



# Leadership failure on climate and energy

A briefing note by Global Witness June 2009

**Global Witness is calling for governments to officially and publicly declare that there is an imminent oil supply crunch and to take urgent measures to develop safe and sustainable alternative energy systems.<sup>1</sup>**

## Summary

The negotiations for a post-2012 climate agreement have failed to take into account that there will soon be a gap between supply and demand for oil. The International Energy Agency (IEA) project that by 2015 this gap could reach 7 million barrels per day (m bpd),<sup>2</sup> or 7.7% of world demand.<sup>3</sup> A gap of this magnitude is a cause for great concern. It represents almost 40% of the USA's 2015 projected demand, and over 60% of China's (see the Table below).<sup>4</sup> Oil provides about a third of the world's primary energy supply,<sup>5</sup> so a shortfall of this size will have major geopolitical consequences. These are likely to include severe economic disruption, threats to food security and increased competition between countries. The increased competition and instability are likely to undermine international cooperation and agreements to address the climate crisis.

Governments, multi-lateral agencies and international fora have failed to recognise the imminence and scale of the global oil crunch, and the majority of governments remain completely unprepared for its consequences. Until recently it has not been possible to raise the issue without being derided as a peak-oil alarmist. As a result, there has been very little international discussion about the nature and scale of this problem. Instead, the majority of the world's governments

have planned for increased availability of oil, and the other key fossil fuels, coal and gas; with a projected 27% increase in demand for oil by 2030.<sup>6</sup> It is clear that energy policies, currently geared to the maintenance and growth of a fossil fuel-dominated energy supply system, are completely inconsistent with successfully tackling the climate crisis.

If this problem had been recognised earlier it would have been possible to dramatically improve the response to the climate crisis. Governments would have had to rise to the challenge of seeking alternatives to energy from oil and develop a safe and sustainable renewable energy system. Instead, the current international climate negotiations are focused on agreeing so-called pragmatic targets, on the presumption that climate solutions can be achieved through a "business-as-usual" approach, with incremental reductions to fossil fuel dependence. In addition, many governments place a heavy reliance on offsets, which implies a continued reliance on existing unsustainable energy sources, rather than moving to create a new sustainable energy supply system. Advances in scientific understanding demonstrate that these approaches, and the continued reliance of Governments on a target ceiling of 2°C, are not safe.<sup>7,8,9,10,11</sup>

**Mind the Gap! Table showing the projected 2015 supply-demand gap as a percentage of national or regional demand**

Country or region	Oil demand in 2015 (m bpd) (projected by IEA)	IEA's Projected 7m bpd world supply/ Demand gap as a % of projected national/regional demand
<b>USA</b>	18	39
<b>OECD-Europe</b>	13.5	52
<b>China</b>	11.1	63
<b>Middle East</b>	8	87.5
<b>Japan</b>	4.2	167
<b>India</b>	4.1	171
<b>Africa</b>	3	230

<sup>1</sup> Leadership failure on climate and energy

## Rising demand and falling supply means a growing gap: 10 things you ought to know about oil supply

1. 1965 was the year in which the largest volume of oil was discovered. Since then, the trend in the number and average size of discoveries has been in decline.<sup>12</sup>
2. In 1984 global conventional crude oil consumption exceeded the volume discovered, and the gap has continued to increase since then.<sup>13</sup>
3. In 2007, just over half the world's crude oil production came from 110 oil fields, with approximately one quarter from just 13 fields.<sup>14</sup>
4. By 2007, out of the world's 20 largest producing oil fields, 17 were over forty years old. The volume of oil production from 16 of this group of 20 largest fields was below their historical maximum.<sup>15</sup>
5. There are 70,000 smaller oil fields which account for just under half of the world's conventional crude oil production.<sup>16</sup>
6. The rate of decline in oilfields can be rapid. By 2007 the average post-peak production rate of decline was 6.7% per year.<sup>17</sup>
7. By 2015 there is projected to be a 7m bpd gap between supply and demand.<sup>18</sup> A gap of this size represents 7.7% of projected world demand of 91m bpd in 2015.<sup>19</sup> It is also the equivalent to over 60% of China's predicted demand, and 39% of the USA's.<sup>20</sup>
8. Between 2008 and 2020 the IEA's analysis projects a decline in conventional oil production from existing fields of approximately 50%.<sup>21</sup>
9. To provide for its forecast demand for oil in 2030, the IEA stated that the world would require "Some 64 mb/d of gross capacity additions – the equivalent of almost six times the current capacity of Saudi Arabia – needs to be brought on stream between 2007 and 2030."<sup>22</sup>
10. For oil, the ratio of units of energy input required to produce a unit of energy (EROI) is decreasing. In the USA for example, EROI has shrunk from approximately 100:1 in the 1930's to 14:1 today. Estimates for the EROI of tar sands production vary between 10:1 and 2:1.<sup>23,24</sup>

## Conclusion

It is time for governments to face up to hard truths about oil supply. Governments have presumed that the world's economy will continue to be based on oil but the evidence shows that this is not possible. If governments fail to take appropriate action to mitigate the oil supply crunch, as they have so far failed to significantly tackle the climate crisis, the

resulting geopolitical instability will make it very difficult for countries to work together to avoid a climate disaster. Global Witness calls on governments and appropriate multilateral agencies to formally and publicly recognise the imminence of the oil supply crunch and to take urgent measures to develop safe and sustainable alternative energy systems.

