UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of Docket No. 52-016

Calvert Cliffs-3 Nuclear Power Plant
Combined Construction and License Application

SUBMISSION OF AMENDED CONTENTION 10C BY JOINT INTERVENORS

Joint Intervenors hereby submit an amended Contention 10C. While we do not change the basis of the Contention, as admitted in this proceeding on December 28, 2010[1], we do address changes made by NRC staff in the Final Environmental Impact Statement (FEIS), as compared to the Draft Environmental Impact Statement (DEIS), that bear on the issue raised by Contention 10C.

As admitted by this board, Contention 10C states: "The DEIS discussion of a combination of alternatives is inadequate and faulty. By selecting a single alternative that under-represents potential contributions of wind and solar power, the combination alternative depends excessively on the natural gas supplement, thus unnecessarily burdening this alternative with excessive environmental impacts."

We amend the contention to read: "The FEIS discussion of a combination of alternatives is inadequate and faulty. By selecting a single alternative that under-represents potential contributions of wind and solar power, the combination alternative depends excessively

[1] ASLBP No. 09-874-02-COL-BD01, LBP-10-24, December 28, 2010

on the natural gas supplement, thus unnecessarily burdening this alternative with excessive environmental impacts."

This new contention is admissible under 10 CFR 2.309(f)(2) (i), (ii) & (iii) as it is related to data and conclusions found in the NRC's Final Environmental Impact Statement (FEIS) that differ significantly and/or supersede information found in the Draft Environmental Impact Statement.

At the most fundamental level, there is no change between the DEIS and the FEIS on this issue. Both documents analyze the same combination of alternatives. The DEIS stated: "an assumed combination of 1200 MW(e) of natural gas combined-cycle generating units at the Calvert Cliffs site and the following contributions from within UniStar's ROI: 25 MW(e) of hydropower; 75 MW(e) from solar power; 100 MW(e) from biomass sources, including municipal solid waste; 100 MW(e) from conservation and demand-side management programs; and 100 MW(e) from wind power."

The FEIS stated: "The review team assumed the following as its reasonable alternative: 1200 MW(e) of natural gas combined-cycle generating units at the Calvert Cliffs site; 25 MW(e) from hydropower; 75 MW(e) from solar power; 100 MW(e) from biomass sources, including municipal solid waste; 100 MW(e) from conservation and demand-side management programs (beyond what is currently planned); and 100 MW(e) from wind power."

Rather than analyze a different combination of alternatives, the NRC chose instead to attempt to justify its chosen combination. Joint Intervenors already had provided support for our position in the original filing of Contention 10C and in our reply brief. In addition, Joint Intervenors have disclosed additional documents during the normal disclosure process supporting our position. We now additionally submit an affidavit from our expert witness, Scott Sklar, which is attached.

Thus, there remains a material dispute of fact on these issues.

For example, in support of its chosen set of alternatives, the NRC continues to compare Maryland's wind power potential to that of Georgia: "According to the National Renewable Energy Laboratory (NREL), Maryland has a somewhat better offshore wind resource than Georgia (Schwartz et al. 2010), which suggests a somewhat higher capacity factor for wind, which in turn suggests that the 20-year levelized cost of electricity could be less for a wind farm off the coast of Maryland than a comparable wind farm off the coast of Georgia. Nevertheless, the review team believes that the preceding conclusions in the Southern/GIT report would generally apply to a wind farm located offshore of Maryland based on similarities in the physical and regulatory environments."[2]

The NRC apparently did not read the study it cites. According to this study, Maryland has 21,459 MW of offshore wind potential within three miles of its coastline; Georgia has

[2] FEIS, page 9-22

3,164 MW of such potential.[3] This nearly seven-fold greater potential is far more than "a somewhat better offshore wind resource."

Other states whose grids feed into the PJM also have far more offshore wind resources than Georgia according to this report. For example, despite its very short coastline, Delaware has potential for 5,442 MW within three miles while New Jersey has 11,353 MW potential within three miles. All of the states, of course, have additional potential further from shore.

