As filed with the Securities and Exchange Commission on January 23, 2007 UNITED STATES SECURITIES AND EXCHANGE COMMISSION Washington, D.C. 20549 AMENDMENT NO. 4 Form S-1 REGISTRATION STATEMENT **UNDER** THE SECURITIES ACT OF 1933 **Duncan Energy Partners L.P.** as Specified in Its Charter) 20-5639997 Delaware 4922 (State or Other Jurisdiction of Incorporation or Organization) (Primary Standard Industrial Classification Code Number) (I.R.S. Employer Identification Number) 1100 Louisiana Street, 10th Floor Houston, Texas 77002 (713) 381-6500 (Address, Including Zip Code, and Telephone Number, Including Area Code, of Registrant's Principal Executive Offices) Richard H. Bachmann 1100 Louisiana Street, 10th Floor Houston, Texas 77002 (713) 381-6500 and Telephone Number, Including Area Code, of Agent for Service)

Copies to:

Robert V. Jewell David C. Buck Andrews Kurth LLP 600 Travis, Suite 4200 Houston, Texas 77002 (713) 220-4200

Joshua Davidson Sean T. Wheeler Baker Botts L. L. P. Shell Plaza, 910 Louisiana Houston, Texas 77002 (713) 229-1234

Approximate date of commencement of proposed sale to the public: As soon as practicable after this Registration Statement becomes effective.

(Name, Address, Including Zip Code,

If any of the securities being registered on this form are to be offered on a delayed or continuous basis pursuant to Rule 415 under the Securities Act of 1933, check the following box. o

If this Form is filed to register additional securities for an offering pursuant to Rule 462(b) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering. o

If this Form is a post-effective amendment filed pursuant to Rule 462(c) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering. o

If this Form is a post-effective amendment filed pursuant to Rule 462(d) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering. o

The Registrant hereby amends this Registration Statement on such date or dates as may be necessary to delay its effective date until the Registrant shall file a further amendment which specifically states that this Registration Statement shall thereafter become effective in accordance with Section 8(a) of the Securities Act of 1933 or until the Registration Statement shall become effective on such date as the Securities and Exchange Commission, acting pursuant to said Section 8(a), may determine.

EXPLANATORY NOTE

This Amendment No. 4 to the Registration Statement on Form S-1 of Duncan Energy Partners L.P. ("Amendment No. 4") does not relate to the contents of the preliminary prospectus contained in our Registration Statement on Form S-1, which is not amended hereby. Accordingly, this Amendment No. 4 does not include a copy of our preliminary prospectus. This Amendment No. 4 is being filed solely for the purpose of submitting the following exhibits:

- Exhibit 5.1—Opinion of Andrews Kurth LLP as to the legality of securities being registered; and
- Exhibit 8.1—Opinion of Andrews Kurth LLP relating to tax matters.

PART II

INFORMATION NOT REQUIRED IN THE PROSPECTUS

Item 13. Other Expenses of Issuance and Distribution.

Set forth below are the expenses (other than underwriting discounts and commissions) expected to be incurred in connection with the issuance and distribution of the securities registered hereby. With the exception of the Securities and Exchange Commission registration fee, the NASD filing fee and the NYSE filing fee, the amounts set forth below are estimates.

SEC registration fee	\$ 33,593
NASD filing fee	31,895
NYSE listing fee	100,000
Printing and engraving expenses	500,000
Fees and expenses of legal counsel	1,000,000
Accounting fees and expenses	1,700,000
Structuring fees	1,000,000
Transfer agent and registrar fees	5,000
Miscellaneous	29,512
Total	\$ 4,400,000

Item 14. Indemnification of Directors and Officers.

The section of the prospectus entitled "Description of Material Provisions of Our Partnership Agreement — Indemnification" is incorporated herein by this reference. Reference is also made to the Underwriting Agreement filed as Exhibit 1.1 to this registration statement. Subject to any terms, conditions or restrictions set forth in the partnership agreement, Section 17-108 of the Delaware Revised Uniform Limited Partnership Act empowers a Delaware limited partnership to indemnify and hold harmless any partner or other person from and against all claims and demands whatsoever.

