Energy and Telecommunications Interim Committee (ETIC)
Chair and Vice Chair History

2013-14	**Chair:** Senate Democrat (Larsen) **Vice Chair:** House Republican (Regier)
2011-12	**Chair:** Senate Republican (Olson) **Vice Chair:** House Democrat (Belcourt)
2009-10	**Chair:** House Democrat (Driscoll) **Vice Chair:** Senate Republican (Black)
2007-08	**Chair:** House Republican (Klock) **Vice Chair:** Senate Democrat (Lind)
2005-06	**Chair:** Senate Democrat (Roush) **Vice Chair:** House Republican (Olson)
2003-04	**Chair:** House Republican (Olson) **Vice Chair:** Senate Democrat (Stonington)

Transition Advisory Committee (TAC)
Chair and Vice Chair History

2001-02	**Chair:** Senate Republican (Thomas) **Vice Chair:** House Democrat (Dell)
1999-2000	**Chair:** Senate Republican (Thomas) **Vice Chair:** House Democrat (Quilici)

PO BOX 201706
Helena, MT 59620-1706
(406) 444-3064
FAX (406) 444-3036

Energy and Telecommunications Interim Committee

64th Montana Legislature

SENATE MEMBERS
DUANE ANKNEY
PAT CONNELL
ROBYN DRISCOLL
CLIFF LARSEN

HOUSE MEMBERS
CHRISTOPHER POPE
KEITH REGIER
TOM STEENBERG
DANIEL ZOLNIKOV

COMMITTEE STAFF
SONJA NOWAKOWSKI, Lead Staff
TODD EVERTS, Staff Attorney
NADINE SPENCER, Secretary

June 3, 2015

TO: Energy and Telecommunications Interim Committee Members

FROM: Todd Everts, Staff Attorney

RE: Overview of Administrative Rulemaking and Rule Review

One of the duties of the Energy and Telecommunications Interim Committee (Committee) is to review administrative rules within the Committee's jurisdiction for compliance with the Montana Administrative Procedure Act (MAPA). The Committee has jurisdiction over the Department of Public Service Regulation (DPSR) for administrative purposes. The rulemaking and rule review processes and the Committee's and individual legislator's roles in these processes are described below.

ADMINISTRATIVE RULEMAKING

1. *What is a rule?* MAPA[1] defines a rule as an agency regulation, standard, or statement of general applicability that implements, interprets, or prescribes law or policy or describes the organization, procedures, or practice requirements of an agency.[2] Most agency rules have the force and effect of law.

2. *Where are the rules located?* The Administrative Rules of Montana (ARMs) are the administrative rules in their entirety and are updated by the Montana Administrative Register (MAR), which publishes all proposed new, transferred, amended, and repealed rules and all adopted rules twice a month. The ARMs and MAR are available and searchable online at **www.mtrules.org**. The ARMs are broken down into Title, chapter, and subchapter (i.e., 38.1.101). DPSR rules are located in Title 38 in the ARMs.

3. *Why are rules adopted?* Administrative rules are adopted to "fill in gaps" left by legislation and provide the public with certainty as to what is required and to allow public

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[1] See Title 2, chapter 4, MCA.

[2] See § 2-4-102.

input into what the rules will be.

4. *What governs the rulemaking process?*
   a. MAPA governs the rulemaking process for most agencies, including DPSR. MAPA does not give an agency authority to adopt rules; rulemaking authority must be granted elsewhere by the Legislature. In order for a rule to be valid, it must be adopted in substantial compliance with the requirements contained in MAPA.
   b. Before an agency can adopt, amend, or repeal a rule, the agency is required to give written notice of its proposed action. Upon adoption, amendment, or repeal of a rule, an agency must issue a written statement of its reasons for and against the adoption. These proposal and adoption notices must be published in the MAR within a certain timeframe and must contain certain information. This is where the Committee's role as rule reviewer emerges. Rule review begins with staff review of the items identified below under **Administrative Rule Review**. Problems with a rule will be brought to your attention for resolution only if staff cannot resolve the issue with the agency. Proposal and adoption notices will be brought to the Committee's attention in the manner the Committee determines at its first, organizational meeting and sometimes via e-mail between meetings if the situation warrants.

ADMINISTRATIVE RULE REVIEW

Staff uses the following checklist to ensure that proposed and adopted rules meet the requirements of MAPA:

Authority and Necessity.

1. ____ Description of substance of intended action OR subjects and issues involved. § 2-4-302(1)(a).
2. ____ Citation to specific statutory grant of rulemaking authority pursuant to which the rule is adopted. § 2-4-305(3).
3. ____ Citation to specific statutes being implemented. § 2-4-305(3).
4. ____ If implementing policy of governing board/commission, citation to and description of any policy of a governing board or commission being implemented. § 2-4-305(4).
5. ____ Acted within scope of authority. § 2-4-305(5).
6. ____ Statement of REASONABLE NECESSITY. *A statement that merely explains what the rule provides is not sufficient.*
   a. ____ Principal reasons for the intended action and for each adoption, amendment, or repeal. § 2-4-305(6)(b).
   b. ____ If alternative approaches are available, explanations for the rationale

behind the particular approach taken. § 2-4-305(6)(b).

Notice to Sponsor.

7. ____ Notice to primary bill sponsor. *Required when the agency begins to work on the substantive content of a proposal notice for the first rule implementing legislation.* § 2-4-302(2)(d)(i).

   a. ____ Attempted to reach primary bill sponsor via contact on file with Secretary of State (§ 2-4-302(8)(b)) AND date and manner of contact with sponsor (§ 2-4-302(1)(b)).

   b. ____ Failure to make contact INVALIDATES RULE NOTICE. § 2-4-302(1)(b).

Fee Increase or Decrease.

8. ____ If proposing a fee increase or decrease, must include:

   a. ____ An estimate of the cumulative amount of the increase or decrease or new amount AND

   b. ____ Estimate of number of persons affected. § 2-4-302(1)(c).

Small Business Impact Statement [Effective July 1, 2013 -- terminates July 1, 2015].

9. ____ If a proposed rule will significantly and directly impact a small business (defined as a business entity, including its affiliates, that is independently owned and operated and that employs fewer than 50 full-time employees), the agency must prepare and publish in the proposal notice a small business impact analysis that must:

   a. ____ Identify by class or group the small businesses probably affected by the proposed rule;

   b. ____ Include a statement of the probable significant and direct effects of the proposed rule on the small businesses; and

   c. ____ Include a description of any alternative methods that may be reasonably implemented to minimize or eliminate any potential adverse effects of adopting the proposed rule, while still achieving the purpose of the proposed rule. Ch. 318, sec. 1(1), L. 2013.

Notice to Public & Publication.

10. ____ Notice of public hearing. § 2-4-302(4).

   a. ____ Required by a specific statute? If not, then not necessary UNLESS involves matters of significant interest to the public. § 2-4-302(4).

   b. ____ If hearing is NOT scheduled, must state that a public hearing will be scheduled if requested by either 10% or 25, whichever is less, of the persons who will be directly affected by the rulemaking, by a

governmental subdivision or agency, by the appropriate rule review committee, or by an association having not less than 25 members who will be directly affected. § 2-4-302(4).

c. ____ Must provide at least 20 days' notice from the date of publication of any public hearing to be held. § 2-4-302(4).

11. ____ Must provide at least 28 days from the date of publication of the notice for submission of oral or written comments. § 2-4-302(4).

12. ____ Published in MAR at least 30 days before the date of the proposed action. § 2-4-302(2)(c). If not, emergency rules exception applicable? § 2-4-303.

Adoption Notice.

13. ____ Time between publication of the proposal notice and publication of the final agency action may not be more than 6 months. §§ 2-4-302(3) & 2-4-305(7).

a. ____ Failure to publish an adoption notice within 6 months after the date of publication of the proposed notice invalidates the proposal and makes it necessary to publish a new proposal notice. § 2-4-302(6).

b. ____ If not within deadline, was time limit extended by publishing an amended or supplemental notice of proposed or final rulemaking before the time limit expired? § 2-4-305(7).

14. ____ If received public comment or if comments submitted by primary sponsor not reflected, statement of reasons included? § 2-4-305(1).

COMMITTEE INVOLVEMENT

The Committee may become involved in the rulemaking process by doing one or more of the following:

1. Request an agency's rulemaking records to check for compliance with MAPA. § 2-4-402(2)(a).
2. Prepare and submit to the agency written recommendations for the adoption, amendment, or rejection of a rule and submit oral or written testimony at a rulemaking hearing. § 2-4-402(2)(b).
3. Require that a rulemaking hearing be held. § 2-4-402(2)(c).
4. Participate in litigation involving MAPA. § 2-4-402(2)(d).
5. Review the incidence and conduct of administrative proceedings under MAPA. § 2-4-402(2)(e).
6. Poll the Legislature by mail to determine if a proposed rule is consistent with legislative intent. § 2-4-403. The results of the poll are admissible in any court proceeding involving the validity of the rule. § 2-4-404.

7. Require an economic impact statement relating to the adoption of a rule. § 2-4-405.
8. Object to all or a portion of a proposed or adopted rule:
   a. Objection to Proposed Rule Delays Adoption of Rule:
      i. If a majority of Committee members notify the chair that they object to a proposed rule, the Committee must notify the agency of the objection and that the Committee intends to address the objection at the next meeting. Following notice of the objection, the agency may not adopt the rule until publication of the last issue of the MAR that is published before the 6-month period during which the adoption notice must be published. The Committee may withdraw its objection and allow the adoption notice to be published during this 6-month period. § 2-4-305(9).
      ii. If the Committee meets and objects to all or some portion of a proposed rule because the Committee believes that the rule was not proposed in substantial compliance with §§ 2-4-302 (notice, hearing, and submission of views requirements), 2-4-303 (emergency or temporary rules requirements), and 2-4-305 (authority and reasonable necessity requirements), the proposed rule or portion of the proposed rule is not effective until the day after final adjournment of the regular session of the Legislature that begins after the notice proposing the rule was published unless:
         A. the Committee withdraws its objection before the rule is adopted; or
         B. the rule is adopted with changes that in the opinion of a majority of the Committee members, as communicated in writing to the presiding officer and staff, make the rule comply with the Committee's objection and concerns. § 2-4-306(4)(c).
   b. Objection to Proposed or Adopted Rule -- Effect:
      If the Committee objects to a proposed or adopted rule for failure to substantially comply with §§ 2-4-302, 2-4-303, and 2-4-305 and if the Committee does not withdraw its objection to the rule, it may vote to send the objection to the Secretary of State for publication in the MAR and ARM adjacent to the rule. If an objection is published, the agency bears the burden in any action challenging the legality of the rule of proving that the rule was adopted in substantial compliance with §§ 2-4-302, 2-4-303, and 2-4-305. If the rule is invalidated by the court because the agency failed to meet its burden of proof, the court may award costs and attorney fees against the agency. § 2-4-406.