Unlike the DEIS, the FEIS finally recognizes Bluewater Wind's offshore wind project in Delaware. But again, the NRC appears determined to understate offshore wind in Maryland, saying, that other than the Delaware project, "No other wind energy projects were identified by NREL off the coast of Maryland or its adjoining States (Delaware and Virginia) in either State or Federal waters." As we pointed out in our original filing of Contention 10, Bluewater Wind already has proposed a 600 MW wind project for the Maryland coast.[4] This project has the enthusiastic backing of Maryland Governor Martin O'Malley.[5] While legislation to encourage this project did not pass through the 2011 legislative session, it is widely believed that similar legislation will be enacted early in 2012.

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[3] National Renewable Energy Laboratory, pages 51 and 63; http://www.nirs.org/alternatives/nreloffshorewindrpt.pdf

[4] http://www.bluewaterwind.com/maryland.htm

[5] For example, see Governor O'Malley's press release, Governor O'Malley Testifies in Support of the Maryland Offshore Wind Energy Act of 2011, March 3, 2011, http://www.gov.state.md.us/pressreleases/110303.asp

Certainly the consortium of Google and other investors which has indicated its interest in investing $5 billion for transmission lines to bring offshore wind power to the mid-Atlantic region, expects such offshore wind projects to materialize soon.[6]

Plans for more offshore wind than the FEIS acknowledges are already in the works and the potential for offshore wind is far higher than the FEIS states.

We also note that, despite the FEIS statement above, the regulatory environments of Georgia and Maryland are quite dissimilar. Georgia remains a regulated state with substantial authority provided to the Public Service Commission to approve new power projects and regulate electricity rates. Maryland is a deregulated state. Companies are free to build new power projects and sell the electricity from them on the open market. Indeed, the proposed Calvert Cliffs-3 reactor would be a merchant power plant, as would the proposed Bluewater Wind offshore wind project, and other renewable energy projects in the state. The FEIS appears designed to mislead, rather than contribute to an informed decision.

In its dismissal of wind power potential, the FEIS accepts, without investigation, Applicant's claim that Calvert Cliffs-3 would be a "baseload" power plant serving Maryland, and that only "baseload" electricity from Maryland—in this case wind power supplemented by supposedly unavailable CAES storage systems--could thus provide an alternative to Calvert Cliffs-3.

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[6] See "Offshore Wind Power Line Wins Backing," New York Times, October 12, 2010, disclosed by. Joint Intervenors January 3, 2011. http://www.nytimes.com/2010/10/12/science/earth/12wind.html

Joint Intervenors take issue with the FEIS on this point on three grounds: 1) that Calvert Cliffs-3 would indeed operate as a traditional "baseload" power plant serving Maryland; 2) that the only valid alternative to Calvert Cliffs-3 must provide traditional "baseload" power; and 3) that large-scale CAES systems would not be available in Maryland by the time a completed Calvert Cliffs-3 could come online.

While the application for Calvert Cliffs-3 does indeed state that "CCNPP Unit 3 will operate as a baseload, merchant independent power producer," the application goes on to say, "The power produced will be sold on the wholesale market without specific consideration to supplying a traditional service area of satisfying a reserve margin objective."[7]

In other words, the Applicant has no commitment to sell power in Maryland. Thus, the possible alternatives (including, for example, demand-side management, as well as solar and wind power) to Calvert Cliffs-3 need not be limited to Maryland. The FEIS errs in assuming the power sources must come from Maryland, and that only demand-side management programs from a single Maryland utility (BG&E) be considered out of Maryland's 13 electric utilities.

Additionally, as a merchant power plant selling power on the open market, there is little reason to believe that Calvert Cliffs-3 will be operated as traditional nuclear reactors have in regulated markets. There, nuclear reactors typically do operate as full-time, high-

[7] Applicant's Environmental Report, 9-25

capacity baseload power plants. But Calvert Cliffs-3 will only be providing as much electricity as it can sell on the market. To date, the Applicant has no sales contracts for its power. Unless it can sell electricity at a competitive price, it may not be able to sell its full complement of 1600 Megawatts. Given the enormous projected cost of Calvert Cliffs-3 (acknowledged as $7.2-$9.6 Billion in the FEIS and stated as "about $10 billion" in Maryland Public Service Commission hearings), the ability of the Applicant to sell electricity at a competitive price is at least suspect.