## References

- 1 Global Witness will shortly be publishing a full report on the oil supply crunch.
- 2 IEA, World Energy Outlook(WEO)-2008, Executive Summary, November 2008, p41, <http://www.iea.org/>
- 3 Global Witness calculation using IEA data for 2015, in WEO-2008, Annex A, Tables for Reference Scenario Projections: World, Total Primary Energy Demand, page 506 <http://www.iea.org/>
- 4 Ibid, page 512 and page 530.
- 5 Ibid, page 506.
- 6 IEA's Figure 2.1, page 80, World Energy Outlook 2008 report, shows global oil demand rising by 26.8% between 2006 and 2030, with the sharpest increases between 2006 and 2015, at 12.3%. Coal demand is estimated to rise by 60.8% between 2006 and 2030, with gas demand increasing by 52.5% during the same period.
- 7 In February 2005, the Hadley Centre's International Symposium on Stabilisation of Greenhouse Gas Concentrations, Avoiding Dangerous Climate Change (ADCC) took place and included the discussion and debate of a wide range papers including the subject of targets: Schellnhuber, Preface, ADCC, 2006, page xi.
- 8 Meinshausen, 2°C Trajectories - A Brief Background Note, KyotoPlus Papers, September 2006, page 2: Argued, "Clearly, such a policy goal [2°C target] is not a 'safe' level as a global mean temperature rise up to 2°C already implies serious adverse climate impacts in various regions."
- 9 Baer and Mastrandrea, IPPP, High Stakes: Designing emissions pathways to reduce the risk of dangerous climate change, November 2006, page 30: "If one accepts, as we do, the evidence that human-caused climate change is already causing serious harm, and that severe impacts cannot be ruled out at just 2°C of warming, then clearly, very rapid and stringent emissions reductions are warranted."
- 10 John P Holdren, The Sky is Falling: An interview with John P Holdren, Bulletin of the Atomic Scientists, January /February 2007, page 42: "We have about a decade to put the world's energy system onto a drastically different emissions trajectory from the continuation of 'business as usual, and we need to halt and reverse tropical deforestation on a timescale of no more than a couple of decades. Without early and substantial change in the human drivers of global climatic disruption, it will probably be impossible to avert an increase of global-average surface temperature of greater than 3 degrees Celsius above the pre-industrial level. It is already almost too late to stop at 2 degrees Celsius unless we start immediately and take very forceful action."
- 11 James Hansen, Target Atmospheric CO2: Where Should Humanity Aim? April 2008 (18th June version on website), <http://www.columbia.edu/~jeh1/>, page 1: "The authors suggest that global policies should have an initial target for atmospheric CO2 of 350 ppm [parts per million]. They note that the optimum CO2 level is likely to be less than 350 ppm, but a 350 ppm target already reveals that dramatic policy changes are needed urgently;" Hansen, Global Warming: East-West Connections, 2007, <http://www.columbia.edu/~jeh1/>
- 12 Annual discovery data, 1930-2005, IHS Energy, with thanks to Rembrandt Koppelaar, ASPO Netherlands, at: <http://www.peakoil.nl/> Email: [contact.asponl@gmail.com](mailto:contact.asponl@gmail.com)
- 13 From a comparison of world conventional oil production (data from US government Energy Information Administration (EIA), available at: <http://www.eia.doe.gov/aer/txt/ptb1105.html>), with annual discoveries. (Data - see reference 12).
- 14 See discussion, The Importance of size, IEA, WEO-2008, pages 225-226, from IEA: <http://www.iea.org/>
- 15 Ibid
- 16 Ibid
- 17 Op cit 2, page 43
- 18 Op cit 2, page 41
- 19 Op cit 3, pp 506-539
- 20 Ibid
- 21 IEA, WEO-2008, Figure 11.1, page 250, from IEA: <http://www.iea.org/>
- 22 Op cit 18
- 23 Charles A S Hall and John W Day, Jr, "Revisiting the Limits of Growth After Peak Oil," American Scientist, Volume 97, May-June 2009, pp230-237, <http://www.americanscientist.org/issues/id.78/past.aspx>
- 24 John W Day, Jr et al, Ecology in Times of Scarcity, Bioscience, Vol. 59 No.4, April 2009, pp321-331, <http://www.biosciencemag.org>



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