9. Request publication of material adopted by reference in a rule. § 2-4-307.
10. Publish statement with Secretary of State concerning advisory nature of adjective or interpretive rule. § 2-4-308.
11. Request copies of documents in litigation involving judicial construction of rule or MAPA. § 2-4-410.

INDIVIDUAL INVOLVEMENT

Members of the Committee may individually engage in the rulemaking process by doing one or more of the following:

1. Petition for the adoption, amendment, or repeal of a rule. § 2-4-315.
2. If a rule initially implement legislation of which the individual was a primary sponsor, provide comments and receive notice. § 2-4-302.
3. Request agency to hold an informal conference or appoint a committee to develop a proposed rule before agency publishes notice. § 2-4-304.
4. Join agency's list of interested persons for purposes of rulemaking. § 2-4-302.
5. Contribute to rulemaking process by submitting oral or written testimony on proposed rule.

Potential Draft Questions
Net Metering Questionnaire

In an effort to move forward on the analysis requested in Senate Joint Resolution No. 12, Study Net Metering, the Energy and Telecommunications Interim Committee may wish to review the questions proposed below at its June 5 meeting. The ETIC may wish to discuss the list and determine whether or not the questionnaire should be sent to the entities noted below. If the request for analysis is approved by the ETIC, responses would be requested by Sept. 1, 2015.

NorthWestern Energy

1. Generally describe the specific costs your utility incurs to implement and administer Montana's current net metering policy. Identify issues and concerns, if any, associated with implementing and administering the current net metering policy and how those issues and concerns could be addressed.

2. What is your utility's current total annual cost of service and what amount is fixed and unresponsive to changes in your customers' electricity use in the near term?

3. What is your utility's total current annual revenue from fixed charges that are unresponsive to changes in your customers' electricity use in the near term and what amount is from variable charges?

4. What is the distribution of residential and commercial (by rate class) customers' annual energy use, average annual noncoincident peak demand, and average annual coincident peak demand? Where, within these distributions, do residential and commercial (by rate class) net metering customers fall, on average?

5. For 2014, what was the impact on your utility's revenue of the reductions in residential and commercial electricity use and demand identified in questions 9-14? Describe how the revenue impact affects the bills of other residential and commercial customers, including the magnitude of any bill impacts.

6. Is all or part of the utility revenue impact or customer bill impact a subsidy? If so, describe the basis for determining that the impact is a subsidy.

7. In your opinion, are the utility revenue and customer bill impacts from net metering distinguishable from the impacts from other activities that change customer electricity use and demand, such as upgrades to building structures and equipment and, if so, why.

8. Provide a distribution of net metering systems by installed capacity, by customer class on NWE's system.

9. Based on residential net metering systems in your utility service area, for each month of the year, what is the average electricity use (kWh) per net metered customer before and after netting out electricity produced by the customers' generators? Separate this information for solar, wind, and other generators. If net metering does not provide this, provide information based on modeling (including an explanation of assumptions) and outline steps the utility is

taking to acquire actual usage information.

10. How does average use per residential net metered customer before and after netting out electricity produced by customers' generators compare to average electricity use by residential customers that do not net meter?

11. Based on the commercial net metering systems in your utility service area, for each month of the year, what is the average electricity use per net metered customer before and after netting out electricity produced by the customers' generators? Separate this information for solar, wind, and other generators, and by specific commercial customer rate classes.

12. How does average use per commercial net metered customer before and after netting out electricity produced by customers' generators compare to average electricity use by commercial customers in the same rate class that do not net meter?

13. Based on the commercial net metering systems in your utility service area, for each month of the year, what is the average electricity demand (KW) per net metered customer before and after netting out electricity produced by the customers' generators? Separate this information for solar, wind, and other generators, and by specific commercial customer rate classes.

14. How does average demand per net metered commercial customer before and after netting out electricity produced by customers' generators compare to average electricity demand by commercial customers in the same rate class that do not net meter?

15. Describe how increasing the current 50 kilowatt (KW) net metering cap to 100 KW, 1,000 KW, and 5,000 KW would likely impact residential net metering trends in your utility service area and associated utility revenue and customer bill impacts.

16. Describe how increasing the current 50 KW net metering cap to 100 KW, 1,000 KW, and 5,000 KW would likely impact commercial net metering in your utility service area, by customer class, and associated utility revenue and customer bill impacts.

17. Identify issues and concerns, if any, associated with increasing the current 50 KW net metering cap to 100 KW, 1,000 KW, and 5,000 KW and how those issues and concerns could be addressed.

18. Identify potential operational issues associated with expanding net metering and provide suggestions for how the utility could address those issues.

19. Identify one or more methods for quantifying the benefits of net metering. In your opinion, what are the advantages and disadvantages of each method?

20. Identify the benefits of net metering that are shared between net metering customers and customers that do not net meter. Identify:

- The avoided cost for supply-related energy and capacity, accounting for the timing of energy and capacity produced by net metered generators;
- The avoided cost for transmission and distribution line losses;
- The avoided cost for transmission and distribution capacity and operation and maintenance;
- The avoided cost for load following, regulation, and frequency response;

- The avoided pollution control costs.

21. Describe the methods used to determine each of the avoided cost categories in question 20.

22. Describe how increasing the current 50 KW net metering cap to 100 KW, 1,000 KW, and 5,000 KW would likely impact each of the avoided cost categories in question 20.

23. What are the pros and cons of extending Montana's net metering policy to apply to rural electric cooperatives and all regulated utilities? Is it appropriate to treat rural electric cooperatives and certain regulated utilities differently in relation to net metering requirements under specific circumstances in Montana, if yes, explain.

Montana-Dakota Utilities

1. Generally describe the specific costs your utility incurs to implement and administer net metering in accordance with the current Public Service Commission tariff. Identify issues and concerns, if any, associated with implementing and administering the tariff and how those issues and concerns could be addressed.

2. What is your utility's current total annual cost of service and what amount is fixed and unresponsive to changes in your customers' electricity use in the near term?

3. What is your utility's total current annual revenue from fixed charges that are unresponsive to changes in your customers' electricity use in the near term and what amount is from variable charges?

4. What is the distribution of residential and commercial (by rate class) customers' annual energy use, average annual noncoincident peak demand, and average annual coincident peak demand? Where, within these distributions, do residential and commercial (by rate class) net metering customers fall, on average?

5. For 2014, what was the impact on your utility's revenue of the reductions in residential and commercial electricity use and demand identified in questions 10-15? Describe how the revenue impact affects the bills of other residential and commercial customers, including the magnitude of any bill impacts.

6. Is all or part of the utility revenue impact or customer bill impact a subsidy? If so, describe the basis for determining that the impact is a subsidy.

7. In your opinion, are the utility revenue and customer bill impacts from net metering distinguishable from the impacts from other activities that change customer electricity use and demand, such as upgrades to building structures and equipment and, if so, why.

8. What are the pros and cons of extending Montana's net metering policy to apply to MDU? Is it appropriate to treat MDU differently than other regulated utilities in terms of net metering requirements, if so, why?

9. Provide a distribution of net metering systems by installed capacity, by customer class on MDU's system.

10. Based on residential net metering systems in your utility service area, for each month of the year, what is the average electricity use (kWh) per net metered customer before and after netting out electricity produced by the customers' generators? Separate this information for solar, wind, and other generators. If net metering does not provide this, provide information based on modeling (including an explanation of assumptions) and outline steps the utility is taking to acquire actual usage information.

11. How does average use per residential net metered customer before and after netting out electricity produced by customers' generators compare to average electricity use by residential customers that do not net meter?

12. Based on the commercial net metering systems in your utility service area, for each month of the year, what is the average electricity use per net metered customer before and after netting out electricity produced by the customers' generators? Separate this information for solar, wind, and other generators, and by specific commercial customer rate classes.

13. How does average use per commercial net metered customer before and after netting out electricity produced by customers' generators compare to average electricity use by commercial customers in the same rate class that do not net meter?

14. Based on the commercial net metering systems in your utility service area, for each month of the year, what is the average electricity demand (KW) per net metered customer before and after netting out electricity produced by the customers' generators? Separate this information for solar, wind, and other generators, and by specific commercial customer rate classes.

15. How does average demand per net metered commercial customer before and after netting out electricity produced by customers' generators compare to average electricity demand by commercial customers in the same rate class that do not net meter?

16. Describe how increasing the current 50 kilowatt (KW) net metering cap to 100 KW, 1,000 KW, and 5,000 KW would likely impact residential net metering trends in your utility service area and associated utility revenue and customer bill impacts.

17. Describe how increasing the current 50 KW net metering cap to 100 KW, 1,000 KW, and 5,000 KW would likely impact commercial net metering in your utility service area, by customer class, and associated utility revenue and customer bill impacts.

18. Identify issues and concerns, if any, associated with increasing the current 50 KW net metering cap to 100 KW, 1,000 KW, and 5,000 KW and how those issues and concerns could be addressed.

19. Identify potential operational issues associated with expanding net metering and provide suggestions for how the utility could address those issues.

20. Identify one or more methods for quantifying the benefits of net metering. In your opinion, what are the advantages and disadvantages of each method?

21. Identify the benefits of net metering that are shared between net metering customers and customers that do not net meter. Identify:

- The avoided cost for supply-related energy and capacity, accounting for the timing of energy and capacity produced by net metered generators;
- The avoided cost for transmission and distribution line losses;
- The avoided cost for transmission and distribution capacity and operation and maintenance;
- The avoided cost for load following, regulation, and frequency response;
- The avoided pollution control costs.

22. Describe the methods used to determine each of the avoided cost categories in question 21

23. Describe how increasing the current 50 KW net metering cap to 100 KW, 1,000 KW, and 5,000 KW would likely impact each of the avoided cost categories in question 21.

Rural Electric Cooperatives

1. Generally describe the specific costs rural electric cooperatives incur when implementing and administering net metering policy. Identify issues and concerns, if any, associated with implementing and administering the current level of net metering and how those issues and concerns could be addressed.

2. What is your cooperative's current total annual cost of service and what amount is fixed and unresponsive to changes in your customers' electricity use in the near term?

3. What is your cooperative's total current annual revenue from fixed charges that are unresponsive to changes in your customers' electricity use in the near term and what amount is from variable charges?

4. What is the distribution of residential and commercial (by rate class) customers' annual energy use, average annual noncoincident peak demand, and average annual coincident peak demand? Where, within these distributions, do residential and commercial (by rate class) net metering customers fall, on average?

5. For 2014, what was the impact on cooperative revenue of the reductions in residential and commercial electricity use and demand identified in parts 10-15? Describe how the revenue impact affects the bills of other residential and commercial customers, including the magnitude of any bill impacts.

6. Is all or part of a cooperative's revenue impact or customer bill impact a subsidy? If so, describe the basis for determining that the impact is a subsidy.

7. In your opinion, are cooperative revenue and customer bill impacts from net metering distinguishable from the impacts from other activities that change customer electricity use and demand, such as upgrades to building structures and equipment and, if so, why.