Even the Applicant has admitted that "However, since the commencement of the project there has been a significant deterioration in power market conditions with a dramatic decrease in natural gas and electric power prices. These developments have significantly impaired the prospects, in the immediate term, for a financially viable nuclear development project — particularly in a merchant market such as PJM in which Calvert Cliffs 3 would be constructed."[8]

The FEIS appears to assume that Calvert Cliffs-3 would run full-time at 100% capacity, or 1600 Megawatts. But this is at least a questionable proposition, especially in a region that has been hit by declining electrical demand since 2006. Calvert Cliffs-3 could well run at a much lower capacity level for extended periods of time.[9] Indeed, unless market conditions change substantially, there is little reason to believe that Calvert Cliffs-3 would, in fact, operate as a traditional high-capacity baseload power plant. Thus, the

[8] Applicants' Response to Show Cause Order, May 9, 2011, pp 6-7
[9] We also note that there is no longer any corporate relationship between the Applicant and any Maryland utility, including BGE, perhaps making a large power purchase agreement from BGE even less likely.

amount of power needed to replace the actual output of Calvert Cliffs-3 is likely to be lower than its 1600 MW capacity.

Joint Intervenors also argue that the traditional concept of "baseload" power is quickly being supplanted. To the consumer, what is desired is affordable and reliable power. Traditionally that has meant large "baseload" power plants, but increasingly reliable power can be provided through smaller and dispersed generation facilities, demand-side management, smart grids, and advanced dispatch management (i.e. switching back and forth from sites where the wind is not blowing to where it is; from wind to solar and back again; reducing and increasing power supply depending on demand, etc.). Nuclear power plants cannot quickly power up and down as needed. In a traditional regulated system, where every home and business is receiving power from the same regulated power plant, that is not a big problem. In a deregulated merchant system, where power is being sold to specific customers who may have large power demands during the day and small demand at night, for example, that can actually be a detriment to grid management.

Since all existing nuclear reactors in the U.S. were built under the traditional regulated system, this is a new issue, and the FEIS should not simply assume that a merchant nuclear power plant will operate as a traditional baseload plant.

Finally, the FEIS dismisses the possibility of a CAES storage system that would make renewable energy even more likely: "However, the review team is not aware of a CAES

project approaching the scale of a 1600-MW(e) facility that has an announced construction date, and the review team is not aware of any known or proposed projects in Maryland for wind generation with storage. Therefore, the review team concludes that the use of CAES in combination with wind turbines to generate 1600 MW(e) in Maryland is unlikely."[10]

First, since the issue in this contention is a combination of alternatives, and not a single alternative, the need for 1600 MW of CAES storage is overstated. This contention states that the FEIS should have considered a different combination of alternatives that might result in reduced environmental impact, not that the FEIS should have considered supplanting Calvert Cliffs-3 with 1600 MW of wind power (and as we state above, there is little reason to believe Calvert Cliffs-3 would even operate at 100% capacity, thus the need is overstated even more).

However, there are also substantial advances being made in CAES technology, to the point where large-scale deployment of CAES systems in a time-frame competitive with the viable operation of Calvert Cliffs-3 (around 2020) is indeed feasible.

For example, two companies, SustainX and General Compression, are developing new CAES systems that can be widely and affordably deployed. SustainX has obtained some $20 million in financing and is currently building a 1 MW CAES demonstration system (it already has built a functioning smaller system). While these are obviously much smaller than needed for large wind farms or solar projects, the companies believe their

[10] FEIS, 9-21

technology can be scaled up quickly, and foresee an $18 billion market by 2015—well before Calvert Cliffs-3 can come online.[11]

For all of these reasons, the FEIS' emphasis on "baseload" power replacement—that only another large centralized power plant can replace a large centralized power plant—is short-sighted and does not offer a full examination of viable alternatives.