Section 18-108 of the Delaware Limited Liability Company Act provides that, subject to such standards and restrictions, if any, as are set forth in its limited liability company agreement, a Delaware limited liability company may, and shall have the power to, indemnify and hold harmless any member or manager or other person from and against any and all claims and demands whatsoever. The First Amended and Restated Limited Liability Company Agreement of DEP Holdings, LLC provides for the indemnification of (i) a present or former member of the Board of Directors of DEP Holdings, LLC or any committee thereof, (ii) a present or former member, (iii) a present or former officer of DEP Holdings, LLC or (iv) a person serving at the request of DEP Holdings, LLC in another entity in a similar capacity as that referred to in the immediately preceding clauses (i), (ii) or (iii) (each person in clauses (i), (iii), (iii) and (iv), a "General Partner Indemnitee") to the fullest extent permitted by law, from and against any and all losses, claims, damages, liabilities, (joint or several), expenses (including reasonable legal fees and expenses), judgments, fines, penalties, interest, settlements and other amounts arising from any and all claims, demands, actions, suits or proceedings, whether civil, criminal, administrative or investigative, in which any such person may be involved, or is threatened to be involved, as a party or otherwise, by reason of such person's status as a General Partner Indemnitee; provided, each case the General Partner Indemnitee shall not be indemnified if there has been a final and non-appealable judgment entered by a court of competent jurisdiction determining that, in respect of the matter for which the General Partner Indemnitee's conduct was unlawful. Any indemnification pursuant to these provisions shall be made only out of the assets of DEP Holdings, LLC. BEP Holdings, LLC is authorized to purchase and maintain insurance, on behalf of the members of its Board of Directors, its officers and such

be incurred by such person in connection with the activities of DEP Holdings, LLC, regardless of whether DEP Holdings, LLC would have the power to indemnify such person against such liability under the provisions of its limited liability company agreement.

Item 15. Recent Sales of Unregistered Securities.

On September 29, 2006, in connection with the formation of the partnership, Duncan Energy Partners L.P. issued (1) to DEP Holdings, LLC, the 2% general partner interest in the partnership for \$60 and (2) to Enterprise Products Operating L.P., the 98% limited partner interest in the partnership for \$2,940, in an offering exempt from registration under Section 4(2) of the Securities Act of 1933. There have been no other sales of unregistered securities within the past three years.

Item 16. Exhibits.

The following documents are filed as exhibits to this registration statement:

Exhibit Number		<u>Description</u>
1.1**	_	Form of Underwriting Agreement
3.1**	_	Certificate of Limited Partnership of Duncan Energy Partners L.P.
3.2**	_	Form of Amended and Restated Agreement of Limited Partnership of Duncan Energy Partners L.P. (included as Appendix A)
3.3**	_	Certificate of Formation of DEP Holdings, LLC
3.4**	_	Form of Amended and Restated Limited Liability Company Agreement of DEP Holdings, LLC
3.5**	_	Certificate of Formation of DEP OLPGP, LLC
3.6**	_	Amended and Restated Limited Liability Company Agreement of DEP OLPGP, LLC
3.7**	_	Certificate of Limited Partnership of DEP Operating Partnership, L.P.
3.8**		Agreement of Limited Partnership of DEP Operating Partnership, L.P.
4.1**	_	Specimen certificate representing common units
5.1*	_	Opinion of Andrews Kurth LLP as to the legality of the securities being registered
8.1*	_	Opinion of Andrews Kurth LLP relating to tax matters
10.1**		Form of Contribution, Conveyance and Assumption Agreement
10.2†**	_	Form of Storage Lease (Enterprise Products NGL Marketing), between Enterprise Products Operating L.P. and Mont Belvieu Caverns, LLC
10.3†**	_	Form of Storage Lease (North Propane — Propylene Splitters), between Enterprise Products Operating L.P. and Mont Belvieu Caverns, LLC
10.4†**	_	Form of Storage Lease (Belvieu Environmental Fuels), between Enterprise Products Operating L.P. and Mont Belvieu Caverns, LLC
10.5†**	_	Form of Storage Lease (Butane Isomer), between Enterprise Products Operating L.P. and Mont Belvieu Caverns, LLC
10.6†**	_	Form of Storage Lease (Enterprise Fractionation Plant), between Enterprise Products Operating L.P., Duke Energy NGL Services L.P., Burlington Resources Inc. and
		Mont Belvieu Caverns, LLC
10.7†**		Form of Amended and Restated RGP Storage Lease, between Enterprise Products Operating L.P. and Mont Belvieu Caverns, LLC
10.8**	_	Form of Contribution, Conveyance and Assumption Agreement, between Enterprise Products Operating L.P., Enterprise Products OLPGP, Inc., Enterprise Products
		Texas Operating, L.P. and Mont Belvieu Caverns, LLC
10.9**	_	Form of Contribution, Conveyance and Assumption Agreement, between Enterprise GC, LP, Enterprise Holding III, L.L.C., Enterprise GTM Holdings L.P., Enterprise
		GTMGP, LLC, Enterprise Products GTM, LLC, Enterprise Products Operating L.P. and South Texas NGL Pipelines, LLC

