Technology	Water Consumption Rate (ML/y)*	Unit Energy Requirement (kWh/y)	Reference Capital Cost ($M)	Reference Variable Operating Cost ($M)	Input	Output(s)	Yield of Product(s)	Reference Capacity (kton/y)	References
Handling and Extraction, Soybean	0.00	5.85	2.84	1.25	Soybeans	Triglycerides	1.508	226.83	1
Acid Catalyzed Hydrolysis	0.00	934.07	18.36	1.24	DA_CS_Hydrolyzate	DA_CS_Slurry	1.019	3645.33	2,3
Acid Catalyzed Hydrolysis	0.00	1239.87	18.36	1.3	HW_CS_Hydrolyzate	HW_CS_Slurry	0.982	4603.24	2,3
Acid Catalyzed Hydrolysis	0.00	1035.45	18.36	1.3	AFEX_CS_Hydrolyzate	AFEX_CS_Slurry	0.982	3680.69	2,3
Acid Catalyzed Hydrolysis	0.00	806.16	1.24	3.4	DA_SG_Hydrolyzate	DA_SG_Slurry	1.019	3645.33	2,3
Acid Catalyzed Hydrolysis	0.00	761.50	1.3	3.46	HW_SG_Hydrolyzate	HW_SG_Slurry	0.982	4603.24	2,3
Acid Catalyzed Hydrolysis	0.00	1888.17	1.3	3.46	AFEX_SG_Hydrolyzate	AFEX_SG_Slurry	0.982	3680.69	2,3
Ammonium Fiber Expansion (AFEX) Pretreatment	250.84	326429.89	20.72	4.72	Corn Stover	AFEX_CS_Hydrolyzate	3.923	3748.53	2,3
Ammonium Fiber Expansion (AFEX) Pretreatment	191.11	381943.26	19.17	8.94	Softwood	AFEX_SW_Hydrolyzate	3.928	4866.18	2,3
Ammonium Fiber Expansion (AFEX) Pretreatment	191.11	247201.14	19.69	8.94	Hardwood	AFEX_HW_Hydrolyzate	3.923	4860.44	2,3
Ammonium Fiber Expansion (AFEX) Pretreatment	250.84	319660.78	20.01	5.43	Switchgrass	AFEX_SG_Hydrolyzate	3.923	3748.53	2,3
Aqueous Phase Reforming and Fischer-Tropsch	8.64	8527.14	3.9	1.44	Glycerol	Gasoline, Synthesized Natural Gas	0.03, 0.07	55.40	1
Combined Heat and Power	12.77	125855.66	133.6	-6.6	Separations Residue_1	Electricity**	0.544	212.90	5,6
Combined Heat and Power	21.33	368853.09	96.99	-2.71	Separations Residue_10	Electricity**	0.387	355.48	5,6
Combined Heat and Power	16.95	65521.77	96.99	-2.7	Separations Residue_11	Electricity**	0.296	282.55	5,6
Combined Heat and Power	19.05	515113.34	96.99	-2.71	Separations Residue_12	Electricity**	0.342	317.43	5,6
Combined Heat and Power	12.57	94423.42	158.1	-7.4	Separations Residue_2	Electricity**	0.397	209.43	5,6
Combined Heat and Power	14.50	126215.31	149.26	-7.4	Separations Residue_3	Electricity**	0.47	241.63	5,6
Combined Heat and Power	18.70	342548.26	114.86	-3.3	Separations Residue_4	Electricity**	0.334	311.60	5,6
Combined Heat and Power	14.57	195143.27	114.86	-3.29	Separations Residue_5	Electricity**	0.25	242.87	5,6
Combined Heat and Power	16.37	259920.78	114.86	-3.3	Separations Residue_6	Electricity**	0.289	272.83	5,6
Combined Heat and Power	15.14	94230.08	96.99	-2.9	Separations Residue_7	Electricity**	0.643	252.26	5,6
Combined Heat and Power	14.65	240790.28	96.99	-2.85	Separations Residue_8	Electricity**	0.471	244.27	5,6
Combined Heat and Power	16.99	65359018.08	96.99	-2.86	Separations Residue_9	Electricity**	0.561	283.26	5,6
Dilute Acid Pretreatment	369.80	209323.44	112.2	23	Corn Stover	DA_CS_Hydrolyzate	3.745	3578.68	2,3,4