The FEIS continues to give short shrift to solar power, with little to no justification for its continued inclusion of only 75 MW of solar power in its combination of alternatives. Solar power in Maryland continues to grow rapidly. For example, two major solar projects have been announced just in the past six months: a 3.7 MW solar facility to power two Perdue facilities[12] and a 1.2 MW project to power a new plant making batteries in Baltimore for the Chevy Volt automobile.[13]

With only two already-announced projects contributing about 7% of the FEIS total estimate of solar power for a time period that doesn't even begin for several years, Joint Intervenors contend that the FEIS substantially understates, without justification, the potential contribution solar power could, and will, make as part of the combination of alternatives to Calvert Cliffs-3. The attached affidavit from Mr. Sklar also points to numerous documents and studies that indicate costs of solar power—especially

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[11] See, for example: http://gigaom.com/cleantech/sustainx-raises-14-4m-for-air-energy-storage/, March 16, 2011; http://www.ceileadership.org/index.php/energy-efficiency-and-renewable-energy/2145-innovative-energy-storage-system-for-electrical-grid-developed-by-sustainx-receives-funding-from-ge, March 21, 2011; http://www.prnewswire.com/news-releases/sustainx-completes-20m-financing-round-121176929.html, May 3, 2011

[12] http://www.renewableenergyworld.com/rea/partner/standard-solar-inc/news/article/2011/01/solar-installation-at-perdue-to-be-one-of-east-coasts-largest, January 18, 2011

[13] http://www.triplepundit.com/2011/05/baltimore-gm-solar-power/, May 23, 2011

photovoltaics--are continuing to decline, making solar even more attractive to businesses and homeowners.

Conclusion

Joint Intervenors have submitted a valid and timely amended contention 10C. There remains a material dispute of fact, and Contention 10C therefore should be admitted for hearing.

Respectfully submitted,

This 20th day of June 2011
_____Signed Electronically by_____
Michael Mariotte
Executive Director
Nuclear Information and Resource Service
6930 Carroll Avenue, Suite 340
Takoma Park, MD 20912
301-270-6477
nirsnet@nirs.org

_____ Executed in Accord with 10 CFR 2.304(d)_____
Paul Gunter
Beyond Nuclear
6930 Carroll Avenue, Suite 400
Takoma Park, MD 20912
301-270-2209
paul@beyondnuclear.org

_____ Executed in Accord with 10 CFR 2.304(d)_____
Allison Fisher
Public Citizen
215 Pennsylvania Avenue SE
Washington, DC 20003
202-546-4996
afisher@citizen.org

_____ Executed in Accord with 10 CFR 2.304(d)_____

June Sevilla
SOMDCARES
3086 Calvert Blvd
Lusby MD 20657
410-326-7166
qmakeda@chesapeake.net

CERTIFICATE OF SERVICE

It is our understanding that all on the Calvert Cliffs-3 service list are receiving this motion through the submission I am making on June 20, 2011 via the EIE system.

JOINT INTERVENORS AMENDED CONTENTION 10C, June 20, 2011

_____Signed Electronically by_____

Michael Mariotte
Executive Director
Nuclear Information and Resource Service
6930 Carroll Avenue, Suite 340
Takoma Park, MD 20912
301-270-6477
nirsnet@nirs.org

_____ Executed in Accord with 10 CFR 2.304(d)_____

Paul Gunter
Beyond Nuclear
6930 Carroll Avenue, Suite 400
Takoma Park, MD 20912
301-270-2209
paul@beyondnuclear.org

_____ Executed in Accord with 10 CFR 2.304(d)_____

Allison Fisher
Public Citizen
215 Pennsylvania Avenue SE
Washington, DC 20003
202-546-4996
afisher@citizen.org

_____ Executed in Accord with 10 CFR 2.304(d)_____

June Sevilla
SOMDCARES
3086 Calvert Blvd
Lusby MD 20657
410-326-7166
qmakeda@chesapeake.net

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AFFIDAVIT OF SCOTT SKLAR

STATEMENT OF FACTS

Over twenty four major studies carried about by research institutions have concluded that high-value energy efficiency and renewable energy can meet most, if not all, of the US and the world's energy.

A new report released by The Pew Charitable Trust, globally, 2010 clean energy finance and investments grew by 30 percent to a record $243 billion. The US received $34 billion in equity last year, a 51 percent increase from 2009. However, the gap with China, which attracted a record $54.4 billion, continues to widen. Germany also attracted more money than the U.S. with $41.2 billion, claiming the number two spot, up from third the previous year.