8. What are the pros and cons of extending Montana's net metering policy to apply to rural electric cooperatives? If it is appropriate to treat rural electric cooperatives differently than regulated utilities, is it appropriate to treat all rural electric cooperatives the same in terms of net metering requirements?

9. Provide a distribution of net metering systems by installed capacity, by customer class on cooperatives' systems.

10. Based on residential net metering systems in a rural electric cooperative's service area, for each month of the year, what is the average electricity use (kWh) per net metered customer before and after netting out electricity produced by the customers' generators? Separate this information for solar, wind, and other generators. If net metering does not provide this, provide information based on modeling (including an explanation of assumptions) and outline steps cooperatives are taking to acquire actual usage information.

11. How does average use per residential net metered customer before and after netting out electricity produced by customers' generators compare to average electricity use by residential customers that do not net meter?

12. Based on the commercial net metering systems in a cooperative's service area, for each month of the year, what is the average electricity use per net metered customer before and after netting out electricity produced by the customers' generators? Separate this information for solar, wind, and other generators, and by specific commercial customer rate classes.

13. How does average use per commercial net metered customer before and after netting out electricity produced by customers' generators compare to average electricity use by commercial customers in the same rate class that do not net meter?

14. Based on the commercial net metering systems in a cooperative's service area, for each month of the year, what is the average electricity demand (KW) per net metered customer before and after netting out electricity produced by the customers' generators? Separate this information for solar, wind, and other generators, and by specific commercial customer rate classes.

15. How does average demand per net metered commercial customer before and after netting out electricity produced by customers' generators compare to average electricity demand by commercial customers in the same rate class that do not net meter?

16. Describe how increasing a net metering cap to 100 KW, 1,000 KW, and 5,000 KW would likely impact residential net metering trends in a cooperative's service area and associated cooperative revenue and customer bill impacts.

17. Describe how increasing a net metering cap to 100 KW, 1,000 KW, and 5,000 KW would likely impact commercial net metering in a cooperatives service area, by customer class, and associated cooperative revenue and customer bill impacts.

18. Identify issues and concerns, if any, associated with increasing a net metering cap to 100 KW, 1,000 KW, and 5,000 KW and how those issues and concerns could be addressed.

19. Identify potential operational issues associated with expanding net metering and provide suggestions for how cooperatives could address those issues.

20. Identify one or more methods for quantifying the benefits of net metering. In your opinion, what are the advantages and disadvantages of each method?

21. Identify the benefits of net metering that are shared between net metering customers and customers that do not net meter. Identify:

- The avoided cost for supply-related energy and capacity, accounting for the timing of energy and capacity produced by net metered generators;
- The avoided cost for transmission and distribution line losses;
- The avoided cost for transmission and distribution capacity and operation and maintenance;
- The avoided cost for load following, regulation, and frequency response;
- The avoided pollution control costs.

22. Describe the methods used to determine each of the avoided cost categories in question 21.

23. Describe how increasing a net metering cap to 100 KW, 1,000 KW, and 5,000 KW would likely impact each of the avoided cost categories in question 21.

Renewable Energy Industry

1. Currently, what are the installed costs for typical net metered solar PV systems of 5 KW, 10 KW, 50 KW, 100 KW, 500 KW, 1,000 KW, and 5,000 KW?

2. If the net metered systems in question 1 were required to have separate production meters, what would be the incremental installed cost for each project size?

3. Nationally, what percentage of total net metered systems fall into the size ranges in question 1 (e.g., 0-5 KW, 5-10 KW, 10-50 KW, etc.)?

4. Is there a reasonable generator size threshold above which production meters should be required and payments made based on utility avoided costs? If so, identify a reasonable size threshold and describe the basis for determining it.

5. Is there a reasonable threshold or saturation point for requiring the use of smart inverters?

6. Is there a reasonable generator size threshold above which distributed generators should be subject to the same resource planning and procurement processes a regulated utility uses to procure other resources? If so, identify a reasonable size threshold and describe the basis for determining it.

7. Identify the benefits of net metering that are shared between net metering customers and customers that do not net meter.

8. Identify additional net metering benefits (employment, taxes, societal, environmental, etc.) and explain, in the industry's opinion, how best to account for those benefits.

9. Identify one or more methods for quantifying the benefits of net metering. In your opinion, what are the advantages and disadvantages of each method?

10. What are the pros and cons of extending Montana's net metering policy to apply to rural electric cooperatives and all regulated utilities? Is it appropriate to treat rural electric cooperatives and certain regulated utilities differently in relation to net metering requirements under specific circumstances in Montana, if yes, explain.

Ms. Nowakowski;

Please forgive me for being so late in replying to your email.

I'm afraid you caught me unprepared to submit a letter to the members, but I hope that won't deter from my willingness to participate in this study. Even though I'm unprepared to submit a letter for Friday outlining an approach to the study, I can assure you if selected for the study I will be an advocate for Next Generation 9-1-1 as I have been for 9-1-1 for the past 25 years and work vigorously on a solution.

I do believe the study is extremely important if not vital to the future of 9-1-1 in Montana. By taking this step, we are drawing attention to the fact that it won't happen by itself. The State needs to provide direction to this in Montana. In saying that, I am part of a regional consortium of counties who are moving in this direction as we speak. With the equipment we have in place in two counties, Cascade and Chouteau, we will be able to host 10 other counties on a regional system that will provide for lower costs and redundancy plus the backbone and framework to build upon for the different services that will be provided such as text to 9-1-1, picture and video messaging, the ability to back up other centers in a disaster, etc.

GIS will also be an imperative part of Next Generation 9-1-1. I am aware the State Library has been instrumental in pushing for this study. The landscape of 9-1-1 will change and work with GIS for the best possible solution for the citizens of Montana.

I am from a small PSAP in Chouteau County. We are a two position PSAP with six full time dispatchers and myself as the Manager. My dispatchers believe change is good (at least after awhile:) and look forward to what new technologies can bring. Currently we are fully staffed, but once we move in the direction of true Next Generation 9-1-1 and on a true ESinet, which is the network in which Next Generation will fulfill all of it's potential, I believe we'll have to increase staffing, not necessarily because we'll be inundated with more calls, but with different calls; calls that will take longer to process, thus tying up a dispatcher for longer periods of time.

We are installing Text to 9-1-1 in our center in July. We will be the first integrated Text to 9-1-1 center in Montana which is something to be proud of-not that I'm looking to overwhelm my dispatchers. But, since the technology exists, it behooves us to offer the service to the public, giving all opportunities to citizens for assistance when needed.
In all likelihood call volume won't increase, but again it will be the times that text is utilized, thus tying up a position and dispatcher.
I'll need to keep an eye on this as we work our way through the initial first year of deployment.

I am excited about the direction of 9-1-1 in Montana and believe that by studying this issue, the citizens of Montana will be promptly and appropriately served. Thank you for your consideration

Kimberly Burdick, RPL,ENP
Chouteau County Sheriffs Office
9-1-1 Communications Manager
1215 Washington
Fort Benton, MT 59442

Nowakowski, Sonja

From: Pat Connell <pconnell1@yahoo.com>
Sent: Wednesday, June 03, 2015 8:39 AM
To: Nowakowski, Sonja
Subject: Re: ETIC Questions

Sonja:

Sorry I am so tardy on responding, had a minor crisis here this weekend that winds up with Patty re injuring her rotator cuff. Things now on the mend.

A specific set of questions that I did not see included for the four groups concerns engineering quality, safety and need for inspection and maintenance. Are the retail inverters that roof top systems have adequate EMF protection to induce our seasonal electrical storms. Is there a risk for any level of loss of phase synchronicity? Are there national standards for the inverters established by IEEE or other such institutions? At what level of loss of synchronization is an electrical risk (due to wire heating) or efficiency loss? If an inverter's lockout fails, and there become a backflip of power on a "downed" line, for what distance does a shock risk remain for linemen engaged in repairing the distribution line?

That ought to cover it

Pat Connell

Sent from my iPad

On May 28, 2015, at 7:39 AM, Nowakowski, Sonja <snowakowski@mt.gov> wrote:

> Greetings ETIC members,
> I look forward to seeing you all next week. I have attached some draft questions for your review. I didn't have these done in time for the mailing.
> At the June 5 meeting the committee can discuss these questions, invite public comment, revise the questions, and finally determine whether or not they should be sent out to stakeholders.
> If you have any questions, let me know.
> Thanks much,
> Sonja
>
> Sonja Nowakowski
> Research Analyst
> Montana Legislative Services Division
> Room 171C, State Capitol
> PO Box 201704
> Helena, MT 59620-1704
> Phone: (406) 444-3078
> Fax: (406) 444-3971
> Email: snowakowski@mt.gov
>
> <QuestionList.pdf>

Nowakowski, Sonja

From: Ben Brouwer <bbrouwer@montanarenewables.org>
Sent: Thursday, May 28, 2015 4:20 PM
To: Nowakowski, Sonja
Subject: RE: Draft Questions

Sonja, thank you for sharing this draft list of questions. There are several more benefits/avoided costs from net metering, in addition to the list that you've compiled and included in your questions, that we will encourage the committee to ask the utilities to report:

1. Avoided power plant operations and maintenance costs
2. Avoided fuel price hedging costs resulting from any displacement of fossil fuels
3. Avoided reserve capacity cost resulting from any reduction in the amount of generation required to meet planning margins and ensure reliability

4. Avoided generation capacity investments or purchases
5. Avoided transmission and distribution capacity investments
6. Avoided renewable energy standard compliance costs due to reduced demand
7. Value of excess net metering credits sacrificed by net metering customers to utility at the end of billing periods
8. Value of unclaimed Bonneville Power Administration (BPA) "Residential Exchange Credits" due to reduced demand

Regards,
Ben

-------- Original Message --------
Subject: Draft Questions
From: "Nowakowski, Sonja" <snowakowski@mt.gov>
Date: Thu, May 28, 2015 10:15 am
To: "Ben Brouwer (bbrouwer@montanarenewables.org)"
<bbrouwer@montanarenewables.org>

Sonja Nowakowski
Research Analyst
Montana Legislative Services Division
Room 171C, State Capitol
PO Box 201704
Helena, MT 59620-1704
Phone: (406) 444-3078
Fax: (406) 444-3971
Email: snowakowski@mt.gov

Nowakowski, Sonja

From: Bryan Rogan <brogan@oversightresources.com>
Sent: Thursday, June 04, 2015 1:33 PM
To: Nowakowski, Sonja
Cc: Regier, Keith (Rep); Pope, Christopher (Rep); mtsteenberg@bresnan.net; tom.a.steenberg@gmail.com; Zolnikov, Daniel (Rep); goodwind1.duane@gmail.com; connell4sd43@yahoo.com; Driscoll, Robyn (Sen); cliff@larsenusa.com
Subject: ETIC - Public Comments June 5 2015

Hi Sonja,
I will be unable to attend the ETIC meeting tomorrow in person and would like to submit the following comments.