Dilute Acid Pretreatment	358.59	154946.85	121.63	20.11	Hardwood	DA_HW_Hydrolyzate	3.61	4472.01	2,3,4
Dilute Acid Pretreatment	358.59	150044.67	121.66	20.11	Softwood	DA_SW_Hydrolyzate	3.598	4472.01	2,3,4
Dilute Acid Pretreatment	369.80	217327.13	112.2	23.2	Switchgrass	DA_SG_Hydrolyzate	3.743	3578.68	2,3,4
Direct Gasification	1236.67	0.00	150.99	10.79	Hardwood chips for direct gasification	Raw Syngas_HW_DG	1.159	971.23	7,8,9
Direct Gasification	1253.09	81.99	10.79	28.53	Softwood chips for direct gasification	Raw Syngas_SW_DG	1.188	995.11	7,8,9
Distillation (Dry corn process E)	177.12	85480.64	28.11	7.19	Dry Corn Broth E	Ethanol	0.108	118.67	10,11
Distillation (Dry corn process B)	187.94	46206807.42	76.07	25	Dry Corn Broth B	Ethanol, Butanol	0.001,0.159	0.54	10,11
Distillation	0.00	2946946.67	78.1	12.7	Hydrolyzate Broth 1	Ethanol, Separations Residue 1	0.044,0.108	163.76	2,3,4,12
Distillation	0.00	193782.59	67.78	25.85	Hydrolyzate Broth 10	Ethanol, Separations Residue 1	0.038,0.095	160.71	2,3,4,12
Distillation	0.00	291447.69	59.3	24.74	Hydrolyzate Broth 11	Ethanol, Separations Residue 2	0.018, 0.082	117.45	2,3,4,12
Distillation	0.00	523939.70	59.3	23.8	Hydrolyzate Broth 12	Ethanol, Separations Residue 3	0.028,0.102	139.25	2,3,4,12
Distillation	0.00	7587874.88	70.79	25.28	Hydrolyzate Broth 13	Ethanol, Separations Residue 1	0.041,0.112	150.66	2,3,4,12
Distillation	0.00	32673828.16	57.79	22.53	Hydrolyzate Broth 14	Ethanol, Separations Residue 2	0.023,0.111	110.11	2,3,4,12
Distillation	0.00	84958286.88	57.79	21.68	Hydrolyzate Broth 15	Ethanol, Separations Residue 3	0.034,0.136	130.55	2,3,4,12
Distillation	0.00	106235425.11	78.39	30.04	Hydrolyzate Broth 16	Ethanol, Separations Residue 4	0.026,0.261	92.54	2,3,4,12
Distillation	0.00	116969544.79	63.2	25.24	Hydrolyzate Broth 17	Ethanol, Separations Residue 5	0.015,0.217	69.21	2,3,4,12
Distillation	0.00	95111915.07	62.77	25.71	Hyrdolyzate Broth 18	Ethanol, Separations Residue 6	0.022,0.263	80.18	2,3,4,12
Distillation	0.00	84963300.58	55.8	7.26	Hydrolyzate Broth 19	Ethanol, Separations Residue 1	0.044,0.108	93.60	2,3,4,12,13
Distillation	0.00	5240812.29	87.84	7.88	Hydrolyzate Broth 2	Ethanol, Separations Residue 2	0.025,0.109	119.69	2,3,4,12
Distillation	0.00	105962176.30	51	15	Hydrolyzate Broth 20	Ethanol, Separations Residue 1	0.041,0.112	87.17	2,3,4,12,13
Distillation	0.00	3526043.38	82.76	7.91	Hydrolyzate Broth 3	Ethanol, Separations Residue 3	0.037,0.133	141.90	2,3,4,12
Distillation	0.00	2791341.44	96.31	14.44	Hydrolyzate Broth 4	Ethanol, Separations Residue 4	0.028,0.258	100.59	2,3,4,12
Distillation	0.00	3151719.72	96.08	9.2	Hydrolyzate Broth 5	Ethanol, Separations Residue 5	0.017,0.215	75.23	2,3,4,12
Distillation	0.00	232122.61	96.31	9.73	Hydrolyzate Broth 6	Ethanol, Separations Residue 6	0.024,0.261	87.15	2,3,4,12
Distillation	0.00	194294.43	69.21	12.88	Hydrolyzate Broth 7	Ethanol, Separations Residue 1	0.043,0.09	183.42	2,3,4,12
