

Stage 1. 1 KG input material sample sent to Pyreg, Germany



1
KG.



Stage 2. 1KG Sample inspected at Pyreg HQ, sent to Eurofins Lab. for initial biochar potential specific lab analysis

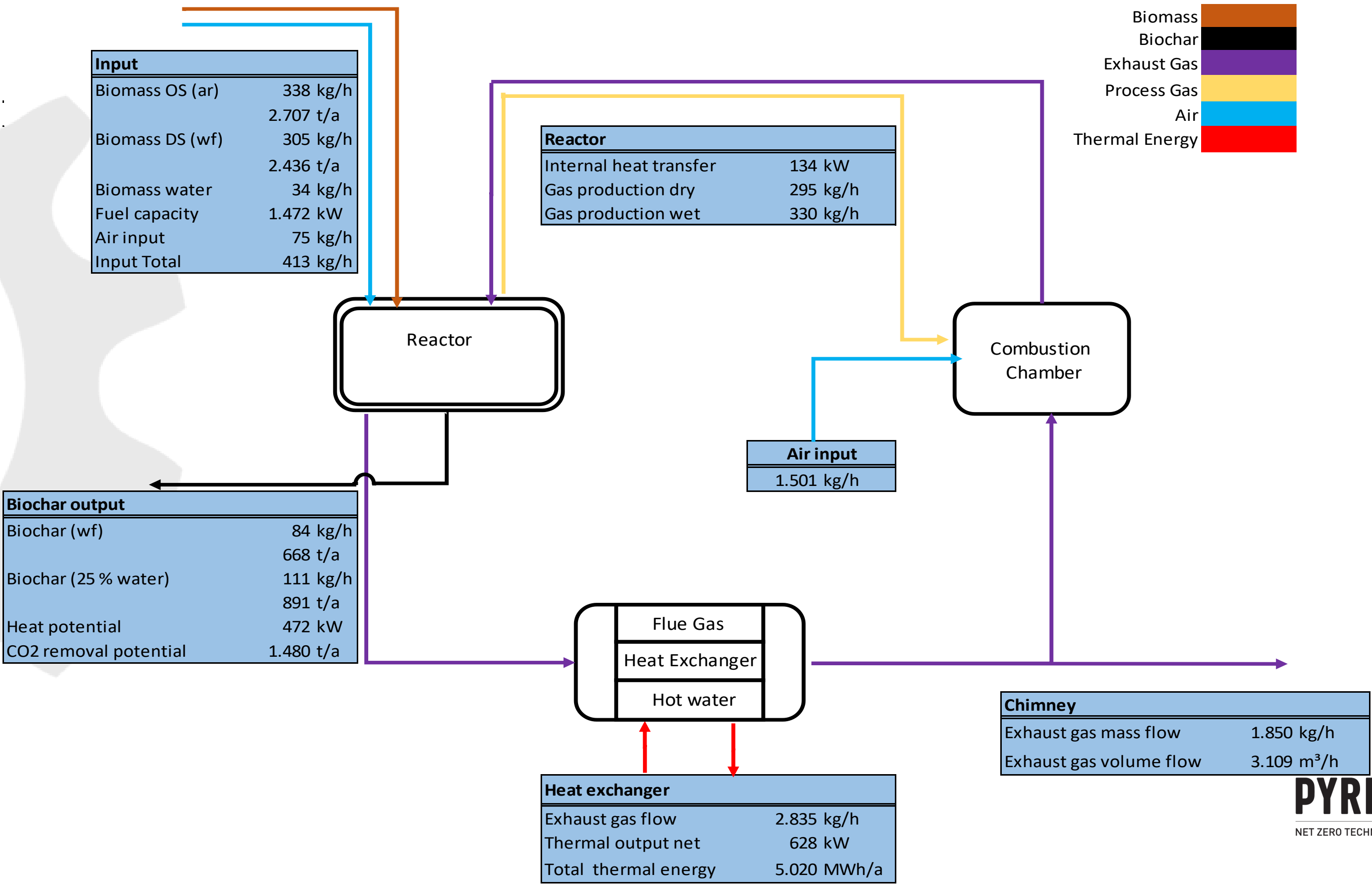


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				Description		Pyreg 190 Chicken manure input	
				Sample number		123154519	
Parameter	Lab	Accr.	Method	LOQ	Unit	ar	db
Physico-chemical parameters from the original substance							
Bulk density	FR	F5	DIN EN ISO 17828: 2016-05		kg/m ³	535	-
Moisture	FR	F5	DIN EN ISO 18134-2: 2017-05	0.1	% (w/w)	50.3	-
Gross calorific value (qV,gr)	FR	F5	DIN EN ISO 18125: 2017-08	200	kJ/kg	9280 ¹⁾	18700 ¹⁾
Net calorific value (qp,net)	FR	F5	berechnet nach DIN EN ISO 18125: 2017-08	200	kJ/kg	7430 ²⁾	17400 ²⁾
Inorganic sum parameters from the original substance							
Ash content (550°C)	FR	F5	DIN EN ISO 18122: 2016-03	0.1	% (w/w)	5.0	10.0
Elements from the original substance							
Chlorine	FR	F5	DIN EN ISO 16994: 2016-12	0.005	% (w/w)	0.257	0.517
Carbon	FR	F5	DIN EN ISO 16948: 2015-09	0.2	% (w/w)	23.1	46.5
Hydrogen	FR	F5	DIN EN ISO 16948: 2015-09	0.1	% (w/w)	2.9	5.7
Nitrogen	FR	F5	DIN EN ISO 16948: 2015-09	0.05	% (w/w)	2.26	4.55
Sulphur	FR	F5	DIN EN ISO 16994: 2016-12	0.005	% (w/w)	0.198	0.398
