

A Clean Energy Road Map for Apple

How Apple Can Meet its Coal-free Goal

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GREENPEACE



UPDATE TO 'HOW CLEAN IS YOUR CLOUD?' REPORT

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Catalysing an energy revolution

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Executive Summary

Apple has recently made several important announcements about the electricity behind its “iCloud”, significantly increasing its ambition for the amount of clean energy powering its data centres by saying they would be “100% Renewable,” including a doubling of the amount of solar power attached to its North Carolina facility. Apple’s chief financial officer, Peter Oppenheimer, said that Apple will set a new bar for the sector by making all three of Apple’s current data centres “coal free” by 2013.¹

This new ambition to be “coal free” is welcome news for the 125 million current iCloud users², and represents a significant improvement in Apple’s energy choices. However, many details and questions remain about how Apple will achieve its 100% renewable goal from the public dialogue Greenpeace International has had with the company. Two of Apple’s three current data centres operate in regions that are 50-60% coal powered, and will require significant new investment or a clear decision by Apple to buy electricity from cleaner sources in order to be considered coal free. Such changes for the electricity supply chain for Apple’s data centre in North Carolina in particular are not likely to occur overnight.

The following analysis updates our evaluation of Apple to account for its recent clean energy announcements, and outlines the additional steps Apple should take to fulfill its laudable ambition to set a new bar with a “coal-free” and 100% renewably-powered iCloud.

Greenpeace International is rescoring Apple now because of its recent ambitious and public commitments to clean energy. In a subsequent report in 2012, Greenpeace International will also re-evaluate Microsoft and Amazon in light of any action – or inaction – those companies have taken to clean up the energy sources powering their cloud services. Energy scores in the Company Scorecard have been updated from the April release of the “How Clean is Your Cloud?” report to reflect data from the latest 2012 EPA information on state energy mixes.³ We have not updated the letter grades or key sustainability criteria for companies other than Apple.

In summary, Apple’s customers should watch to see if Apple takes the following steps that would indicate if it is truly on the path to meet its ambitious goals. Apple should:

- **Choose a renewable-powered local utility for its Oregon data centre, not buy renewable energy credits from coal-powered Pacific Power.**
- **Use renewable electricity from onsite generation to directly power its North Carolina facility, and use grid power solely for backup, rather than selling its renewable electricity to Duke Energy.**
- **Secure a sustainable source of biogas to directly power its fuel cells for North Carolina.**
- **Retire renewable energy credits from electricity generated onsite in North Carolina**
- **Invest directly in new renewable energy generation in North Carolina rather than buying renewable credits to “green” Duke Energy’s dirty electricity.**

- **Demand Duke Energy eliminate its mountaintop coal removal operations from Apple’s electricity supply chain, and demand that Duke invest in new renewable energy generation capacity, not retrofitting and extending the lifetime of dirty coal plants.**
- **Adopt a data centre siting policy that prioritises access to renewable energy for any future iCloud data centres.**

Ultimately, if Apple wants to get serious about its commitment to a coal-free iCloud, the most important thing it can do is to use its buying leverage with Duke Energy and other utilities to push for cleaner electricity options. Currently, Duke Energy’s investment plans call for continued reliance on coal and nuclear power, with less than 4% of the electricity it generates in North Carolina coming from renewable energy by 2030.⁴ Apple has the ability to bend that trajectory toward cleaner sources of power.

Just as Apple has been widely asked to actively engage with other aspects of its supply chain to push for fairer labour standards, Apple must do the same with its electricity supply chain. As a large and rapidly growing energy user, Apple cannot be a sustainability leader if it remains a passive recipient of the electricity it is provided from dirty utilities. To show true leadership, the company has to be willing to use its influence to change the electricity ecosystem outside the walls of its data centres as well.

¹ <http://www.bloomberg.com/news/2012-05-17/apple-data-center-will-be-totally-green-by-2013.html>

² <http://www.ubergizmo.com/2012/04/apples-icloud-125-million-users/>

³ <http://www.epa.gov/cleanenergy/energy-resources/egrid/index.html>

⁴ Duke Energy Carolinas’ Integrated Resource Plan and 2011 REPS Compliance Plan, p 55

Company	Clean Energy Index	Coal	Nuclear	Energy Transparency	Infrastructure Siting	Energy Efficiency & GHG Mitigation	Renewables & Advocacy
	22.6% April score: 15.3%	33.5% April score: 55.1%	11.6% April score: 27.8%	D April grade: D	D April grade: F	C April grade: D	C April grade: D
	NA	NA	NA	A	C	B	D
	13.5%	27.3%	29.6%	F	F	D	D
	56.34%	20.1%	6.4%	C	C	C	D
	38%	36%	12%	D	B	B	C
	39.5%	27.6%	16.1%	B	C	B	A
	18.6%	47.2%	14.9%	C	D	B	C
	12.1%	47.6%	10.4%	C	D	C	D
	22%	35%	22.1%	D	D	C	D
	7.6%	48.6%	17.2%	D	D	C	D
	32%	29.3%	22.2%	C	C	C	C
	4%	31%	30.8%	B	C	C	C
	21.3%	35.6%	14.1%	F	D	F	D
	56.4%	20.3%	14.6%	C	B	B	B