Distillation	0.00	290675.06	77.7	7.31	Hydrolyzate Broth 8	Ethanol, Separations Residue 2	0.021,0.081	134.06	2,3,4,12
Distillation	0.00	207906.20	73.2	7.44	Hydrolyzate Broth 9	Ethanol, Separations Residue 3	0.032,0.099	158.94	2,3,4,12
Distillation	0.00	672.99	7.76	4.92	Biodiesel Precursor	Biodiesel, Raw Glycerol	0.6,1.826	149.91	1
Distillation	2975.60	3744.30	37.4	7.42	Fermented Sugarcane Slurry	Ethanol	0.108	118.67	14,15
Distillation	594.19	10148.66	23.89	6.48	Fermented Wet Corn Slurry	Ethanol	0.108	97.30	11
Extraction, Sugarcane	0.00	67.55	9.42	0.25	Sugarcane	Sugarcane Juice	0.67	990.90	14,15
Fermentation	0.00	28264.29	2.1	4.16	DA CS Slurry	Hydrolyzate Broth 4	0.991	3612.00	2,3
Fermentation	0.00	16503.50	17.53	2.3	HW CS Slurry	Hydrolyzate Broth 5	0.981	4516.29	2,3
Fermentation	0.00	14538.49	17.53	2.3	AFEX CS Slurry	Hydrolyzate Broth 6	0.981	3611.12	2,3
Fermentation	0.00	10463.60	2.1	4.16	DA SG Slurry	Hydrolyzate Broth 16	0.991	3612.00	2,3
Fermentation	0.00	16693.69	2.3	4.36	HW SG Slurry	Hydrolyzate Broth 17	0.981	4516.29	2,3
Fermentation	0.00	25140.68	2.3	4.36	AFEX SG Slurry	Hydrolyzte Broth 18	0.981	3611.12	2,3
Fermentation	0.00	96.71	23.11	1.26	Dry Corn Slurry	Dry Corn Broth E	1.112	1101.29	10,11
Fermentation	0.00	795.13	25.78	5.92	Dry Corn Slurry	Dry Corn Broth B	0.557	551.66	10,11

Technology	Water Consumption Rate (ML/y)*	Unit Energy Requirement (kWh/y)	Reference Capital Cost ($M)	Reference Variable Operating Cost ($M)	Input	Output(s)	Yield of Product(s)	Reference Capacity (kton/y)	References
Fermentation	0.00	1.84	24.2	1.36	Sugarcane Juice Slurry	Fermented Sugarcane Slurry	1.112	1101.29	14,15
Fermentation	0.00	8.70	19.64	1.07	Wet Corn Slurry	Fermented Wet Corn Slurry	1.112	903.07	11
Filtration	0.00	94.47	11.6	4.51	Sugarcane Juice	Sugarcane Juice Slurry	0.999	990.06	14,15
Fischer-Tropsch	0.00	3565.09	12.48	0.46	Syngas	Gasoline, Diesel	0.133,0.110	27.30	16,17
Handling and Chopping	0.00	4.66	40.51	2.61	Hardwood	Hardwood chips for pyrolysis	0.535	814.39	5,6,18
Handling and Chopping	0.00	11.81	40.51	2.61	Softwood	Softwood chips for pyrolysis	0.535	814.39	5,6,18
Handling and Chopping	0.00	12.10	40.51	1.81	Corn Stover	Corn Stover chips for pyrolysis	0.802	814.39	5,6,18
Handling and Chopping	0.00	0.00	40.51	1.81	Switchgrass	Switchgrass chips for pyrolysis	0.802	814.39	5,6,18
Handling and Chopping	29.01	35.49	40.51	2.32	Hardwood	Hardwood chips for direct gasification	0.568	814.39	5,6,19
Handling and Chopping	0.00	106.41	81.02	13.39	Hardwood	Hardwood chips for indirect gasification	0.585	837.89	5,6,20
Handling and Chopping	29.83	13.96	40.51	2.32	Softwood	Softwood chips for direct gasification	0.568	814.39	5,6,19
Handling and Chopping	0.00	51.09	81.02	13.39	Softwood	Softwood chips for indirect gasification	0.585	837.89	5,6,20
Handling and Chopping	0.00	0.01	40.51	1.28	Sugarcane	Raw Bagasse	0.667	25.63	11
Handling and Milling	0.00	1583.51	7.82	0.75	Corn	Dry corn	1	370.81	10,11