Oxygen	FR	F5	DIN EN ISO 16993: 2016-11		% (w/w)	16.0	32.2
Main-/trace elements (DIN EN ISO 16967:2015-07 / DIN EN ISO 16968:2015-09)							
Arsenic (As)	FR	F5	DIN EN ISO 17294-2 (E29): 2017-01	0.8	mg/kg	-	< 0.8
Lead (Pb)	FR	F5	DIN EN ISO 17294-2 (E29): 2017-01	2	mg/kg	-	< 2
Cadmium (Cd)	FR	F5	DIN EN ISO 17294-2 (E29): 2017-01	0.2	mg/kg	-	< 0.2
Chromium (Cr)	FR	F5	DIN EN ISO 17294-2 (E29): 2017-01	1	mg/kg	-	5
Copper (Cu)	FR	F5	DIN EN ISO 17294-2 (E29): 2017-01	1	mg/kg	-	60
Nickel (Ni)	FR	F5	DIN EN ISO 17294-2 (E29): 2017-01	1	mg/kg	-	3
Mercury (Hg)	FR	F5	DIN EN ISO 12846 (E12): 2012-08	0.05	mg/kg	-	< 0.05
Zinc (Zn)	FR	F5	DIN EN ISO 17294-2 (E29): 2017-01	1	mg/kg	-	268
Organic sum parameters from the original substance							
Volatile Compounds	FR	F5	DIN EN ISO 18123: 2016-03	0.2	% (w/w)	37.5	75.4
Fixed carbon	FR	F5	DIN 51734: 2008-12		% (w/w)	7.2	14.5
Special analyses							
Plausibility check	FR					OK	-

Stage 3. Pyreg technical develop an Energy Mass Balance (EMB) model specific to the input sample lab analysis



Stage 4. Based on the EMB, initial project economic model produced

Unit:	PYREG Carbonisation unit PX1500-H
Company:	
Date:	03.05.2024
Construction Site:	
Depreciation years	
Total INVEST:	2.230.000 €