Dear Member's of the Committee,
I appreciate the opportunity to provide comments about two of the proposed agenda items for this interim session.

1. SJ12 – Net Metering: As stated in the background of the Draft Work Plan for SJ12, *questions were raised during the last session about "how to account for the benefits of net metering" and "how to determine the costs of net metering." These matters range from economic impacts to cost shifts to rate payers.* I am in full support of this type of cost analysis, however I'd also like to point out what I perceive as a disconnect between this type of economic analysis at the legislative level, and analysis and application at the PSC. We all agree there's more than one type of economic impact energy projects have within Montana, and although they have been broadly recognized by the legislature, the collective economic impacts are not considered at the PSC level when decisions about these types of projects are brought before the Commission. The only economic factor the PSC considers is the impact to the ratepayer. I agree the ratepayer impact should be the first and foremost consideration when the PSC makes decisions about energy projects, however the question I'm posing is should it be the ONLY factor considered as it is today? I argue that all economic impacts should be factored, and therefore I feel consideration should be made about how your study findings can be quantified and eventually adopted by the PSC in their decision making process for these types of projects.

2. Marketing of Montana's Energy Resources – Keith Regier: I strongly support Representative Regier's suggestion to identify Montana's energy resources and their potential for marketing. I feel this type of study is long overdue considering the lack of energy development that has occurred in Montana over recent years compared to the wealth of resources that are available for development. I feel Representative Regier's focus on this matter is on target because in order to develop these stranded resources Montana will need to be able to export.

Thank you for the opportunity to submit my comments.

Sincerely,
Bryan Rogan
Oversight Resources, LLC
Gordon Butte Wind, LLC
1087 Stoneridge Drive, Suite 2E
Bozeman, MT 59718
Brogan@oversightresources.com
Office: 406-586-8440

Members of the Energy and Telecommunications Interim Committee

Thank you for the opportunity to comment on the draft questions to the net metering questionnaire.

Overall, the questionnaire seems to hit some of the major points needed to assess net metering in Montana. This type of study is difficult for one utility, let alone two IOUs and dozens of rural electric cooperatives.

While important to get information from utilities, the Public Service Commission is also a good source of information for these types of questions. The committee should also seek input from the PSC for many of these questions.

Furthermore, the committee should seek input not just from renewable energy industry but also organizations such as the Montana Renewable Energy Association and others.

Some specific concerns:

Question #1 addressed to NorthWestern Energy (NWE), Montana-Dakota Utilities (MDU) and the Rural Electric Cooperatives (co-ops) asks each to identify costs incurred to implement net metering and identify "issues and concerns" with general net metering policy. This question is too broad and allows for opinion rather than fact. The purpose of this study should be to analyze facts about net metering, not allow utilities to campaign against the idea. The question should keep the first sentence and drop everything after "net metering policy."

Part 2 of Question # 5 presents the exact question to utilities/co-ops that this entire study is trying to answer. One of the purposes of this study is to assess if there is a cost-shift occurring and if so, to what extent. Question 5 asks the utility to answer to those questions in one response. Part 1 of Question 5 is sufficient to get the facts needed to continue the study. If Part 2 is kept, the wording should be changed to "Describe <u>and document</u> how the revenue impact…."

Question #7 again asks for opinion from the utilities/co-ops rather than obtaining facts. More appropriate wording would be "What other activities change customer electricity use and demand?"

Questions regarding expansion of net metering (NWE questions 15-18, 22) should be saved for a later date. The purpose of this questionnaire should be to obtain facts about net metering in its current state and this task is already daunting. Once these facts are analyzed and we have a clearer picture of net metering benefits and impacts, perhaps the committee should discuss how expansion of net metering would change those outcomes.

Question #20 should include:

- Avoided RPS compliance costs (as the RPS is based on a percentage of sales, as sales decrease due to net-metering, so to does the need for renewable energy credits to comply with the RPS).
- Value of unused net metering credits

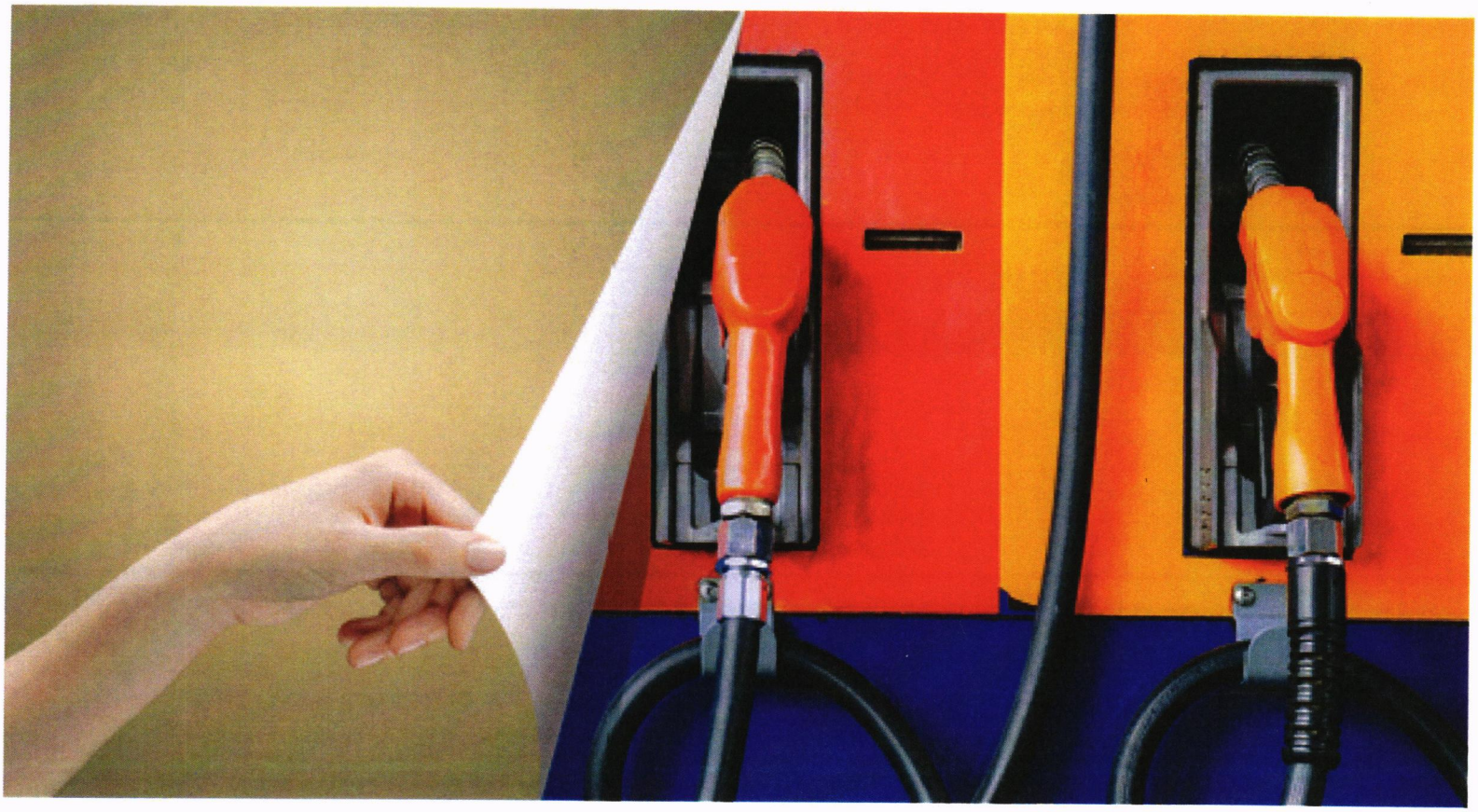
Question #23 to NWE is unnecessary and unhelpful. The objective of this questionnaire should be to determine the facts needed to analyze net metering in Montana, not provide opportunity for utilities to opine about net metering. Furthermore, we fail to understand the usefulness of asking one utility about expanding net metering to other utilities.

Thank you for the opportunity to comment.

Diego Rivas
Senior Policy Associate
NW Energy Coalition

What's Up With

Gasoline Prices?



America's Oil and Natural Gas Industry

At the request of Senator Jim Keane, the Montana Petroleum Association provides this material on gasoline pricing for your information. This pamphlet is done by the American Petroleum Institute and is current to February 2015. Additional information is available on their website at www.api.org

David A. Galt, Executive Director
Montana Petroleum Association
406-442-7582
406-461-1314 (cellular)

February 2015

For the latest report, please visit www.api.org/gasolineprices

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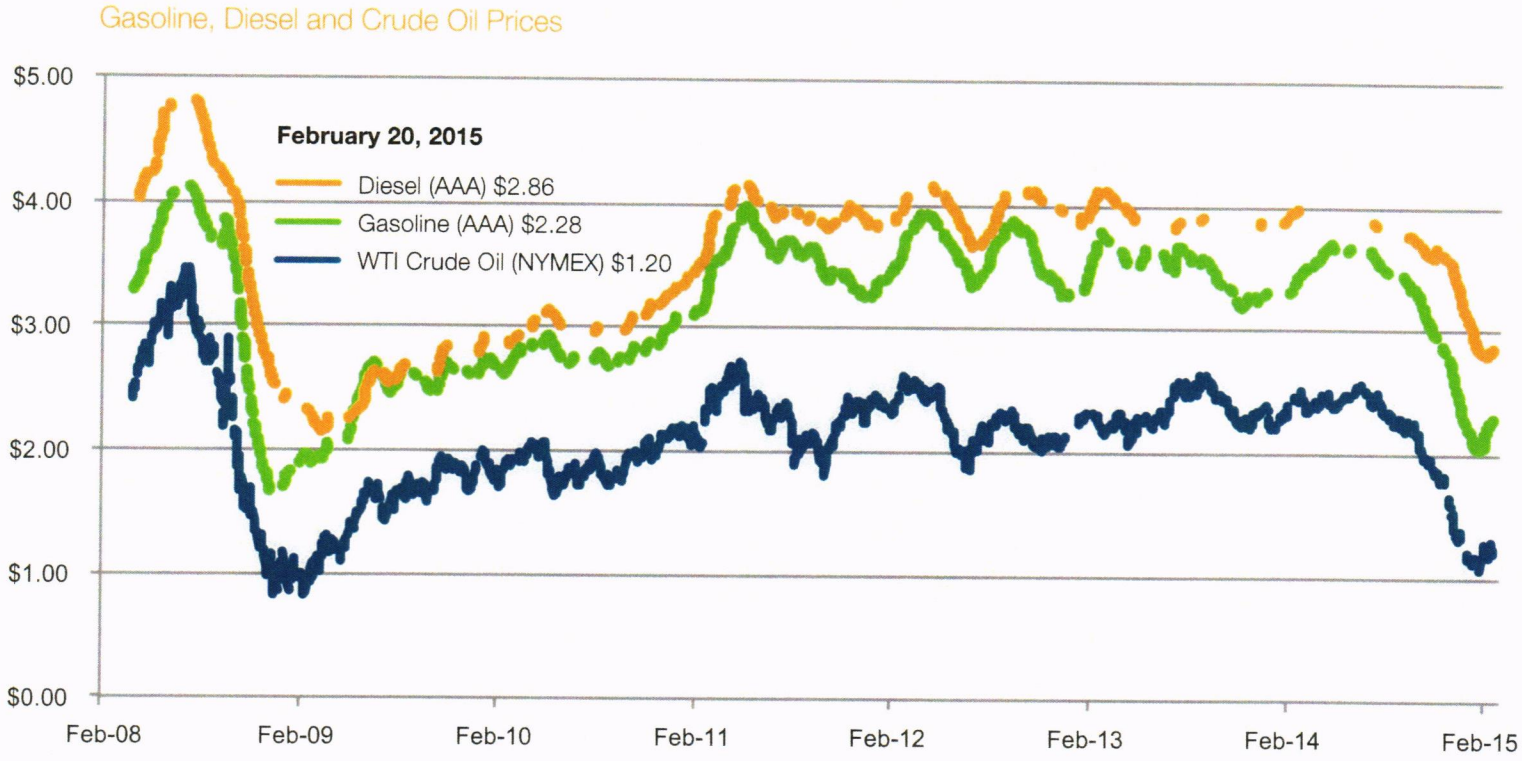
Gasoline, Diesel and Crude Oil Prices

Changes in gasoline and diesel prices mirror changes in crude oil prices.