Handling and Steeping	0.00	29.54	7.94	1.61	Corn	Wet corn	1.587	511.42	11
Hardwood Hydrothermal Liquefaction	0.00	2473352.60	88.7	2.5	Hardwood HTL Precursor	Raw bio-oil	0.044	4775.86	21
Hardwood Hydrothermal Liquefaction Conditioning	1660.01	32340.39	27.8	1.5	Hardwood	Hardwood HTL Precursor	6.67	716.38	21
Hot Water Pretreatment	59.67	672306.82	20.72	4.72	Corn Stover	HW CS Hydrolyzate	4.907	4688.08	2,3
Hot Water Pretreatment	0.00	532247.12	19.17	8.3	Softwood	HW SW Hydrolyzate	4.767	5905.34	2,3
Hot Water Pretreatment	0.00	3184362.99	17.69	6.57	Hardwood	HW HW Hydrolyzate	4.72	5848.01	2,3
Hot Water Pretreatment	0.00	4881866.40	20.19	5.15	Switchgrass	HW SG Hydrolyzate	4.907	4688.08	2,3
Hydrogenation of Acetic Acid	12374.61	9.57	127.42	107.53	Acetic Acid	Ethanol	0.764	480.72	20
Hydrocracking	0.00	323783.48	44	12.69	Bio-oil	Gasoline, Diesel	0.411,0.552	111.39	18,22
Hydrotreating	0.00	932143.10	44	12.69	Raw bio-oil	Bio-oil	0.458	271.09	23
Indirect Gasification	1026.00	23.39	62.61	6.26	Hardwood chips for indirect gasification	Raw syngas HW IG	0.843	686.44	7,8,9
Indirect Gasification	1075.25	31.92	6.26	13.62	Softwood chips for indirect gasification	Raw syngas SW IG	0.864	703.33	7,8,9
Ionic Liquid Preatreatment and Acidolysis	6525.30	216813.05	114.2	99.5	Switchgrass	ILPA SW Hydrolyzate	2.6	2063.31	13
Ionic Liquid Preatreatment and Acidolysis	6525.30	124952.10	114.2	99.5	Corn Stover	ILPA CS Hydrolyzate	2.61	2062.21	13
Liquefaction and Saccharification	0.00	478.84	8.29	3.06	Wet Corn	Wet corn slurry	1.587	811.85	11
Liquefaction and Saccharification	0.00	4336.59	9.75	3.71	Dry Corn	Dry corn slurry	2.67	990.06	10,11
Methanol to Gasoline Process	50.88	645.78	89.97	19.11	Methanol	Gasoline	0.323	120.68	24
Pervaporation	0.00	25506755.81	178.99	15.98	Hydrolyzate Broth 1	Ethanol, Separations Residue 7	0.045,0.106	165.29	25
Pervaporation	0.00	2918538.73	15.85	36.88	Hydrolyzate Broth 10	Ethanol, Separations Residue 7	0.044,0.107	162.20	25
Pervaporation	0.00	6886859.16	13.75	34.78	Hydrolyzate Broth 11	Ethanol, Separations Residue 8	0.025,0.108	118.55	25
Pervaporation	0.00	4891843.60	11.13	32.16	Hydrolyzate Broth 12	Ethanol, Separations Residue 9	0.036,0.132	140.55	25
Pervaporation	0.00	4599326.39	15.4	36.47	Hydrolyzate Broth 13	Ethanol, Separations Residue 7	0.041,0.110	152.07	25
Pervaporation	0.00	6886733.09	10.65	31.68	Hydrolyzate Broth 14	Ethanol, Separations Residue 8	0.023,0.110	111.34	25
Pervaporation	0.00	4891745.55	11.02	32.05	Hydrolyzate Broth 15	Ethanol, Separations Residue 9	0.034,0.134	132.56	25
Pervaporation	0.00	5164114.81	15.99	37.02	Hydrolyzate Broth 16	Ethanol, Separations Residue 10	0.025,0.108	91.58	25
Pervaporation	0.00	6778084.44	11.3	32.33	Hydrolyzate Broth 17	Ethanol, Separations Residue 11	0.015,0.213	69.86	25
Pervaporation	0.00	5668545.84	11.76	32.79	Hydrolyzate Broth 18	Ethanol, Separations Residue 12	0.022,0.259	80.93	25