Original Substance before drying (OS)	2.928	t/a
Cost (-) / Proceeds (+) INPUT	50	€/t OS
OUTPUT (Biochar)	749	t OS/a
Cost (-) / Proceeds (+) OUTPUT	250	€/t OS
CO2 potential (after deduction)	1.582	t CO2/a
Proceeds carbon credits	60	€/t CO2e

Operation hours	8.000	h/a
Heat production (net)	5.000.000	kWh/a
Proceeds thermal energy	0,050	€/kWh
Peripherie	500.000	€

Year	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Total
Size	Inflation / Increase	(€)	(€)	(€)	(€)	(€)	(€)	(€)	(€)	(€)	(€)	(€)	(€)	(€)	(€)	(€)	(€)
Proceeds thermal energy	3,00%	250.000	257.500	265.225	273.182	281.377	289.819	298.513	307.468	316.693	326.193	335.979	346.058	356.440	367.133	378.147	4.649.728
Cost (-) / Proceeds (+) OUTPUT	3,00%	187.220	192.837	198.622	204.581	210.718	217.040	223.551	230.257	237.165	244.280	251.609	259.157	266.931	274.939	283.188	3.482.095
Cost (-) / Proceeds (+) INPUT	3,00%	146.400	150.792	155.316	159.975	164.774	169.718	174.809	180.054	185.455	191.019	196.749	202.652	208.731	214.993	221.443	2.722.881
CO ₂ removal credits	3,00%	94.935	97.783	100.717	103.738	106.851	110.056	113.358	116.759	120.261	123.869	127.585	131.413	135.355	139.416	143.598	1.765.695
Gross profit		678.556	698.912	719.880	741.476	763.721	786.632	810.231	834.538	859.574	885.361	911.922	939.280	967.458	996.482	1.026.376	12.620.400
FIXED COSTS PYREG	3,00%	-123.179	-126.874	-130.681	-134.601	-138.639	-142.798	-147.082	-151.495	-156.039	-160.721	-165.542	-170.509	-175.624	-180.892	-186.319	-2.290.995
VARIABLE COSTS PYREG	3,00%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EBITDA	-2.730.000 €	555.377	572.038	589.199	606.875	625.081	643.834	663.149	683.043	703.535	724.641	746.380	768.771	791.835	815.590	840.057	10.329.405
Depreciation		-182.000	-182.000	-182.000	-182.000	-182.000	-182.000	-182.000	-182.000	-182.000	-182.000	-182.000	-182.000	-182.000	-182.000	-182.000	-2.730.000
EBIT		373.377	390.038	407.199	424.875	443.081	461.834	481.149	501.043	521.535	542.641	564.380	586.771	609.835	633.590	658.057	7.599.405
Financing needs		2.230.000	2.110.101	1.986.604	1.859.403	1.728.385	1.593.437	1.454.441	1.311.275	1.163.814	1.011.929	855.487	694.352	528.383	357.435	181.359	
Interest expense	3,00%	-66.900	-63.303	-59.598	-55.782	-51.852	-47.803	-43.633	-39.338	-34.914	-30.358	-25.665	-20.831	-15.851	-10.723	-5.441	-571.992
EBT		306.477	326.735	347.601	369.093	391.230	414.031	437.516	461.705	486.620	512.283	538.715	565.941	593.983	622.867	652.616	7.027.413
Tax	30,00%	-91.943	-98.021	-104.280	-110.728	-117.369	-124.209	-131.255	-138.512	-145.986	-153.685	-161.615	-169.782	-178.195	-186.860	-195.785	-2.108.224
Financial results		214.534	228.715	243.321	258.365	273.861	289.822	306.261	323.194	340.634	358.598	377.101	396.159	415.788	436.007	456.832	4.919.189