Company Scorecard UPDATE

(a) Clean Energy Index and Coal Intensity are calculated based on estimates of power demand for evaluated facilities. See <http://www.greenpeace.org/international/en/publications/Campaign-reports/Climate-Reports/How-Clean-is-Your-Cloud/> Appendix 1 for notes on the methodology Greenpeace uses to determine scores.

(b) Estimates of company energy mixes have been updated to reflect data from the latest 2012 eGrid state level generation mix as reported by EPA, which was released in April, 2012. The "How Clean is Your Cloud?" report used eGrid 2010 data, which was the most current available at the time. Letter grades for key sustainability criteria have not been updated for companies other than Apple.

(c) Akamai's global network of servers is highly distributed and not possible to individually evaluate as we have done for other brands. However, Akamai is the only company that is reporting a fleet wide and regional Carbon Utilization Effectiveness (CUE).

(d) AWS was provided facility power demand estimates to review, and responded that they were not correct, but did not provide alternative estimates. Using conservative calculations, Greenpeace used the best information available to derive power demand, and invites AWS to be transparent and provide more accurate data for its facility power demands.

Rescores



Since the release of the “How Clean is Your Cloud?” report and the launch of the Clean Our Cloud campaign engaging Apple customers around the world, Apple has made several announcements relating to the energy sources behind key pieces of its rapidly growing “iCloud” platform. Apple said on May 17, 2012 that its North Carolina facility will be 100% renewably powered by year’s end, and is also claiming that all three of its data centres will be “coal free” by the end of 2013.⁵ Included among the company’s newest clean energy commitments are an additional 100-acre solar panel farm attached to its Maiden, North Carolina facility and a 100% renewable energy-powered Newark, California facility.

However, beyond the doubling of solar power capacity for its North Carolina facility, Apple has provided few details on how it will accomplish its goal of becoming “coal free.” Updates to our evaluation of the energy footprint of each of Apple’s current data centres are noted below. Apple should be more transparent about each of these commitments for its score to improve.

Building on the recent string of phenomenal “i” product successes (iTunes, iPhone and the iPad), Apple is now investing heavily in the “iCloud” as a means to tie all of these products together, affording the user seamless sharing of music, movies and other e-content. To deliver iCloud services, Apple has dramatically expanded its data centre infrastructure. It has invested at least US\$1 billion⁶ in an “iDataCenter” in North Carolina, one of the world’s largest data centres, and is building another facility in Prineville, Oregon. Apple continues to operate a data centre in Newark, California.

Apple receives improved grades in this updated scorecard for its increased use of on-site renewable energy in North Carolina. However, given Apple’s continued lack of transparency and absence of a commitment to expand its cloud with renewable energy, including a siting policy that covers future data centre facilities, Apple still finds itself behind other companies such as Facebook and Google. Apple has the ingenuity, on-hand cash and innovative spirit to ‘Think Different’ and make substantial improvements in the type of energy that powers its cloud.

“beyond the doubling of solar power capacity for its North Carolina facility, Apple has provided few details on how it will accomplish its goal of becoming “coal free.””

A graphic of a signpost with a grey pole. The sign is rectangular with a white border and a background that transitions from orange at the top to red at the bottom. It contains a quote in white text, enclosed in large white quotation marks.

⁵ <http://www.bloomberg.com/news/2012-05-17/apple-data-centre-will-be-totally-green-by-2013.html>

⁶ <http://www.datacenterknowledge.com/archives/2011/06/06/steve-jobs-provides-a-look-inside-the-idatacenter/>



“ Apple should also apply pressure on its North Carolina energy supplier, Duke Energy, to shift its investments away from mountaintop removal coal and increase the amount of renewable energy it is putting on the grid in North Carolina. ”

Transparency: D

[No change]

Apple continues to be quite selective in disclosing the energy-related details of its iCloud. Though the company has offered up additional details in the past several weeks relating to its cloud investments, Apple is still not disclosing data on its energy consumption and supply for its data centres, and has not revealed plans for how its data centres will be powered as they continue to grow.⁷ While we do see some improvement, the details provided do not add up to an improved grade in this category at this time. Apple should disclose additional data on energy consumption and supply for its data centres in order to improve its transparency grade.