Pervaporation	0.00	30537026.62	178.99	10.78	Hydrolyzate Broth 2	Ethanol, Separations Residue 8	0.025,0.108	121.02	25
Pervaporation	0.00	6615550.89	178.99	11.18	Hydrolyzate Broth 3	Ethanol, Separations Residue 9	0.037,0.131	144.09	25
Pervaporation	0.00	3399721.07	178.99	16.58	Hydrolyzate Broth 4	Ethanol, Separations Residue 10	0.028,0.254	99.55	25
Pervaporation	0.00	9165368.75	178.99	11.48	Hydrolyzate Broth 5	Ethanol, Separations Residue 11	0.017,0.212	75.93	25
Pervaporation	0.00	6109703.84	178.99	11.98	Hydrolyzate Broth 6	Ethanol, Separations Residue 12	0.024,0.257	87.97	25
Pervaporation	0.00	5591555.38	178.99	16.8	Hydrolyzate Broth 7	Ethanol, Separations Residue 7	0.05,0.101	185.13	25
Pervaporation	0.00	6060473.87	178.99	10.97	Hydrolyzate Broth 8	Ethanol, Separations Residue 8	0.028,0.105	135.31	25
Pervaporation	0.00	163969.39	178.99	11.41	Hydrolyzate Broth 9	Ethanol, Separations Residue 9	0.042,0.126	160.44	25
Purification of Glycerol	0.00	284.89	5.46	3.46	Raw glycerol	Glycerol	0.599	273.28	1
Pyrolysis	728.33	2615.45	51.49	7.79	Hardwood Chips for Pyrolysis	Raw bio-oil	0.771	591.40	18
Pyrolysis	712.96	103.17	51.49	7.12	Softwood Chips for Pyrolysis	Raw bio-oil	0.755	578.93	18
Pyrolysis	711.78	180507.51	51.49	6.78	Corn Stover Chips for Pyrolysis	Raw bio-oil	0.754	577.97	18
Pyrolysis	711.17	2617.87	51.49	6.6	Switchgrass Chips for Pyrolysis	Raw bio-oil	0.753	577.47	18
Pyrolysis	0.00	1170102.02	33.94	7.21	Lignin	Raw bio-oil	0.257	72.81	26
Separation of Lignin	0.00	0.00	0.000005	0.23	Separations Residue 1	Lignin	0.711	283.51	26
Separation of Lignin	0.00	0.00	0.000005	0.53	Separations Residue 10	Lignin	0.633	580.54	26
Separation of Lignin	0.00	0.00	0.000005	0.56	Separations Residue 11	Lignin	0.626	598.19	26
Separation of Lignin	0.00	0.00	0.000005	0.54	Separations Residue 12	Lignin	0.633	586.65	26
Separation of Lignin	0.00	0.00	0.000005	0.31	Separations Residue 2	Lignin	0.64	337.49	26
Separation of Lignin	0.00	0.00	0.000005	0.3	Separations Residue 3	Lignin	0.654	335.99	26
Separation of Lignin	0.00	0.00	0.000005	0.54	Separations Residue 4	Lignin	0.633	590.41	26
Separation of Lignin	0.00	0.00	0.000005	0.57	Separations Residue 5	Lignin	0.626	608.36	26
Separation of Lignin	0.00	0.00	0.000005	0.55	Separations Residue 6	Lignin	0.633	596.63	26

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Separation of Lignin	0.00	0.00	0.000005	0.23	Separations Residue 7	Lignin	0.711	278.77	26
Separation of Lignin	0.00	0.00	0.000005	0.3	Separations Residue 8	Lignin	0.64	331.85	26
Separation of Lignin	0.00	0.00	0.000005	0.29	Separations Residue 9	Lignin	0.654	330.38	26
Steam Reforming of Raw Syngas	0.00	203.44	157.25	11.22	Raw Syngas HW IG	Syngas	0.631	432.93	17
Steam Reforming of Raw Syngas	0.00	333.58	143.63	8.57	Raw Syngas HW DG	Syngas	0.543	527.42	17
Steam Reforming of Raw Syngas	0.00	79.53	29.7	0.07	Raw Syngas SW IG	Syngas	0.631	443.58	17