Exhibit Number		<u>Description</u>
10.10**	_	Ground Lease Agreement, dated as of January 17, 2002, by and between Enterprise Products Operating L.P. (successor-in-interest to Diamond-Koch, L.P.) and Mont
		Belvieu Caverns, LLC (successor-in-interest to Enterprise Products Texas Operating L.P.)
10.11**	_	Form of Pipeline Lease Agreement, between Enterprise GC, L.P. and TE Products Pipeline Company, Limited Partnership
10.12**		Form of NGL Transportation Agreement, between Enterprise Products Operating L.P. and South Texas NGL Pipelines, LLC
10.13**	_	Form of Amended and Restated Limited Liability Company Agreement of Mont Belvieu Caverns, LLC
10.14**		Form of Amended and Restated Limited Liability Company Agreement of Acadian Gas, LLC
10.15**		Form of Amended and Restated Limited Liability Company Agreement of South Texas NGL Pipelines, LLC
10.16**		Form of Amended and Restated Agreement of Limited Partnership of Enterprise Lou-Tex Propylene Pipeline L.P.
10.17**		Form of Amended and Restated Agreement of Limited Partnership of Sabine Propylene Pipeline L.P.
10.18**		Form of Fourth Amended and Restated Administrative Services Agreement
10.19**		Form of Omnibus Agreement
10.20**	_	Revolving Credit Agreement, dated as of January 5, 2007, among Duncan Energy Partners L.P., as borrower, Wachovia Bank, National Association, as Administrative
		Agent, The Bank of Nova Scotia and Citibank, N.A., as Co-Syndication Agents, JPMorgan Chase Bank, N.A. and Mizuho Corporate Bank, Ltd., as Co-Documentation
		Agents, and Wachovia Capital Markets, LLC, The Bank of Nova Scotia and Citigroup Global Markets Inc., as Joint Lead Arrangers and Joint Book Runners
10.21†**		Form of Amended and Restated PGP Storage Lease, between Enterprise Products Operating L.P. and Mont Belvieu Caverns, LLC
21.1**		List of Subsidiaries of Duncan Energy Partners L.P.
23.1**		Consent of Deloitte & Touche LLP
23.2*		Consent of Andrews Kurth LLP (contained in Exhibit 5.1)
23.3*		Consent of Andrews Kurth LLP (contained in Exhibit 8.1)
23.4**		Consent of Director Nominee (William A. Bruckmann, III)
23.5**		Consent of Director Nominee (Larry J. Casey)
23.6**		Consent of Director Nominee (Joe D. Havens)
24.1**	_	Powers of Attorney (included on the signature page)

^{*} Filed herewith.