Energy Investments 2009 'Investments in renewable energy increased from $39.24 billion in 2001 to $336.78 billion in 2009 at a CAGR of 30.8% during this period. According to Bloomberg on 5\11\10).

Another important article, “BP Says Renewables Add More Than Petroleum to Energy Growth” By Eduard Gismatullin - Jun 8, 2011 11:12 AM ET:

BP Plc (BP/) said that renewables added more than petroleum-based products to the world’s primary energy consumption growth in the five years through 2010.Wind, solar, geothermal, biofuels used for power generation and transport have contributed about 1.8 percent of global primary energy supply last year, according to BP Statistical Review. At the same time, China became the largest wind-power generator, overtaking the U.S. and accounting for about 48 percent of all new capacity. “Over the last 10 years, their share has almost trebled,” BP Plc’s Chief Economist Christof Ruehl said today in London. “Over the last five years, their contribution to primary energy growth was almost 10 percent. That is, higher than the contribution of petroleum-based products.”

In a recently published article, “GE Sees Solar Cheaper Than Fossil Power in Five Years” by Brian Wingfield, Bloomberg 02 June 11 , “Solar power may be cheaper than electricity generated by fossil fuels and nuclear reactors within three to five years because of innovations, said Mark M. Little, the global research director for General Electric Co.” http://www.bloomberg.com/news/2011-05-26/solar-may-be-cheaper-than-fossil-power-in-five-years-ge-says.html

In the USA, the global renewable energy market grew by 3.7% in 2010 to reach a volume of 3,340.4 billion kWh. In 2015, the global renewable energy market is forecast to have a

volume of 4,203.6 billion kWh, an increase of 25.8% since 2010. North America accounts for 47.5% of the global renewable energy market value. Sep 16, 2010 **...** NewNet News - US renewable energy market increases value but Progress varies at state level. www.new**energy**worldnetwork.com/...

CONCLUSION

My firm is hired by the US Department of Defense to provide guidance on both on theater-of-war application and military base applications of high value energy efficiency and renewables. The data points in the above text, should without question, change the priority of the consideration, inclusion and treatment of renewable energy applications within the EIS process. As currently stated, the FEIS is incorrect, misapplied, and technically deficient.

I would be pleased to provide further technical information to you at any time. As an addendum, I have included the 24 major studies that show high value energy efficiency and renewable energy can meet most, if not all, the energy needs of the United States or the world. Thank you for your serious consideration.

Scott Sklar
Adjunct Professor, The George Washington University
Chairman, Steering Committee, Sustainable Energy Coalition
President, The Stella Group, Ltd., Washington, DC
Former member of the USEPA National Advisory Committee on Energy Policy and Technology (NACEPT) and current member of USDOC Advisory Committee on Renewable Energy & Energy Efficiency

TOP 24 RENEWABLE ENERGY REPORTS

by Scott Sklar (5\2011) solarsklar@aol.com

1. **GREENPEACE/DLR**
The world could eliminate fossil fuel use by 2090 by spending trillions of dollars on a renewable energy revolution, the European Renewable Energy Council (EREC) and environmental group Greenpeace said. The 210-page study is one of few reports -- even by lobby groups -- to look in detail at how energy use would have to be overhauled to meet the toughest scenarios for curbing greenhouse gases outlined by the U.N. a Climate Panel. "Renewable energy could provide all global energy needs by 2090," according to the study, entitled "Energy (R)evolution." EREC represents renewable energy industries and trade and research associations in Europe.

2. **ASES/NREL** U.S. Energy Experts Announce Way to Freeze Global Warming
On January 31, 2007 at a press conference in Washington, D.C., ASES unveiled a 200-page report, Tackling Climate Change in the U.S.: Potential Carbon Emissions Reductions from Energy Efficiency and Renewable Energy by 2030. The result of more than a year of study, the report illustrates how energy efficiency and renewable energy technologies can provide the emissions reductions required to address global warming.
U.S. Carbon Emissions Displacement Potential from Energy Efficiency and Renewable Energy by 2030 - 57% Energy Efficiency, 43% Renewables