Source: NYMEX (WTI crude oil) and AAA (gasoline and diesel).

Changes in gasoline and diesel prices mirror changes in crude oil prices. Those changes are determined in the global crude oil market by the worldwide demand for and supply of crude oil. Weak economic conditions in the U.S. and around the world in 2008 and into 2009 led to less demand which helped push prices down.

With the worldwide economic recovery underway, demand is on the rise again but unrest in the Middle East and North Africa has put supplies at risk. This combination of rising demand and reduced supply helped to push prices higher over the last few years. However, the recent downturn in prices was the result of the growth in oil supplies, largely from the U.S., outpacing the growth in global demand.

Oil Prices Relate to Many Uncertain Factors

A host of factors, many of them uncertain, affect the price of crude oil and the products made from it.

Oil Prices Relate to Many Uncertain Factors

Source: EIA.

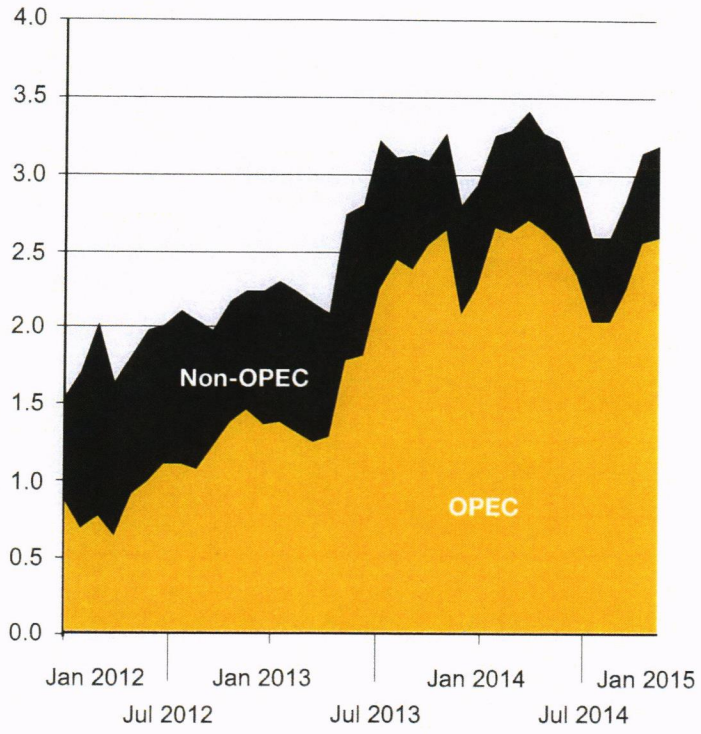
Crude oil prices are set globally through the daily interactions of thousands of buyers and sellers in both physical and futures markets, and reflect participants' knowledge and expectations of demand and supply.

In addition to economic growth and geopolitical risks, other factors, including weather events, inventories, exchange rates, investments, spare capacity, OPEC production decisions, and non-OPEC supply growth all figure into the price of crude oil.

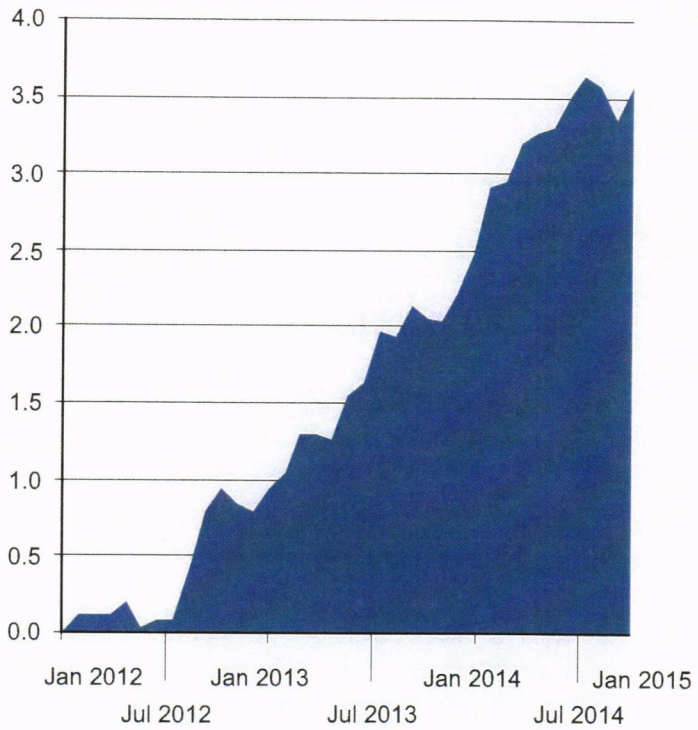
Global Oil Supply Disruptions vs. U.S. Oil Growth

Growth in U.S. oil production has largely offset the growth in global oil supply disruptions since 2011.

Growth in Global Oil Supply Disruptions
(mmb/d)



Growth in U.S. Oil Production*
(mmb/d)



Source: EIA.
* Include hydrocarbon gas liquids, biofuels, and refinery processing gains.

Unplanned supply disruptions in the global crude oil market have grown from 1.6 million barrels a day in 2012 to peaking at 3.4 million barrels a day in May 2014, before falling to 2.6 million barrels a day by September and October, but landing back up to 3.2 million barrels a day by January 2015 . According to the EIA, this is the highest level of supply disruptions since the Iraq-Kuwait War (1990-91) when prices spiked to new highs.[1]

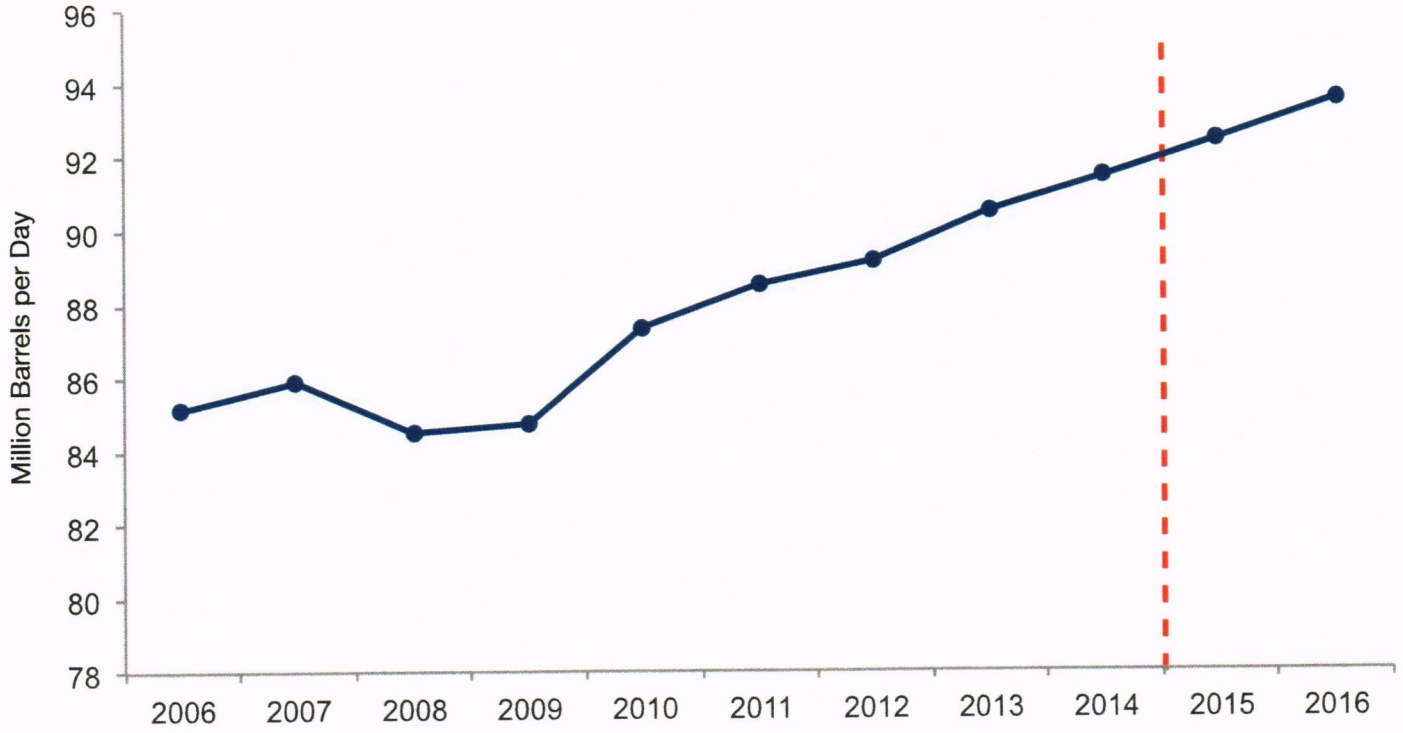
U.S. production growth has largely offset the loss from unplanned production outages around the world and put downward pressure on prices to the benefit of all consumers.

[1] EIA, Today in Energy, August 27, 2014.

World Liquid Fuel Consumption

World oil consumption is expected to grow as the global economy rebounds.