Item 17. Undertakings

The undersigned registrant hereby undertakes to provide to the underwriters at the closing specified in the underwriting agreement certificates in such denominations and registered in such names as required by the underwriters to permit prompt delivery to each purchaser.

Insofar as indemnification for liabilities arising under the Securities Act of 1933 may be permitted to directors, officers and controlling persons of the registrant pursuant to the foregoing provisions, or otherwise, the registrant has been advised that in the opinion of the Securities and Exchange Commission such

^{**} Previously filed

[†] Portions of this exhibit have been omitted and filed separately with the Securities and Exchange Commission pursuant to a confidential treatment request under Rule 406 of the Securities Act of 1933, as amended.

indemnification is against public policy as expressed in the Securities Act of 1933 and is, therefore, unenforceable. In the event that a claim for indemnification against such liabilities (other than the payment by the registrant of expenses incurred or paid by a director, officer or controlling person of the registrant in the successful defense of any action, suit or proceeding) is asserted by such director, officer or controlling person in connection with the securities being registered, the registrant will, unless in the opinion of its counsel the matter has been settled by controlling percedent, submit to a court of appropriate jurisdiction of the question whether such indemnification by it is against public policy as expressed in the Securities Act of 1933 and will be governed by the final adjudication of such issue.

The undersigned registrant hereby undertakes that:

For purposes of determining any liability under the Securities Act of 1933, the information omitted from the form of prospectus filed as part of this registration statement in reliance upon Rule 430A and contained in a form of prospectus filed by the registrant pursuant to Rule 424(b)(1) or (4) or 497(h) under the Securities Act of 1933 shall be deemed to be part of this registration statement as of the time it was declared effective.

For the purpose of determining any liability under the Securities Act of 1933, each post-effective amendment that contains a form of prospectus shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.

The registrant undertakes to send to each limited partner at least on an annual basis a detailed statement of any transactions with DEP Holdings, LLC or its affiliates, and of fees, commissions, compensation and other benefits paid, or accrued to DEP Holdings, LLC or its affiliates for the fiscal year completed, showing the amount paid or accrued to each recipient and the services performed.

The registrant undertakes to provide to the limited partners the financial statements required by Form 10-K for the first full fiscal year of operations of the partnership.

SIGNATURES

Pursuant to the requirements of the Securities Act of 1933, the registrant has duly caused this Amendment No. 4 to Registration Statement to be signed on its behalf by the undersigned, thereunto duly authorized, in the City of Houston, State of Texas, on January 23, 2007.

DUNCAN ENERGY PARTNERS L.P.

By: DEP Holdings, LLC its General Partner

By: /s/ Richard H. Bachmann

Richard H. Bachmann President and Chief Executive Officer

Pursuant to the requirements of the Securities Act of 1933, this Registration Statement has been signed below by the following persons in the capacities indicated on January 23, 2007.

Signature	<u>T</u> itle
* Dan L. Duncan	Chairman of the Board and Director
/s/ Richard H. Bachmann Richard H. Bachmann	President, Chief Executive Officer and Director (Principal Executive Officer)
* Michael A. Creel	Executive Vice President, Chief Financial Officer and Director (Principal Financial Officer)
* Michael J. Knesek	Senior Vice President, Controller and Principal Accounting Officer (Principal Accounting Officer)
* Gil H. Radtke	Senior Vice President, Chief Operating Officer and Director
* W. Randall Fowler	Senior Vice President, Treasurer and Director
/s/ Richard H. Bachmann As attorney-in-fact	Pursuant to power of attorney included in the Registration Statement filed on November 2, 2006
	II-5

EXHIBIT INDEX

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24.1**	— Powers of Attorney (included on the signature page)

^{*} Filed herewith.

^{**} Previously filed

[†] Portions of this exhibit have been omitted and filed separately with the Securities and Exchange Commission pursuant to a confidential treatment request under Rule 406 of the Securities Act of 1933, as amended.

