

Supplementary material 1

Table S1. Excluded crops considered food safety

Abaca	Chocho	Potato	Cocoa	Mango	Tomato
Avocado	Cabbage	Papaya	Coffee	Peanut	Wheat
Chili pepper	Peach	Pickle	Sweet potato	Passion fruit	Grape
Garlic	Frijole	Pepper	Brown sugar cane	Melloco	Uvilla
Alfalfa	Strawberry	Pineapple	Sugar cane	Melon	Green beans
Cotton	Passion fruit	Pitahaya	Barley	Blackberry	Yucca
Amaranth	Soursop	Banana	White onion	Orange	Yellow carrot
Rice	Guava	Quinoa	Colored onion	Orange	White carrot
Peas	Bean	Watermelon	Pearl onion	Goose	Squash
Oat	Lettuce	Soy	Rye	Baby banana	Palm heart
Food oats	Lemon	Tobacco	Custard apple	Oil palm	Tree tomato
Banana	Corn	Tea	Broccoli	Tangerine	

Supplementary material 2

Table S2. Energy yield per technology by province MWh/ year.

PROVINCE	Gross Energy potential GJ/year						Total MWh/ year	Energy yield per technology MWh/ year											
								Steam power plants (backpressure turbines) 20- 25 MW		Steam power plants (condensing turbines) 5–50 MW		Externally-fired gas turbines 5–25 MW (simple cycle)		Externally-fired gas turbines 10–30 MW (combined cycle)		Biomass integrated gasification 40–60 MW simple cycle		Combined cycle 90–100 MW combined cycle	
	Bamboo	Hemp	Eucalyptus	Giant reed	Pine	Miscanthus		Lower limit 10%	Uper limit 20%	Lower limit 22%	Uper limit 28%	Lower limit 25%	Uper limit 30%	Lower limit 30%	Uper limit 40%	Lower limit 21%	Uper limit 25%	Lower limit 35%	Uper limit 40%
AZUAY	0	28,109	1,842,622	1,610,232	94,419	223,374	1,055,210	105,521	211,042	232,146	295,459	263,802	316,563	316,563	422,084	221,594	263,802	369,323	422,084
BOLIVAR	369,092	2,575	305,173	252,975	69,189	18,471	282,632	28,263	56,526	62,179	79,137	70,658	84,790	84,790	113,053	59,353	70,658	98,921	113,053
CAÑAR	0	0	540,386	414,960	17,837	3,870	271,404	27,140	54,281	59,709	75,993	67,851	81,421	81,421	108,561	56,995	67,851	94,991	108,561
CARCHI	0	23,181	229,136	632,444	114,572	103,170	306,251	30,625	61,250	67,375	85,750	76,563	91,875	91,875	122,500	64,313	76,563	107,188	122,500
CHIMBORAZO	0	46,940	1,192,385	458,950	210,862	116,165	562,584	56,258	112,517	123,768	157,523	140,646	168,775	168,775	225,033	118,143	140,646	196,904	225,033
COTOPAXI	0	1,486	2,295,333	43,861	228,964	301,025	797,408	79,741	159,482	175,430	223,274	199,352	239,222	239,222	318,963	167,456	199,352	279,093	318,963
EL ORO	0	140,817	70,313	1,009,911	3,999	772,372	554,837	55,484	110,967	122,064	155,354	138,709	166,451	166,451	221,935	116,516	138,709	194,193	221,935
ESMERALDAS	4,261,758	238,545	0	515,044	0	599,256	1,559,612	155,961	311,922	343,115	436,691	389,903	467,884	467,884	623,845	327,519	389,903	545,864	623,845
GUAYAS	0	2,361,446	0	1,092,140	0	3,668,670	1,978,404	197,840	395,681	435,249	553,953	494,601	593,521	593,521	791,362	415,465	494,601	692,442	791,362
IMBABURA	464,090	258	1,629,901	2,316,434	686,203	26,954	1,423,289	142,329	284,658	313,124	398,521	355,822	426,987	426,987	569,315	298,891	355,822	498,151	569,315
LOS RIOS	596,047	0	0	0	0	0	165,568	16,557	33,114	36,425	46,359	41,392	49,671	49,671	66,227	34,769	41,392	57,949	66,227
MANABI	135,086	0	0	0	0	0	37,524	3,752	7,505	8,255	10,507	9,381	11,257	11,257	15,010	7,880	9,381	13,133	15,010
LOJA	0	55,201	378,535	10,681,350	368	96,796	3,114,514	311,451	622,903	685,193	872,064	778,628	934,354	934,354	1,245,806	654,048	778,628	1,090,080	1,245,806
LOS RIOS	0	42,979	0	11,290	0	0	15,075	1,507	3,015	3,316	4,221	3,769	4,522	4,522	6,030	3,166	3,769	5,276	6,030
MANABI	0	1,060,582	0	8,478,116	0	4,028,158	3,768,571	376,857	753,714	829,086	1,055,200	942,143	1,130,571	1,130,571	1,507,428	791,400	942,143	1,319,000	1,507,428
MORONA SANTIAGO	1,616,930	0	16,866	3,177,926	157	0	1,336,633	133,663	267,327	294,059	374,257	334,158	400,990	400,990	534,653	280,693	334,158	467,822	534,653
NAPO	0	0	9,798	0	0	0	2,722	272	544	599	762	680	817	817	1,089	572	680	953	1,089
ORELLANA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PASTAZA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PICHINCHA	90	22,619	3,687,388	2,787,703	630,846	65,112	1,998,266	199,827	399,653	439,619	559,514	499,567	599,480	599,480	799,306	419,636	499,567	699,393	799,306

SANTO DOMINGO DE LOS TSACHILAS	759,002	130,948	0	465,842	0	1,541,172	804,713	80,471	160,943	177,037	225,320	201,178	241,414	241,414	321,885	168,990	201,178	281,649	321,885
SANTA ELENA	0	0	0	7,341	0	0	2,039	204	408	449	571	510	612	612	816	428	510	714	816
TUNGURAHUA	0	0	0	148	0	0	41	4	8	9	12	10	12	12	16	9	10	14	16
SUCUMBIOS	1,154,042	0	387,214	59,307	59,840	52,251	475,737	47,574	95,147	104,662	133,206	118,934	142,721	142,721	190,295	99,905	118,934	166,508	190,295
ZAMORA CHINCHIPE	272,824	0	1,104,701	2,203,640	0	68	994,787	99,479	198,957	218,853	278,540	248,697	298,436	298,436	397,915	208,905	248,697	348,175	397,915
TOTAL	9,628,960	4,155,687	13,689,749	36,219,616	2,117,257	11,616,883	21,507,820	2,150,782	4,301,564	4,731,720	6,022,190	5,376,955	6,452,346	6,452,346	8,603,128	4,516,642	5,376,955	7,527,737	8,603,128