Payback 5,1 Years

Return on Investment: 25% p. a.
(Σ EBITDA ÷ investement costs) ÷ project periods

Net Present Value 5.358.012 €

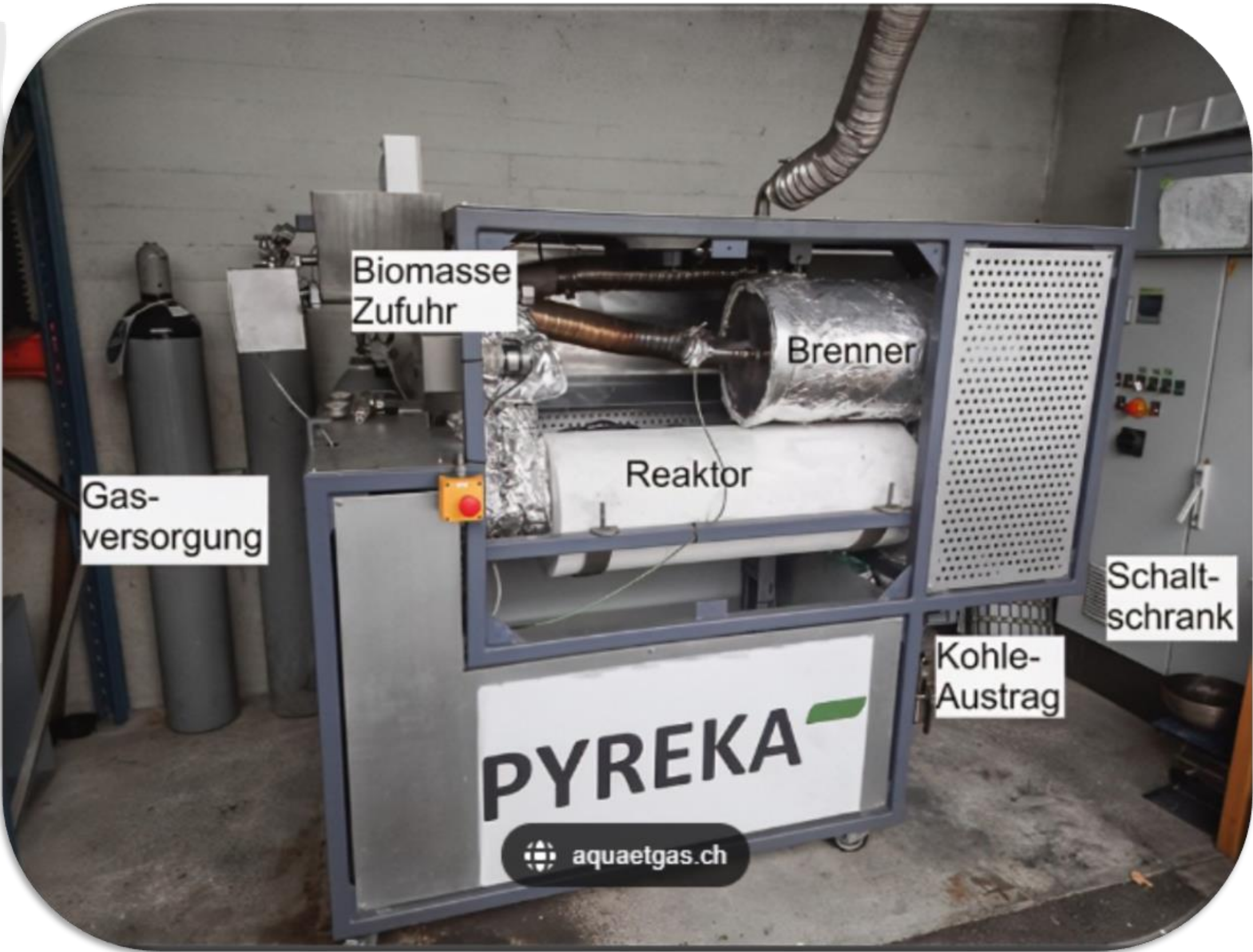
Stage 6. 30 KG input material sample sent to Pyreg, Germany



**30
KG.**



Material prepared and run through a small scale equipment to produce biochar



Stage 7. Biochar analysed at Eurofins lab, results used to update EMB and assess against biochar quality standards.