[Andrews Kurth LLP Letterhead]

January 23, 2007

Duncan Energy Partners L.P. 1100 Louisiana Street, 10th Floor Houston, Texas 77002

Gentlemen:

We have acted as special counsel to Duncan Energy Partners L.P., a Delaware limited partnership (the "Partnership"), in connection with the registration under the Securities Act of 1933, as amended (the "Securities Act"), of the offering and sale of up to an aggregate of 14,950,000 common units representing limited partner interests in the Partnership (the "Common Units") by the Partnership.

As the basis for the opinion hereinafter expressed, we have examined such statutes, including the Delaware Revised Uniform Limited Partnership Act (the "<u>Delaware Act</u>"), regulations, corporate records and documents, certificates of corporate and public officials, and other instruments and documents as we have deemed necessary or advisable for the purposes of this opinion. In making our examination, we have assumed that all signatures on documents examined by us are genuine, the authenticity of all documents submitted to us as originals and the conformity with the original documents of all documents submitted to us as certified, conformed or photostatic copies.

Based on the foregoing and on such legal considerations as we deem relevant, we are of the opinion that the Common Units, when issued and delivered on behalf of the Partnership against payment therefore as described in the Partnership's Registration Statement on Form S-1 (Commission File No. 333-138371), as amended, relating to the Common Units (the "Registration Statement"), will be duly authorized, validly issued, fully paid and non-assessable.

We express no opinion other than as to the federal laws of the United States of America and the Delaware Act (including the statutory provisions, all applicable provisions of the Delaware constitution and reported judicial decisions interpreting the foregoing). We hereby consent to the reference to us under the heading "Validity of the Common Units" in the prospectus forming a part of the Registration Statement and to the filing of this opinion as an exhibit to the Registration Statement. In giving this consent, we do not thereby admit that we are included in the category of persons whose consent is required under Section 7 of the Securities Act or the rules and regulations of the SEC issued thereunder.

Very truly yours,

/s/ Andrews Kurth LLP

[Andrews Kurth LLP Letterhead]

January 23, 2007

Duncan Energy Partners L.P. 1100 Louisiana Street, 10th Floor Houston, Texas 77002

RE: REGISTRATION STATEMENT ON FORM S-1

Ladies and Gentlemen:

We have acted as special counsel for Duncan Energy Partners L.P. (the "Partnership"), a Delaware limited partnership, with respect to certain legal matters in connection with the offer and sale (the "Offering") of common units representing limited partner interests in the Partnership ("Common Units"). We have also participated in the preparation of a Registration Statement on Form S-1 and the amendments thereto (No. 333-138371) (such registration statement, as amended, the "Registration Statement") to which this opinion is an exhibit. In connection therewith, we have participated in the preparation of the discussion set forth under the caption "Material Tax Consequences" (the "Discussion") in the Registration Statement.

The Discussion, subject to the qualifications and assumptions stated in the Discussion and the limitations and qualifications set forth herein, constitutes our opinion as to the material United States federal income tax consequences for purchasers of the Common Units pursuant to the Offering.

This opinion letter is limited to the matters set forth herein, and no opinions are intended to be implied or may be inferred beyond those expressly stated herein. We assume no obligation to update or supplement this opinion or any matter related to this opinion to reflect any change of fact, circumstances, or law after the effective date of the Registration Statement. In addition, our opinion is based on the assumption that the matter will be properly presented to the applicable court.

Duncan Energy Partners L.P. January 23, 2007 Page 2

Furthermore, our opinion is not binding on the Internal Revenue Service or a court. In addition, we must note that our opinion represents merely our best legal judgment on the matters presented and that others may disagree with our conclusion. There can be no assurance that the Internal Revenue Service will not take a contrary position or that a court would agree with our opinion if litigated.

We hereby consent to the filing of this opinion as an exhibit to the Registration Statement and to the references to our firm and this opinion contained in the Discussion. In giving this consent, we do not admit that we are "experts" under the Securities Act of 1933, as amended, or under the rules and regulations of the Securities and Exchange Commission relating thereto, with respect to any part of the Registration Statement.

Very truly yours,

/s/ Andrews Kurth LLP