	Re: Biomass Task Group				
Date:	Monday, May 9, 2022 5:39:37 AM				
Attachments:	dbFstss7h3TeHma6.png				
	image001.png				
	Walker et al 2013 - Carbon Accounting for Woody Biomass from Massachus.pdf				
	Colnes et al 2012 - Biomass Supply and Carbon Accounting for Southeast.pdf				

## **EXTERNAL SENDER:** Do not open attachments or click on links unless you recognize and trust the sender.

Hi Jane,

Thank you again for inviting me to speak with you and the task group. I left a few thoughts in your text below in bold font. Please do not hesitate to reach out if you need more information/clarifications.

Best,

Thomas

On 5/4/2022 17:09, Lazorchak, Jane wrote:

Thank you so much for making the time to join us. Greatly appreciate your willingness to support us moving forward.

Two questions came up after you left that I hoped you might take the time to answer:

1) To the statement "existing plants may have paid back their carbon debt", can you say more and maybe cite sources?

This is a generic statement. A range of studies point into the direction of a carbon dept of ~30-50 years when compared to coal. This was a legitimate comparison when biomass plants were constructed in the early 80ies but is not defensible anymore at current times (no one suggests new coal plants in 2022 in your region to replace aging power plants). The 'Manomet study' (the peer-reviewed version attached) is a resource that could be cited in this context as is a study we did in the southeastern US (Colnes et al. 2012). See, e.g., two quotes on p.89:

"Our findings indicate that the existing biomass facilities examined were generally producing improved atmospheric carbon balance relative to fossil fuels and technologies to provide equivalent power at the regional scale."

"This would suggest that continuing to run these existing biomass power plants as they are currently sized and scaled today would result in lower atmospheric carbon in the short and long term than shutting them down and shifting to fossil fuels."

2) On the chart about reducing emissions or the market scenario, Could you say what the assumed offsets were — the particular current energy mix for Vermont ,for New England, other?

	New Hamps	New York (Į	Vermont (g	Maine (grid r
Coal	4.6%	1.7%	0.0%	0.8%
Petroleum	0.9%	1.3%	0.2%	4.4%
Natural Gas	30.0%	40.6%	0.1%	25.4%
Other Gases	0.0%	0.0%	0.0%	0.0%
Nuclear	47.0%	31.9%	0.0%	0.0%
Hydroelectric Conventi	6.9%	19.4%	59.5%	29.7%
Other Renewables	10.2%	4.7%	40.3%	36.6%
Other	0.3%	0.7%	0.0%	3.2%
	100.0%	100.3%	100.0%	100.0%

For the sensitivity analysis (looking at all relevant states) we used the following 2015 grid mix numbers (from EIA):

Safe travels and look forward to hearing from you.

Jane

From: Thomas Buchholz <tbuchholz@sig-gis.com> Sent: Wednesday, May 4, 2022 9:55 AM To: Lazorchak, Jane <Jane.Lazorchak@vermont.gov>; 'Miller, Liz' <Liz.Miller@greenmountainpower.com>; Miller, Liz <Liz.Miller@partner.vermont.gov>; Poor, TJ <TJ.Poor@vermont.gov>; O'Toole, Megan <Megan.OToole@vermont.gov>; Richard Hopkins <hopkinsrs@comcast.net>; Dow, Judy <Judy.Dow@partner.vermont.gov>; Hancock, Charlie <Charlie.Hancock@vermont.gov>; Charlie Hancock <northwoodsforestry@gmail.com>; Coster, Billy <Billy.Coster@vermont.gov>; Patrick Field <pfield@cbi.org> Cc: Smythe, Collin <Collin.Smythe@vermont.gov>; Adam Sherman <asherman@veic.org> Subject: Re: Biomass Task Group

## EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.

All,

Thank you again for your interest in our work, attached are the slides from my presentation this morning. Please do not hesitate to reach out if you have any questions.

Best, Thomas

On 5/4/2022 15:52, Lazorchak, Jane wrote:

Morning All,

Here is Tom's email address:

Dr. Thomas Buchholz, <u>tbuchholz@sig-gis.com</u>

Thanks, Jane

From: Lazorchak, Jane
Sent: Monday, May 2, 2022 11:19 AM
To: 'Miller, Liz' <Liz.Miller@greenmountainpower.com>; Miller, Liz
<Liz.Miller@partner.vermont.gov>; Poor, TJ <TJ.Poor@vermont.gov>;
O'Toole, Megan <Megan.OToole@vermont.gov>; 'Richard Hopkins'
<hopkinsrs@comcast.net>; Dow, Judy
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<northwoodsforestry@gmail.com>; Coster, Billy
<Billy.Coster@vermont.gov>; 'Pat Field' <pfield@cbi.org>; Thomas
Buchholz <tbuchholz@sig-gis.com>
Cc: Smythe, Collin <Collin.Smythe@vermont.gov>

Morning All,

Hope you are all doing well and enjoyed the beautiful weekend! We have a meeting this Wednesday of the biomass task group. We will be joined by Dr. Thomas Buchholz for a presentation and discussion. We will also work to achieve consensus on the scope of work which I have attached. As a reminder, I drafted this in an active voice of exploration based on the actions from Ag and Ecosystems which we agreed were within scope for further exploration by this group. I shared a draft with you all and have updated the attached version with all the comments I received from you over the last couple of weeks. Also attached are the draft minutes from our last meeting and an agenda for this week. All of these documents have been posted online and can be found at the following link: <u>Biomass Task Group | Climate Change in Vermont</u>

Look forward to reconvening this group on Wednesday. Till then, please reach out with any questions.

Best, Jane

-----Original Appointment----- **From:** Lazorchak, Jane **Sent:** Thursday, April 14, 2022 9:53 AM **To:** 'Miller, Liz'; Lazorchak, Jane; Miller, Liz; Poor, TJ; O'Toole, Megan; Richard Hopkins; Dow, Judy; Hancock, Charlie; Charlie Hancock; Coster, Billy; Pat Field; Thomas Buchholz **Cc:** Smythe, Collin **Subject:** Biomass Task Group **When:** Wednesday, May 4, 2022 8:30 AM-10:00 AM (UTC-05:00) Eastern Time (US & Canada). **Where:** Zoom

Join Zoom Meeting https://us06web.zoom.us/j/87189478253? pwd=dmo2QVFuYzJsWFAyekxScUdrZUpudz09

Meeting ID: 871 8947 8253 Passcode: 234297



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