



- (51) International Patent Classification:
C01B 31/20 (2006.01) *B01D 19/00* (2006.01)
- (21) International Application Number:
PCT/US2012/027781
- (22) International Filing Date:
5 March 2012 (05.03.2012)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
61/466,385 22 March 2011 (22.03.2011) US
61/466,384 22 March 2011 (22.03.2011) US
61/466,381 22 March 2011 (22.03.2011) US
61/542,041 30 September 2011 (30.09.2011) US
61/542,035 30 September 2011 (30.09.2011) US
61/542,031 30 September 2011 (30.09.2011) US
61/542,030 30 September 2011 (30.09.2011) US
- (71) Applicant (for all designated States except US): **EXXON-MOBIL UPSTREAM RESEARCH COMPANY** [US/US]; CORP-URC-SW359, P.O. Box 2189, Houston, TX 2189 (US).

- (72) Inventors; and
(75) Inventors/Applicants (for US only): **MITTRICKER, Franklin, F.** [US/US]; 14777 Presilla Drive, Jamul, CA 91935 (US). **HUNTINGTON, Richard, A.** [US/US]; 4506 Feagan Street, Unti C, Houston, TX 77007 (US). **OELFKE, Russel, H.** [US/US]; 18215 Spruce Creek Drive, Houston, TX 77084 (US).
- (74) Agents: **BROWN, Adam, P.** et al.; Exxonmobil Upstream Research Company, CORP-URC-SW359, P.O. Box 2189, Houston, TX 77252-2189 (US).
- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.
- (84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK,

[Continued on next page]

(54) Title: LOW EMISSION POWER GENERATION SYSTEMS AND METHODS INCORPORATING CARBON DIOXIDE SEPARATION

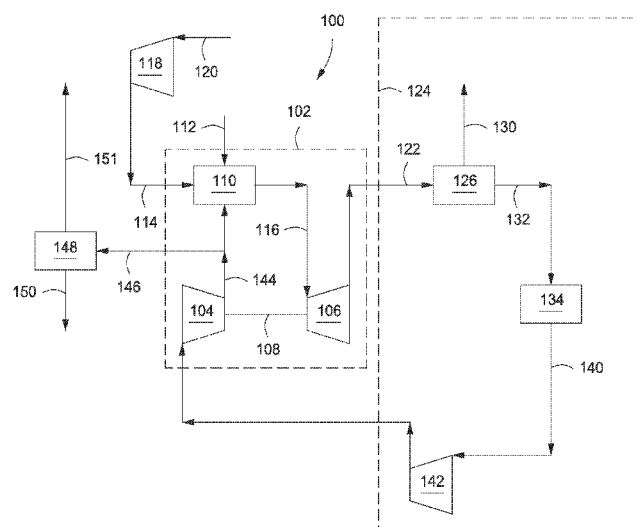


FIG. 1

(57) Abstract: Methods and systems for CO₂ separation in low emission power plants are provided. One system includes a gas turbine system that combusts a fuel and an oxidant in the presence of a compressed recycle stream to provide mechanical power and a gaseous exhaust. A purge stream is taken from the compressed recycle stream and directed to a CO₂ separator configured to absorb CO₂ from the purge stream using a potassium carbonate solvent. Volatiles are removed from the rich solvent by stripping or by flashing to an intermediate pressure before the rich solvent is regenerated and CO₂ is removed.



SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, (88) Date of publication of the international search report:
GW, ML, MR, NE, SN, TD, TG). 17 April 2014

Published:

— *with international search report (Art. 21(3))*