World Liquid Fuel Consumption



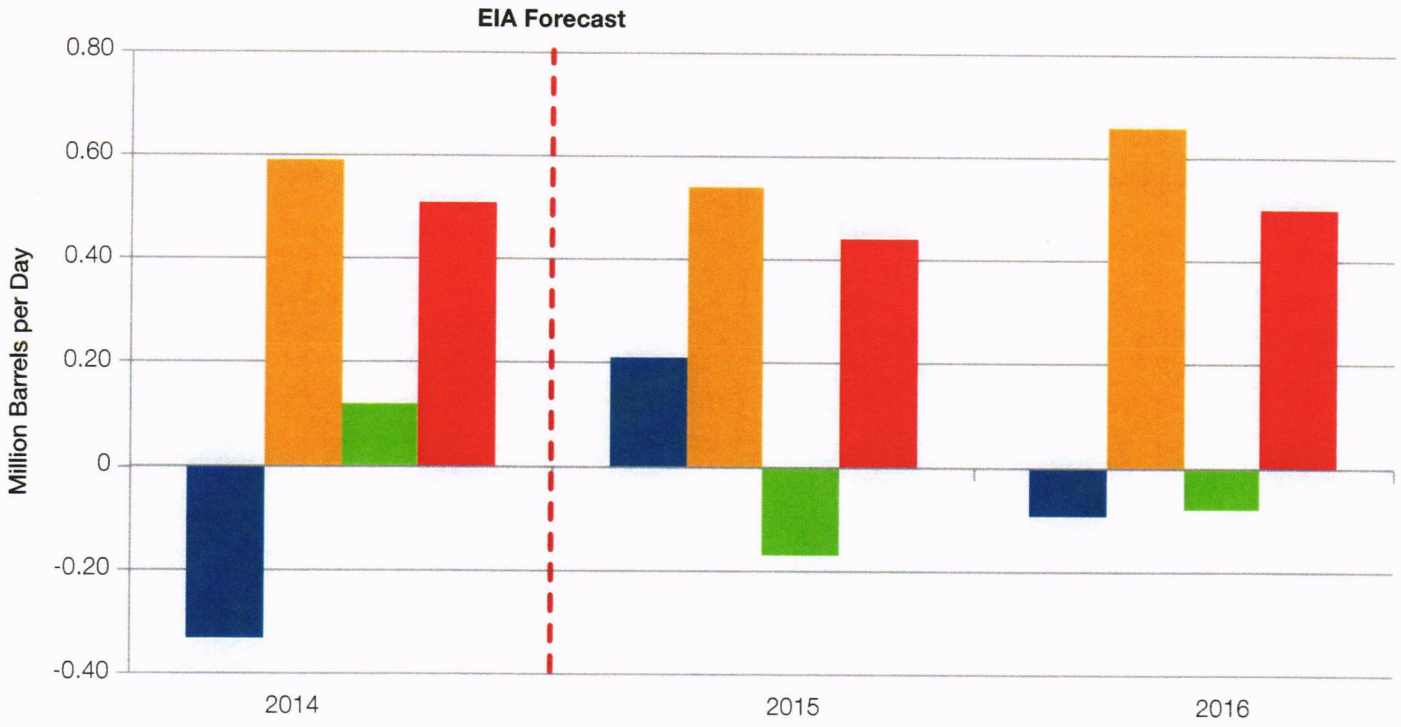
Source: EIA, Short-Term Energy Outlook, February 2015.

The world's demand for oil increased sharply for several years, peaking at 86 million barrels per day in 2007. However, the global economic slowdown in recent years reversed this trend and demand fell for two consecutive years to just 85 million barrels per day in 2009, or over one million barrels per day less than at its peak before rebounding in 2010. The Energy Information Administration expects growth to continue over the next couple of years reaching 93.1 million barrels per day in 2015 and 94.2 million in 2016.

Growth in World Liquid Fuel Consumption

Growth in world oil consumption is expected to be concentrated in non-OECD countries.

Growth in World Liquid Fuel Consumption



Source: EIA, Short-Term Energy Outlook, February 2015.

The EIA projects consumption in the Organization for Economic Cooperation and Development (OECD)[2] countries to increase slightly this year before falling in 2016. Global growth is concentrated in the non-OECD countries including China, the Middle East and Central and South America with world gains of 1 million barrels per day in 2015 and 1 million barrels per day in 2016.

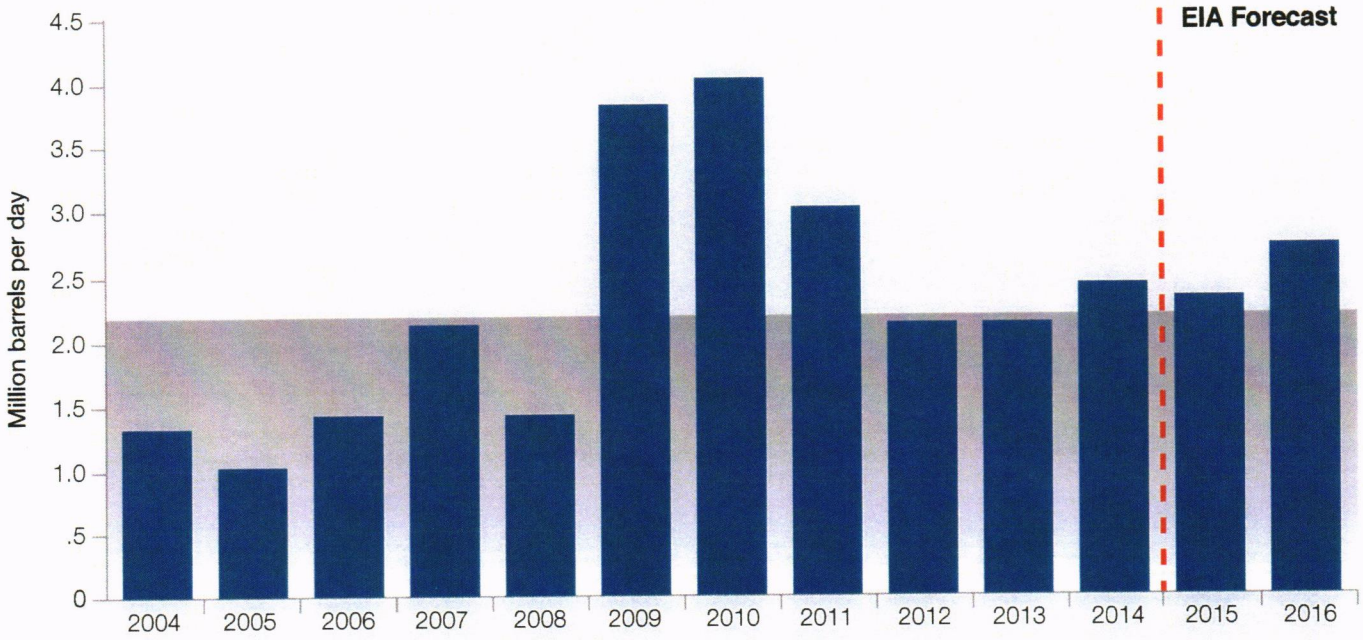
[2] The 34 member countries of the OECD include:

Australia
Austria
Belgium
Canada
Chile
Czech Republic
Denmark
Estonia
Finland
France
Germany
Greece
Hungary
Iceland
Ireland
Israel
Italy
Japan
Korea (South)
Luxemburg
Mexico
Netherlands
New Zealand
Norway
Poland
Portugal
Slovakia
Slovenia
Spain
Sweden
Switzerland
Turkey
United Kingdom
United States

OPEC Surplus Production Capacity

Surplus crude oil capacity is expected to increase.

OPEC Surplus Crude Oil Production Capacity



Note: Shaded area represents 2004–2016 average (2.2 million barrels per day).

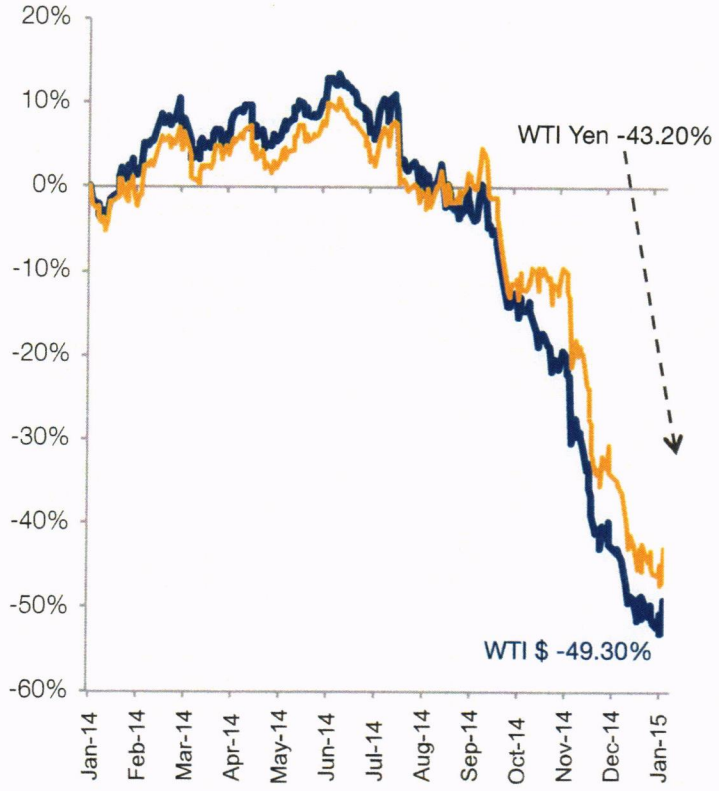
Source: EIA, Short-Term Energy Outlook, February 2015.

The amount of surplus crude oil capacity, which is the amount of oil available to meet surges in demand or disruptions in supply, remained at 2.1 million barrels per day in 2012 and 2013 before increasing to 2.4 million barrels per day in 2014 as demand for crude oil increased along with global economic growth, and supplies were put at risk by unrest in the Middle East and North Africa.

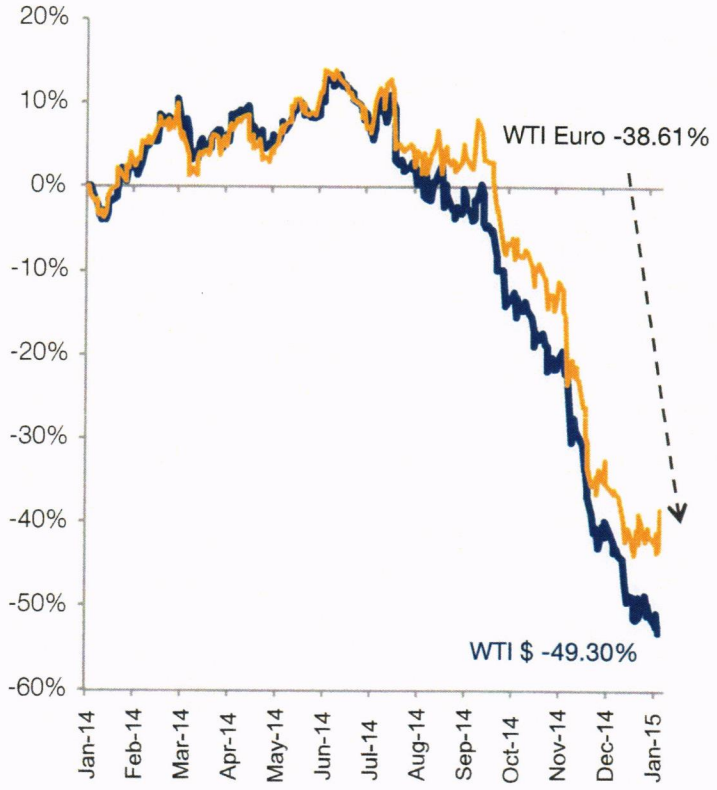
EIA expects OPEC surplus production capacity will average about 2.3 million barrels per day in 2015 and increase to 2.7 million barrels per day in 2016.

