1MW = 1000kW

With a 4-chambered electrolysis unit working at 70% efficiency there would be 700kW available for useful NaOH production.

1MWhr = 3,600,000 kJ
3,600,000 kJ/hr * 70% efficiency = 2,520,000 kJ

$NaOH_{(aq)}$ standard enthalpy is -469.15 kJ/mol
$HCL_{(aq)}$ standard enthalpy is -167.46 kJ/mol
H2O standard enthalpy is -285.84 kJ/mol
$NaCl_{(aq)}$ standard enthalpy is -407.00 kJ/mol
H2 & O2 standard enthalpy is 0 kJ/mol

The full reaction for the 4-Chamber Electrolysis unit is:

3H2O + NaCl (aq) => 2H2 + O2 + NaOH (aq) + HCl (aq)

the enthalpy change (kJ/mol) is 2(0) + (0) + -469.15 + -167.46 -3(-285.84) -(-407) = +627.91 kJ/mol

With the enthalpy change being +627.91 kJ/mol and kJ power efficiency being 2,520,000 kJ /627.91 kJ/mol = 4013.31 moles being produced of NaOH, HCl, and O2, and twice that number moles of H2 per MWhr at 70% efficiency.

$NaOH + CO_2 = NaHCO_3$

With complete conversion of NaOH into $NaHCO_3$ there will also be 4013 mol/hr of CO_2 being absorbed from the atmosphere per hour, or 96,312 mol/day at a power of 1MW input into the 4-Chamber Electrolysis unit running at 70% efficiency.

CO_2 Molar mass = 44.01 g mol−1

4013 mol/hr * 44 gm/mole = 176, 572 gm/hr or 176.572 kg/hr

176.572 kg/hr * 24 hr = 4237 kg/day or 4.237MT/day

4.237 MT/day * 365 days/year = 1546 MT/year of CO_2 absorbed from the atmosphere with 1MW of electricity moving through the 4-chambered electrolysis unit running at 70% efficiency.

NOTE: at 80% efficiency of one MegaWatt (MW) electricity moving through the 4-chambered electrolysis unit the above numbers will increase by ~10%; with ~1700 MT/year of CO_2 being absorbed from the atmosphere.

To put this in perspective, the United States Environmental Protective Agency (EPA)
states:

"The average *emission* rates in the United States from *coal*-fired generation are: 2,249 lbs/*MW-hr* of *carbon dioxide.*"

- This* emission *rate of ~ 1000kg/MW-hour of CO_2 from* coal-*fired generation, when compared to the 4-Chambered Electrolysis system where ~176 kg/MW-hour of CO2 is being absorbed from the atmosphere at 70% efficiency or ~193 kg/MW-hour of CO2 being absorbed at 80% efficiency .

- So running all day, each MegaWatt (MW) consumed of sustainable energy used to power the 4-Chambered Electrolysis system would absorb about 4-5 hours worth of the CO_2 produced from each MW of a* coal-*fired generation system, or about 17-20% of the CO_2 produced from a coal generation facility. Because most coal generation facilities have a baseload rating of at least ~300MW, the point is that ~300 metric tonnes of CO2 are currently released per hour from each of these coal generation facilities.

- For a natural gas generation system the sustainable energy used to power the 4-Chambered Electrolysis system would absorb about 15 hours worth of the CO_2 produced from a natural gas generation system.

- Obviously, the 4-Chambered Electrolysis system must use either sustainable energy or energy that would otherwise be wasted, such as natural gas flaring at oil wells, and* coal-*fired generation must be phased out as soon as is possible.