Infrastructure siting: D

[Previous Score F]

Apple's announcement in May to have its three data centres (Maiden, North Carolina, Prineville, Oregon, and Newark, California) be “coal free” is a potentially very important step toward an iCloud powered by clean energy. Its June announcement to locate its fourth data center in Nevada, where there is access to significant renewable energy sources, is similarly promising.

However, the company continues to operate without a long-term infrastructure siting policy that expresses a commitment to renewable energy. Apple's recent investments to expand on-site electricity generation in coal-dependent North Carolina highlight the company's need for a long-term siting policy that would avoid the problem of a coal-powered data centre by making sure they never get built. Given the large amounts of investment required to build and sustain data centres for a company such as Apple, a formal siting policy will provide the long-term guidance Apple needs to make the most responsible choices available about its energy use.

Energy efficiency and GHG mitigation: C

[Previous score: D]

Apple's grade in this category increased to a C from a D in light of the company's commitment to make its existing fleet of data centres coal-free. Apple should disclose further details about how it plans to meet that target to improve its score.⁸

Apple has provided high-level evidence of a number of innovative energy efficient design features in its North Carolina iCloud data centre. However, Apple's lack of transparency on the performance of the facility and detail of the energy savings design features make it difficult to evaluate its performance. This lack of transparency and detail in the data also make it difficult for other IT brands to learn from and improve upon Apple's best efficiency practices.

Renewable energy investment and advocacy: C

[Previous score D]

Apple's grade in this category has increased to a C from a D in light of the company's announcement of an additional 100-acre solar farm at its North Carolina facility, and its public commitment to power its North Carolina, Oregon and California data centres with 100% renewable energy.

However, Apple has not released the details of how it intends to secure additional local clean electricity in North Carolina, and appears to be reliant on renewable energy credits (RECs) instead of buying renewable electricity directly. Apple needs to put its money where its mouth is by looking beyond these first steps and using its tremendous cash reserves to invest in or directly purchase renewable energy.

Apple should also apply pressure on its North Carolina energy supplier, Duke Energy, to shift its investments away from mountaintop removal coal and increase the amount of renewable energy it is putting on the grid in North Carolina. Apple has made commitments to move to 100% renewable electricity for its Prineville facility, but has not revealed plans yet for how it will achieve that goal. See Page 8 for additional details about how Apple can go fully coal free in North Carolina and Oregon.

⁷ <http://www.greenpeace.org/international/en/news/Blogs/makingwaves/apple-come-clean-about-your-coal-problem-then/blog/40221/>

⁸ <http://www.apple.com/environment/renewable-energy/>

Maiden Data Centre – how big will it be, and how much renewable energy will it use?

	Apple statement	Current State Permits for backup power	Greenpeace International estimate based on updated total investment figures
Total Estimate Power Demand	20 MW	41 MW	81MW
On-site renewable generation	14.2 MW	14.2 MW (9.6)**	17.9 MW (12.9)**
% On-site renewable	60%**	35% (23%)**	22% (16%)**

*Based on Apple's stated power consumption of 20 MW and its estimate of 124 million kWh, its on-site generation would be greater than 60%, but 60% is the number the company has reported publicly.

** These renewable numbers provisionally consider Apple's 5MW fuel cell installation as renewable energy, pending confirmation from Apple that it has secured a sustainable biogas supply for its operation. If Apple is using natural gas for its fuel cells, the numbers in parentheses would apply.

Note: Calculations of Apple's Energy Indices have been updated from the April 2012 How Clean is Your Cloud? Report to reflect the following:

Release of US EPA eGrid 2012 emissions data (2009 emissions year), which was released in April 2012. The "How Clean is Your Cloud?" report used eGrid 2010 data, which was the most current data available at the time of publication.

Apple's Newark data centre is considered as 100% renewable powered based on Apple's announcement of its intention to purchase renewable electricity by February 2013 via recently acquired permission for direct access procurement.

For Apple's Maiden data centre, the total estimated power demand uses a calculation based on Apple's US\$1 billion investment in the facility, subtracting its US\$100 million investment toward onsite renewable energy generation capacity. Using an estimated power usage effectiveness (PUE) of 1.35, the calculation arrives at a total demand of 81 MW for the facility.

For Apple's Maiden facility, recognition of an additional 5MW of onsite renewable electricity generation based on Apple's announcement of its intention to install a second solar facility on nearby land. The 5MW fuel cell installation remains provisionally counted as renewable energy, pending confirmation from Apple that it has secured a sustainable biogas supply for its operation.