The Value of the Dollar Makes a Difference

Percent Change of West Texas Intermediate Crude (WTI) in Dollars and Yen (Jan 2, 2014 – Jan 30, 2015)



Percent Change of West Texas Intermediate Crude (WTI) in Dollars and Euro (Jan 2, 2014 – Jan 30, 2015



Sources: Board of Governors of the Federal Reserve Bank, EIA, NYMEX.

The strength of the U.S. dollar against other currencies around the world has widened compared to the Yen and the Euro. For American consumers this means they are experiencing a greater fall in crude oil prices than the citizens of Japan and Europe.

As oil prices have fallen around the world, the price decline has been greater for countries that have a strong currency like the U.S., but less for those that don't.

Accumulating Risks to the Development of Oil and Natural Gas

There are accumulating risks to the development of oil and natural gas.

Accumulating Risks to the Development of Oil and Natural Gas

Source: NPC.

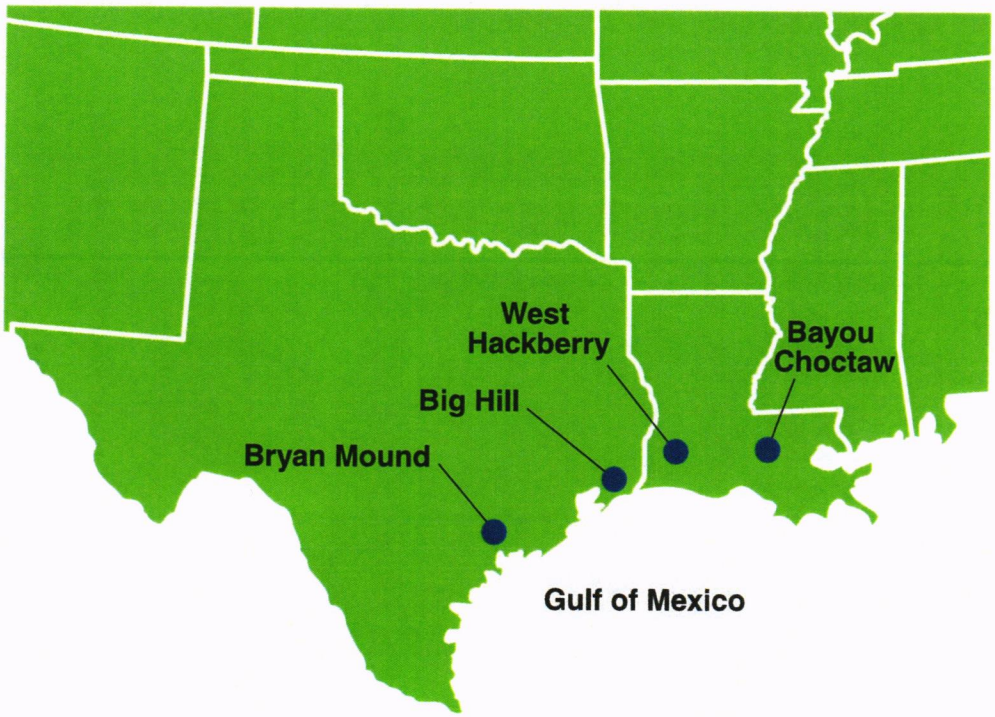
The National Petroleum Council (2008) examined a broad range of global energy supply, demand and technology projections through 2030 and concluded that "the world is not running out of energy resources, but there are accumulating risks to continuing expansion of oil and natural gas production from the conventional sources relied upon historically."

These risks include political instability in the Middle East and North Africa, the resurgence of resource nationalism in Latin America, civil unrest in Nigeria, piracy off the African coast, transit vulnerability in the Caspian, energy subsidies in Asia, extreme weather around the world, and restricted access to resources in the U.S. These risks create significant challenges to meeting projected energy demand.

Strategic Petroleum Reserve

The Strategic Petroleum Reserve: America's insurance policy in case of an oil supply disruption.

SPR Storage Sites



The Strategic Petroleum Reserve (SPR), the world's largest supply of emergency crude oil, was designed to protect the country from fuel shortages in the event of an emergency. Although the need for a reserve had been recognized for decades, it was the 1973-74 oil embargo by Arab nations – which significantly affected the nation's economy – that led to its creation in 1975.

The oil in the reserve is stored in underground salt caverns along the coastlines of Texas and Louisiana. Its more than 700 million barrels – the largest emergency oil stockpile in the world – make it a significant deterrent to oil import cutoffs.

Under the Energy Policy and Conservation Act, the president is authorized to withdraw crude oil from the SPR in an energy emergency "to counter a severe supply interruption" and distribute it by competitive sale. The SPR has been used under these circumstances three times (during Operation Desert Storm in 1991, after Hurricane Katrina in 2005, and in response to the loss of Libyan crude in 2011).

In addition to energy emergencies, crude oil has been withdrawn from the reserve for a variety of reasons, including test sales, exchange arrangements with private companies, and as authorized by Congress to raise revenue.

The SPR was not intended to be used to interfere with the crude oil or gasoline markets or to ease temporary retail fuel price hikes.

According to the Congressional Research Service (CRS), it is unclear what sort of effect a draw on the SPR would have in a market where there is no actual physical shortage because oil companies may have limited interest in SPR oil unless they have spare refining capacity to turn the crude into useful products, or want to build stocks.[3] The CRS also noted that it is possible that producing nations might reduce production to offset any SPR oil delivered into the market.

[3] CRS, "The Strategic Petroleum Reserves: History, Perspectives, and Issues," April 18, 2009.

What Consumers Are Paying for at the Pump

Pump prices: A fractional story.

What Consumers are Paying for at the Gasoline Pump
(as of December 2014)

Crude Oil | **Retailing & Refining** | **Excise Tax**

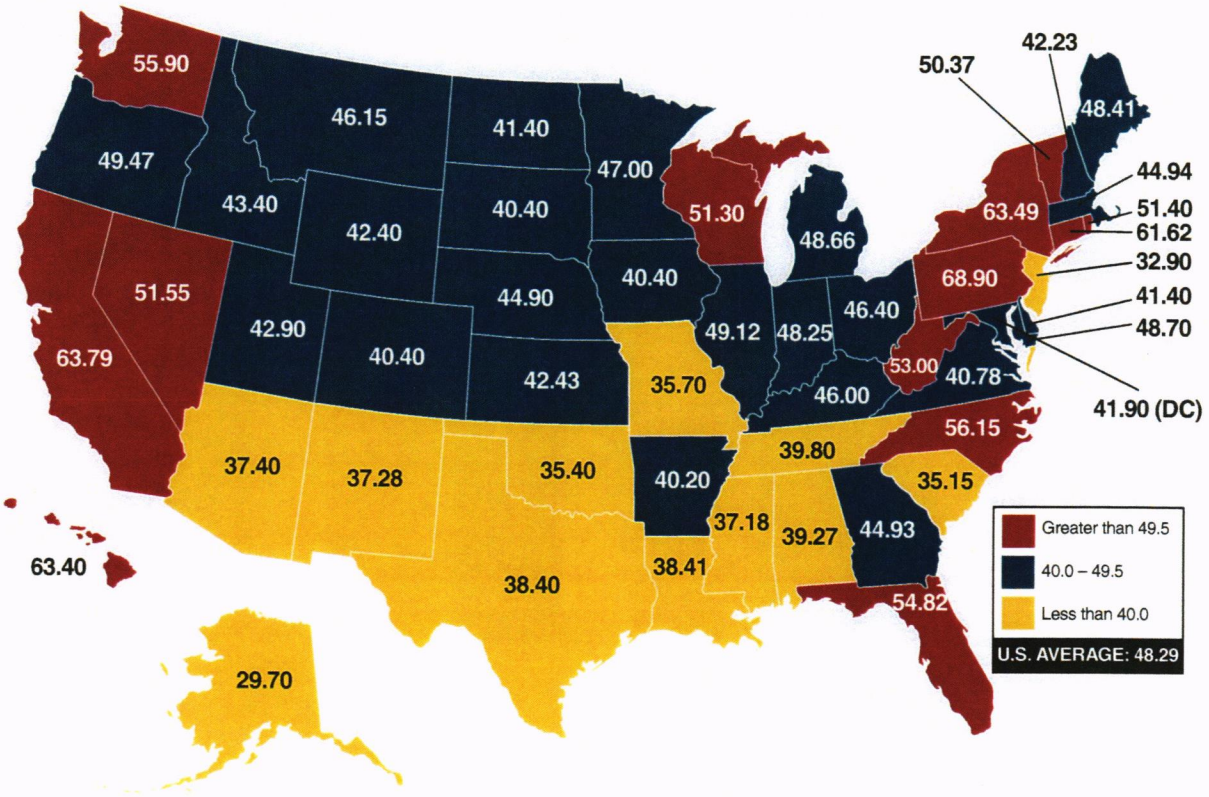
Source: EIA estimate based on average price of $2.54 per gallon, December 2014.

The biggest single component of retail gasoline prices is the cost of the raw material used to produce the gasoline – crude oil. Recently, that price has been between $44 and $52 a barrel, depending on the type of crude oil purchased. With crude oil at these prices a standard 42 gallon barrel translates to $1.05 to $1.24 a gallon at the pump. Excise taxes add another 48 cents a gallon on average nationwide. So the price for gasoline is already at $1.53 or more per gallon even before adding the cost of refining, transporting, and selling the gasoline at retail outlets. Crude oil costs account for about 57 percent of what people are paying at the pump. Excise taxes average 18 percent. That leaves just 25 percent for the refiners, distributors, and retailers.

Gasoline Taxes by State

One reason the price of gasoline can vary by state is the fact that the taxes often do.

Gasoline Taxes (Combined Local, State and Federal – Cents per Gallon, January 12, 2015)



The average nationwide tax collected on each gallon of gasoline sold at the retail station is 48.3 cents. Of that, 18.4 cents per gallon goes to the federal government; the rest ends up in state and local government coffers.