Steam Reforming of Raw Syngas	0.00	44.70	25.44	0.05	Raw Syngas HW DG	Syngas	0.543	540.39	17
Simultaneous Saccharification and Fermentation	0.00	633924.21	51.9	51.7	DA CS Hydrolyzate	Hydrolyzate Broth 1	1.031	3691.19	2,3,4
Simultaneous Saccharification and Fermentation	0.00	19739.39	64.4	56.6	DA SG Hydrolyzate	Hydrolyzate Broth 13	1.031	3691.19	2,3,4
Simultaneous Saccharification and Fermentation	0.00	17928.67	68.8	62	HW SG Hydrolyzate	Hydrolyzate Broth 14	1.028	4820.30	2,3,4
Simultaneous Saccharification and Fermentation	0.00	13821.23	65.1	57.5	AFEX SG Hydrolyzate	Hydrolyzate Broth 15	1.031	3864.99	2,3,4
Simultaneous Saccharification and Fermentation	0.00	683295.84	37.3	29.8	ILPA CS Hydrolyzate	Hydrolyzate Broth 19	1.031	2127.28	2,3,4
Simultaneous Saccharification and Fermentation	0.00	301387.72	46.25	32.6	ILPA SG Hydrolyzate	Hydrolyzate Broth 20	1.031	2126.14	2,3,4
Simultaneous Saccharification and Fermentation	0.00	425855.88	71.9	55.2	HW CS Hydrolyzate	Hydrolyzate Broth 2	1.028	4820.30	2,3,4
Simultaneous Saccharification and Fermentation	0.00	121906.18	56	52.3	AFEX CS Hydrolyzate	Hydrolyzate Broth 3	1.031	3864.99	2,3,4
Simultaneous Saccharification and Fermentation	0.00	126273.08	48	68.1	DA HW Hydrolyzate	Hydrolyzate Broth 7	0.945	4226.05	2,3,4
Simultaneous Saccharification and Fermentation	0.00	10793.59	66.5	68.4	HW SW Hydrolyzate	Hydrolyzate Broth 8	1.068	6491.30	2,3,4
Simultaneous Saccharification and Fermentation	0.00	52.13	51.8	59.4	AFEX SW Hydrolyzate	Hydrolyzate Broth 9	1.036	5041.36	2,3,4
Simultaneous Saccharification and Fermentation	0.00	20780.15	84.9	73.1	DA SW Hydrolyzate	Hydrolyzate Broth 10	0.945	4226.05	2,3,4
Simultaneous Saccharification and Fermentation	0.00	14202.36	94.1	58.8	HW HW Hydrolyzate	Hydrolyzate Broth 11	1.11	6491.30	2,3,4
Simultaneous Saccharification and Fermentation	0.00	11250.18	78.4	56.2	AFEX HW Hydrolyzate	Hydrolyzate Broth 12	1.042	5064.58	2,3,4
Softwood Hydrothermal Liquefaction	0.00	20581684.87	88.7	2.5	Softwood HTL Precursor	Raw bio-oil	0.0441	4775.86	21
Softwood Hydrothermal Liquefaction Conditioning	0.00	33135.61	27.8	1.5	Softwood	Softwood HTL Precursor	6.67	716.38	21
Synthesis of Acetic Acid	18421.34	31.82	75.13	109.85	Methanol	Acetic Acid	1.809	629.55	20
Synthesis of Methanol	1707.67	38.82	37.49	9.12	Syngas	Methanol	0.862	373.39	20
Synthesis of Mixed Alcohols	236.14	3704.56	0.000005	0	Syngas	Ethanol, propanol, butanol, pentanol	0.377,0.1,0.053,0.025	163.40	27
Transesterification	1.22	125.40	7.27	2.87	Triglycerides	Biodiesel Precursor	1.102	249.87	1

*Note that if the water consumption of a technology is zero, this can mean either that the technology uses no water, or the water is accounted for in an upstream process.
** Yield from a mass flow to electricity involves unit changes of kg to kWh. For example, if 1 kg/hr of input has a yield of 0.7 to electricity, 0.70 kWh of electricity is produced.

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