3. **GOOGLE** Google.org, the philanthropic arm of the search giant, has unveiled a plan to move the U.S. to a clean-energy future. The vision: In 2030, electricity will be generated not from coal or oil but from wind, solar, and geothermal power. Energy demand will be two-thirds what it is now, thanks to stringent energy-efficiency measures. Ninety percent of new vehicle sales will be plug-in hybrids. Carbon dioxide emissions will be down 48 percent. Getting there will cost $4.4 trillion, says the plan -- but will recoup $5.4 trillion in savings. The Clean Energy 2030 plan would require ambitious national policies, a huge boost to renewables, increased transmission capacity, a smart electricity grid, and much higher fuel-efficiency standards for vehicles.
National Research Council Renewables Report - June 09

4. Renewable energy resources in the U.S. are sufficient to meet a significant portion of the nation's electricity needs says a new report from the National Research Council. Press and link to report at:
http://www8.nationalacademies.org/onpinews/newsitem.aspx?RecordID=12619 or
http://tinyurl.com/neka69

5. **INSTITUTE FOR LOCAL SELF RELIANCE** (October 2009) report by David Morris
"SELF RELIANT STATES" -- Excerpted Executive Summary Conclusion:
"All 36 states with either renewable energy goals or renewable energy mandates could meet them by relying on in-state renewable fuels. Sixty-four percent could be self-sufficient in electricity from in-state renewables; another 14 percent could generate 75

percent of their electricity from homegrown fuels. Indeed, the nation may be able to achieve a significant degree of energy independence by harnessing the most decentralized of all renewable resources: solar energy. More than 40 states plus the District of Columbia could generate 25 percent of their electricity just with rooftop PV. In fact, these data may be conservative. The report does not, for example, estimate the potential for ground photovoltaic arrays – although it does estimate the amount of land needed in each state to be self-sufficient relying on solar – even though common sense suggests that this should dwarf the rooftop potential..... It is at the local level that new technologies like smart grids, electric vehicles, distributed storage, and rooftop solar will have their major impact."
Contact for David Morris at: cell 612-220-7649 or dmorris@ilsr.org

6. Geothermal according to MIT study
Jan 22, 2007 ... MIT study: Get more energy from Earth's heat. Geothermal could meet 10 percent of U.S. needs by 2050. www.msnbc.msn.com/id/16755646 ;; www.mit.edu

7. Concentrated Solar Power from Earth Policy Institute
http://www.earth-policy.org/Updates/2008/Update73.htm ;; - easy 15%
also see: SOLAR ENERGY COULD PROVIDE 8000+ MW OF CAPACITY IN WESTERN STATES BY 2015
www.sustainableenergycoalition.org/factoids/factoid_12.html

8. WAPA and Sandia/NREL Studies - similar conclusions
A USDOE report for the Western Governors' Association (WGA) in 2005 provided an assessment of the potential impact of CSP. It found that by using only available land with the most intense sunshine, over 6,800 GW of electricity could be generated in the Southwest.17 To put this in perspective, the electric generating capacity of the entirecountry is currently about 1,000 GW.18

9. Assessment of Parabolic Trough and Power Tower Solar Technology Cost and Performance Forecasts" Draft 3, Sargent and Lundy, LLC, October 2002
http://www.nrel.gov/csp/troughnet/pdfs/41233.pdf

10. Energy on and in Rooftops - bottom line is probably half the energy for buildings can be generated on-site - so let's say 15% in US
http://www.nrel.gov/docs/fy06osti/39830.pdf

11. **Rooftop solar power**: The solar energy potential of commercial building rooftops in the USA - United States commercial building rooftops may be the most wasted real estate in North America. Combined, these predominantly flat rooftops represent an area of more than 1,000 square miles that, outside of their sheltering function, do nothing more than soak up the sun, literally. More than half of this space has the potential to produce energy using simple photovoltaic, or solar electric, generating stations. Bill Jeppesen, for RWE SCHOTT Solar, Inc., USA reports (8/20/04) and Navigant / Energy Foundation 2005 market study - technical potential of PV in the US. Using only roof space (per Census) and using average amounts of shading, tilt, etc., within the US, their estimate was

maximum technical potential in the US of 1,037,519 MWp , which would represent almost 1/3 of total electricity US usage MWh for MWh

12. Worldwide Capacity of Solar Thermal Energy Greatly Underestimated -- 2004 (10 November 2004). The International Energy Agency's Solar Heating and Cooling Programme and major solar thermal trade associations publish new statistics on the use of solar thermal energy. The new data – expressed for the first time in GWth, rather than in square meters of installed collector area – shows the global installed capacity to be 70 GWth (70.000 MWth).