EBC - Certification Class

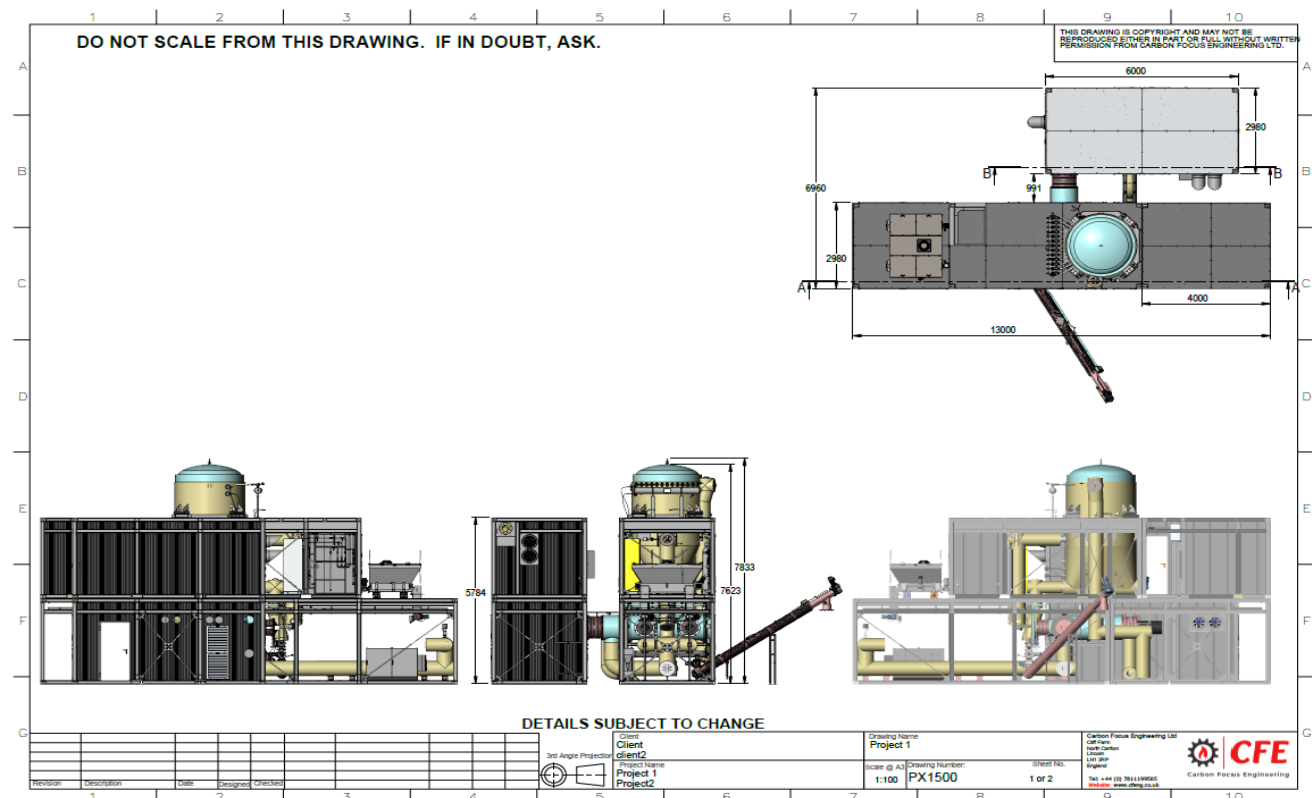
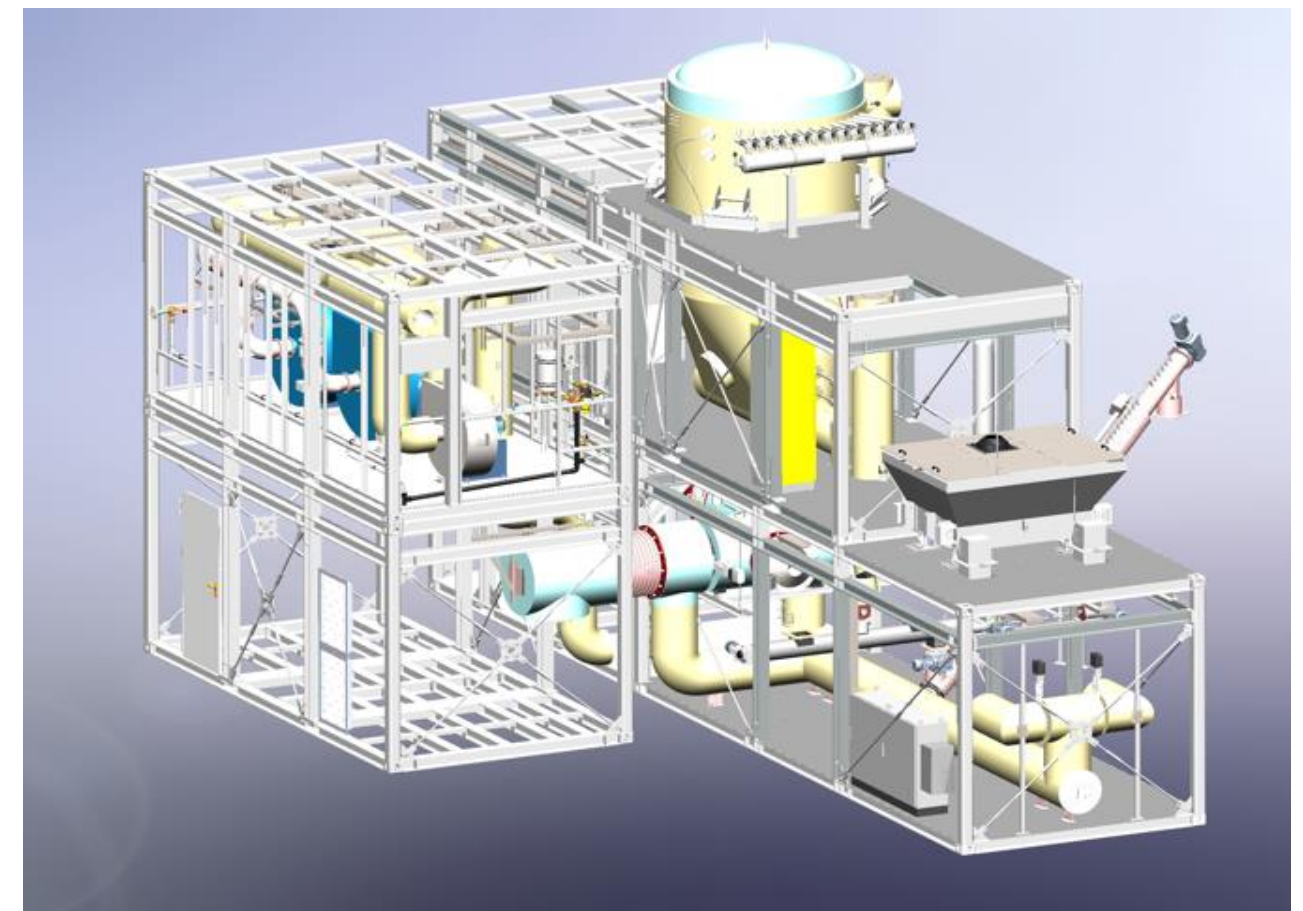
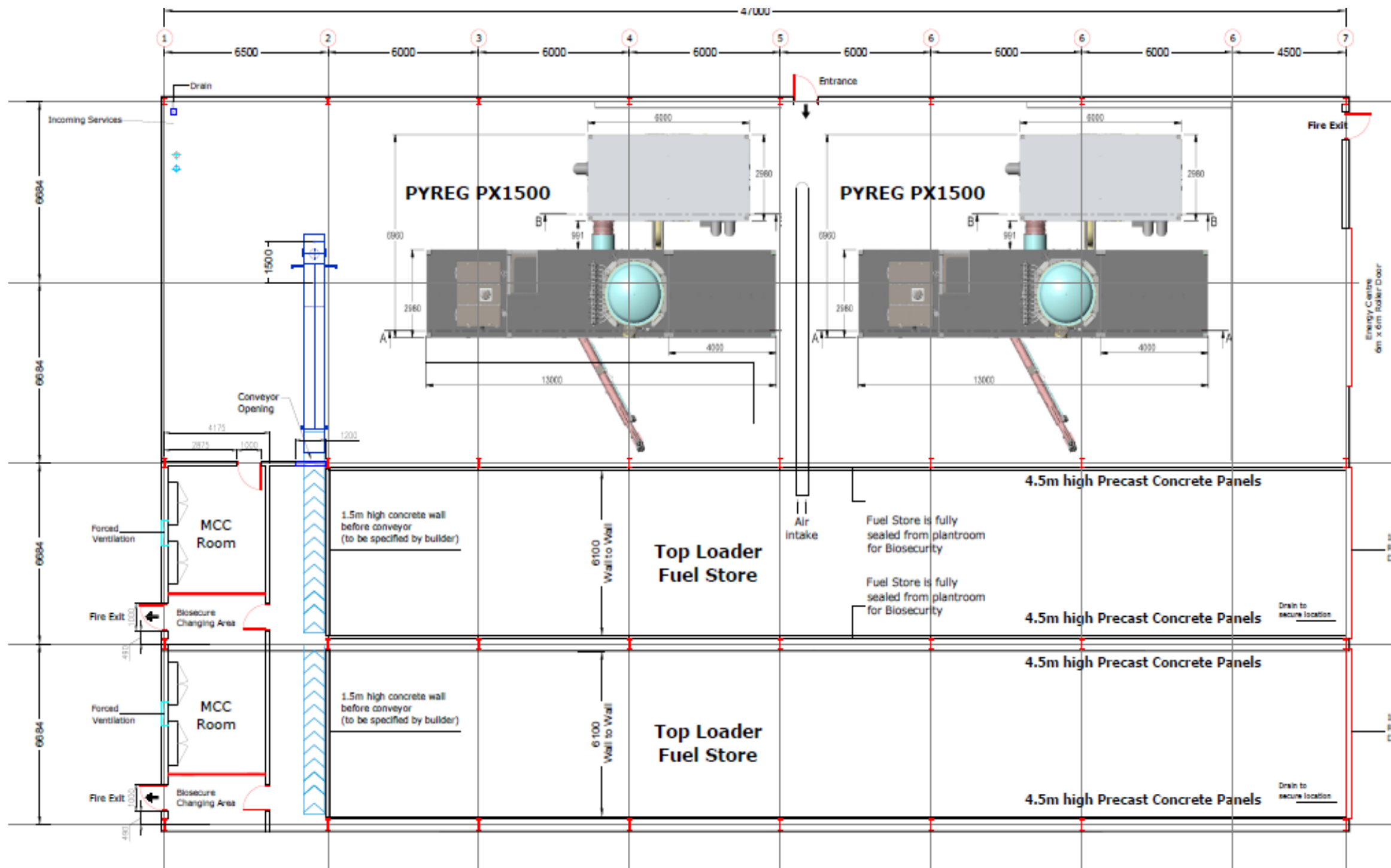
- EBC-FeedPlus
- EBC-Feed EBC-Agro / EBC-Agro Organic
- EBC-Urban
- EBC Consumer Material
- EBC-Basic Materials

WBC - Certification Class

- WBC-Premium
- WBC-Agro
- WBC-Material



Stage 8. Initial project design undertaken



Stage 9. Project economic model updated

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Stage 10. Project finances explored

- PCFS

- River Wye Action Plan

A plan to stop the decline of the River Wye, preserving its diverse and varied character, while supporting progress towards our environmental targets.

- IETF

Industrial Energy Transformation Fund

The Industrial Energy Transformation Fund (IETF) supports the development and deployment of technologies that enable businesses with high energy use to transition to a low carbon future.