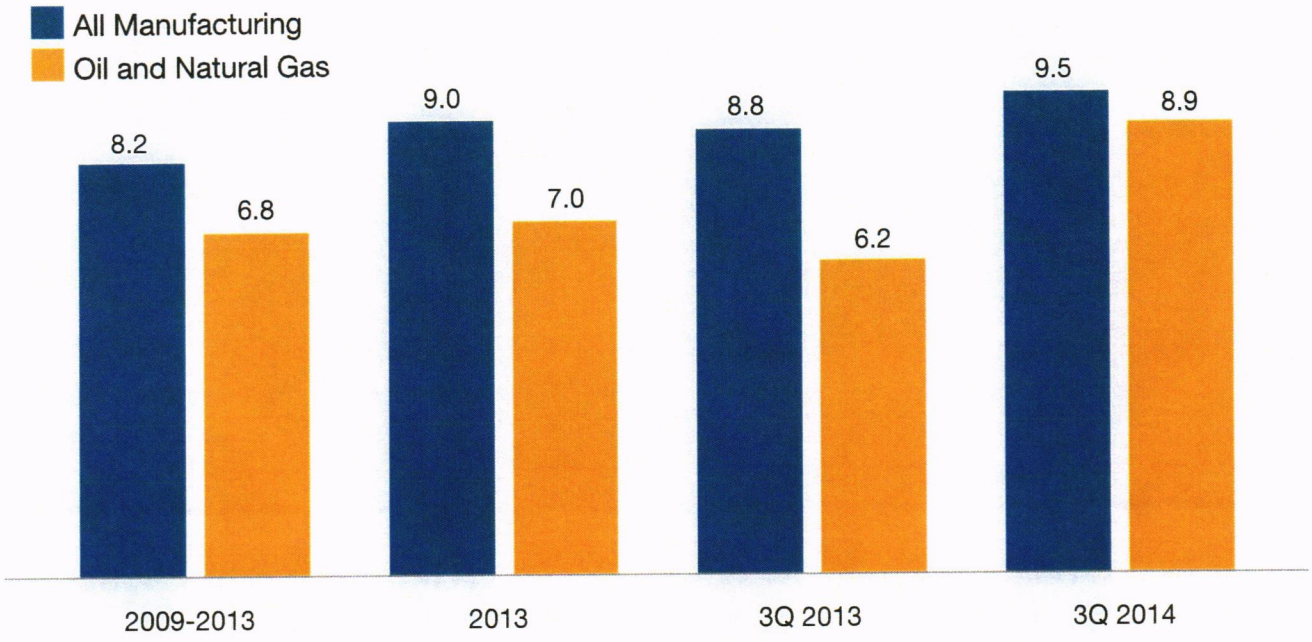
The amount of gasoline taxes collected by states can vary widely, from just 29.7 cents per gallon in Alaska, to as much as 68.90 cents per gallon in Pennsylvania.

In addition to excise taxes, other taxes can also apply, such as sales taxes, gross receipts taxes, oil inspection fees, county and local taxes, underground storage tank fees, and other miscellaneous environmental fees. These additional taxes contribute to the difference collected among states.

Earnings Compared to Manufacturing

Earnings: Keeping America going strong.

Earnings
(cents of net income per dollar of sales)



Source: U.S. Census Bureau for U.S. manufacturing, and Standard & Poor's Research Insight for oil and natural gas.

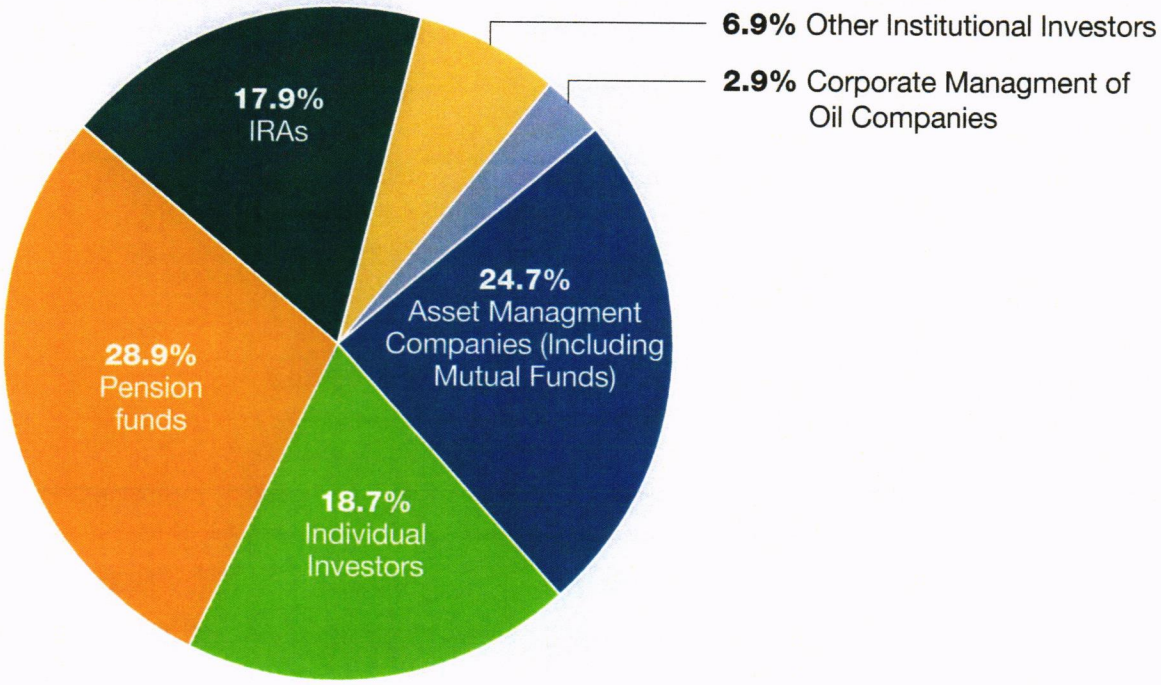
Over the last five years, average earnings for the oil and natural gas industry have been well in line with the rest of the U.S. manufacturing industry, averaging about 7 cents for every dollar of sales compared to 8 cents for manufacturing. By the third quarter of 2014, the average for the oil and gas industry increased to 8.9 cents on the dollar compared to 9.5 cents on the dollar for all U.S. manufacturing as the economy continued to recover.

Like other industries, the oil and natural gas industry strives to maintain a healthy earnings capability. It does so to remain competitive and to benefit its millions of shareholders, across the country and in all walks of life. Healthy earnings also allow the industry to invest in innovative technologies that improve our environment and increase production to keep America going strong – even as it leads the search for newer technologies, and new sources of energy that will provide a more secure tomorrow.

Who Owns the Oil Companies

When politicians talk about taxing "Big Oil" or taking their "record profits," they should think about who they really would be hurting.

Who Owns "Big Oil?"
(holdings of oil stocks, 2014)



Source: Who Owns America's Oil and Natural Gas Companies, SONECON, October 2014.

If you're wondering who owns "Big Oil," chances are good the answer is "you." If you have a mutual fund account, and 57 million U.S. households do, there's a good chance it invests in oil and natural gas stocks. If you have an IRA or personal retirement account, and 46 million U.S. households do, there's a good chance it invests in energy stocks. If you have a pension plan, and 61 million U.S. households do, odds are it invests in oil and natural gas.

Contrary to popular belief, and what some politicians might say, America's oil companies aren't owned just by a small group of insiders. Only 2.9 percent of industry shares are owned by corporate management. The rest is owned by tens of millions of Americans, many of them middle class.

A strong oil and natural gas industry is a vital part of the retirement security for millions of Americans. State pension fund investments in oil and natural gas companies are providing strong returns for teachers, firefighters, police officers, and other public pension retirees, according to a Sonecon study.[4] Returns on oil and natural gas assets in the top two state funds in 17 states, which include almost half of all the people covered by state and local pension plans in the U.S., averaged 42 cents for each dollar invested compared to just 6 cents for other assets in these funds from 2005 through 2009.

The oil and natural gas industry is a major contributor to the health of these funds, many of which face huge future payout obligations. Investments in the industry accounted for 4.6 percent of the average fund's total assets while producing 15.7 percent of total returns.

[4] Robert J. Shapiro and Nam D. Pham, "The Financial Contribution of Oil and Natural Gas Company Investments to Major Public Pension Plans in Seventeen States, Fiscal Years 2005-2009," SONECON, June 2011.

EIA Price Forecast

Looking ahead: EIA's price forecast.

EIA Price Forecast

	Year			
	2013	2014	2015 Projected	2016 Projected
WTI Crude[a] ($/barrel)	97.91	93.26	55.02	71.00
Brent Crude ($/barrel)	108.64	99.02	57.56	75.00
Gasoline[b] ($/gallon)	3.51	3.36	2.33	2.73
Diesel[c] ($/gallon)	3.92	3.83	2.83	3.24
Heating Oil[d] ($/gallon)	3.78	3.73	2.74	3.03
Natural Gas[d] ($/mcf)	10.30	10.91	10.28	10.56
Electricity[d] (¢/kwh)	12.12	12.49	12.63	12.85

[a] West Texas Intermediate [b] Average Regular Pump Price [c] On-Highway Retail [d] Residential Average

Source: EIA, Short-Term Energy Outlook, February 2015.

Looking ahead, the Energy Information Administration projects the annual price of WTI crude will fall by $38.24 per barrel in 2015 and increase by $15.98 per barrel in 2016. Brent crude oil prices are projected to follow a similar pattern of falling this year and increasing next year. EIA expects changes in crude oil prices will be reflected in prices for the products made from crude oil, such as gasoline, diesel, and heating oil.

Fuel-Saving Tips for Drivers

Fuel-saving tips for drivers.

Simple Tips to Save Fuel

We count on our cars to get us where we want to go, when we want to go. That sense of freedom is important to us, but we also want to be sure we do our best to conserve natural resources for future generations.

Here are a few simple steps you can take to meet these goals.

- **Have your car tuned regularly.** An engine tune-up can improve car fuel economy by an average of 1 mile per gallon.
- **Keep your tires properly inflated.** Underinflated tires can decrease fuel economy by up to 1 mile per gallon.
- **Slow down.** The faster you drive, the more gasoline your car uses. Driving at 65 miles per hour rather than 55 miles per hour reduces fuel economy by about 2 miles per gallon.
- **Avoid jackrabbit starts.** Abrupt starts require about twice as much gasoline as gradual starts.
- **Pace your driving.** Unnecessary speed ups, slowdowns and stops can decrease fuel economy by up to 2 miles per gallon. Stay alert and drive steadily, not erratically. Keep a reasonable, safe distance from the car ahead of you and anticipate traffic conditions.
- **Use your air conditioner sparingly**. The use of air conditioning can reduce fuel economy by as much as 2 miles per gallon at certain speeds and under certain operating conditions.
- **Plan your trips in advance.** Combine short trips into one to do all your errands. Avoid traveling during rush hours if possible, to reduce fuel consumption patterns such as starting and stopping and numerous idling periods. Consider joining a car pool.

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