13. Water Energy - EESI, EPRI, NHA, OREC www.eesi.org/060807_Hydropower
Several studies conclude that upgrading existing dam turbines, installing free-flow hydropower (no dams or diversions) tidal, wave and ocean currents and thermal could produce 10% of US energy.

14. Using waste heat to produce electricity
ACEEE, EPA and DOE say an easy 8 % of US electricity and probably more in displacing other thermal applications could be displaced by CHP.
http://www.aceee.org/pubs/ie983.htm

15. A new analysis by the U.S. Department of Energy (released 5\08) finds that wind can be a major contributor to the country's energy mix, supplying up to 20% of electricity by 2030. For the report and executive summary: www.20percentwind.org

16. REN 21: Global Status Report: Renewables **Global Status Report** 2009 Update (pdf, 880KB) **.**www.**ren21**.net/**globalstatusreport**/g2009.asp

17. Annual **biomass resource** potential from forest and agricultural resources . **.....** potential biomass sources, this **study** found over 1.3 billion dry
www1.eere.energy.gov/**biomass**/.../final_billionton_vision_report2.pdf

18.The United Nations Environment Program and the **Renewable Energy** Policy Network for the 21st Century today reveal in a pair of new **reports .**
Jul 15, 2010 **...**techcrunch.com/**2010**/07/15/global-clean-**energy**-**report**-un-2009/

19. Special **Report Renewable Energy** Sources and Climate Change Mitigation. Contents **...** 02-05 March **2010** 3rd Lead Author Meeting for the SRREN, Oxford, UK **...**
www.ipcc-wg3.de/...**reports**/special-**report**-**renewable**-**energy**-sources -

20. 100% Renewable Electricity - A roadmap to 2050 for Europe and North Africa
http://www.ukmediacentre.pwc.com/imagelibrary/detail.aspx?MediaDetailsID=1694&ClientID=1%20

21. R**eport** documents the dawning of a new worldwide industry-clean **...** businesses and installers in **2010** and 2011. **Clean energy** investments are forecast to
...www.pewtrusts.org/uploadedFiles/.../**Reports**/Global.../G-20%20**Report**.pdf

22. EIA International Energy Outlook **2010**: **Renewable Energy** Grows, But **...** by Harry Tournemille on June 1, **2010 ...** New **Report** Says **Renewable Energies** Will Dominate World's Energy Supply System · **Renewable Energy** Good For Workers' **...**www.**energy**boom.com/.../eia-international-**energy**-outlook-**2010-renewable- energy**-grows-fossil-fuels-dominate

23. World Wildlife Fund, in collaboration with energy consultants at Ecofys, prepared The Energy Report which explores how to power the world entirely by renewable energy by the middle of this century. The result is the most ambitious, science-based examination yet of a renewable and clean energy future on a global scale. It covers all energy needs and the challenge of providing reliable and safe energy to all. Importantly, it uses deliberately conservative assumptions: fossil fuel price increases of no more than two per cent annually, deployment of technologies available today and continuous **WWF** indicates how its vision of a **100** per cent **renewable** and sustainable **energy** supply could be realized. In 2050, ambitious **energy** saving www.worldwildlife.org/climate/**energy-report**.html

24. BRUSSELS — (5\9\2011) Renewable sources could provide a majority of the world's energy supplies by 2050, but only if governments dramatically increase financial and political support for technologies like wind and solar power, experts from a United Nations panel said Monday. The Intergovernmental Panel on Climate Change said in a report that the availability of renewable sources like the wind and sun was virtually unlimited, and could provide up to 77 percent of the world's energy needs by mid-century, but governments needed to adopt policies to take advantage of them. www.**ipcc**-wg3.de/publications/special-**reports**/srren