Road map to a 100% renewable and coal free iCloud

Newark, California data centre

Apple's goal: coal free & 100% renewable by February, 2013



As part of its May 2012 announcements, Apple revealed that it had recently been granted approval for “direct access” energy contracts for its Newark, California data centre (acquired in 2006) that will allow Apple to buy renewable energy directly from the wholesale market, and not have to buy the electricity mix of the local utility. Apple has not provided specifics on where this energy will come from, though Apple indicates that it is in the process of “locating and buying enough direct-access clean energy to meet the needs of the facility by February 2013.”⁹ Given the ability to access renewable contracts in California, Apple should be able to fulfill its 100% renewable and coal-free ambition for Newark in the very near term, and should disclose the details of how it will do so.

Reno, Nevada

Apple's Renewable Energy Goal: ?



Apple announced in June its intention to build a new data centre in Reno, Nevada. According to documents Apple submitted to local officials to seek approval of the project, Apple will invest US \$1 billion in computer equipment for the data centre over the next 10 years.¹⁰ Those documents estimate the facility's power demand to be 35 MW in its first five years after half of its growth, and 70 MW when it reaches full capacity after 10 years. It is unclear whether or not Apple has specific plans to invest in renewable energy associated with its facility in Reno, and how it would do so, though the same documents indicate that after year five years, the facility would begin producing its own power “through alternative sources,” though no more specific information is provided. The local electricity grid is powered by a utility called NV Energy, whose energy mix is 51% Natural Gas, 15% Coal 10% RE, and 24% purchased.¹¹ The good news is that Apple does have great potential to do much better than that in Nevada, which has massive amounts of solar and geothermal energy potential.

Prineville, Oregon data centre

Apple's goal: coal free & 100% renewable



Apple is constructing its newest data centre in Prineville, Oregon. As part of its recent announcement to have a 100% renewable and coal-free iCloud, Apple says: “At Prineville we have access to enough local renewable energy sources to completely meet the needs of the facility. To achieve that goal, we’re working with two local utilities as well as a number of renewable energy generation providers to purchase wind, hydro, and geothermal power — all from local sources.”¹²

This statement represents a promising change from earlier reports, when a representative of Pacific Power, a local utility in that part of Oregon and a subsidiary of PacifiCorp, told the San Jose Mercury News that Apple planned to buy its electricity from them, along with Renewable Energy Credits (RECs), a strategy which will not result in any less coal being burned by PacifiCorp.¹³ (For more information on why RECs are problematic, see the section below, “Partnership for NC Greenpower and the purchase of RECs”).

Pacific Power's grid mix is 61% coal-powered¹⁴, with little indication the utility will soon change.¹⁵ Apple has a critical choice for its path to being coal free for its Prineville data centre, as the other utility in Prineville is Central Electric Cooperative, which draws its energy from the Bonneville Power Authority (BPA), which is largely coal free with 81% hydropower.

Apple has a clear choice on its hands between doing business with a mostly coal-burning utility and one that is close to coal free. If it chooses to go with Pacific Power's dirty energy mix, this would be a significant step backwards for Apple's plans to be coal free and 100% renewably powered. Instead, a decision to choose the cleaner local utility and build upon that choice by tapping other renewable electricity sources that are abundant in the region would be a sign that Apple is serious about its new commitment to renewable energy.

Maiden, North Carolina data centre

Apple goal: coal free & 100% renewable by end of 2012



Apple announced that it will meet the energy needs of its North Carolina data centre with “entirely renewable energy” and will be “coal-free” by the end of 2012.¹⁶ As part of announcing this goal, Apple revealed its investment in a second 100 acre solar farm a few miles away from its data centre, which would bring its total on-site renewable generation close to 10 MW from solar, with an additional 5MW from on-site fuel cells.¹⁷

⁹ www.apple.com/environment/renewable-energy/

¹⁰ http://www.co.washoe.nv.us/large_files/agendas/062612/31.pdf

¹¹ https://www.nvenergy.com/brochures_arch/sustainability_2011_NVE.pdf

¹² *ibid*

¹³ http://www.mercurynews.com/business/ci_20471002/apple-protest-greenpeace-renewable-energy

¹⁴ <http://www.bpa.gov/power/pgp/whitebook/2011/index.shtml>

¹⁵ http://www.oregonlive.com/business/index.ssf/2011/06/pacificcorps_reliance_on_coal_p.html

¹⁶ www.apple.com/environment/renewable-energy/

¹⁷ This evaluation provisionally considers Apple's onsite fuel cell installation to be renewable, pending further details on Apple's source of fuel powering this system, see below.

Coal-FUELED iCloud

Coal-FREE iCloud

RENO, NV
Apple's next data centres

Choose coal-powered local utility, Pacific Power and buy renewable energy credits from them

Choose renewable powered local utility, Central Electric Coop.

You are now entering PRINEVILLE, OR

You are now entering NEWARK, CA
home of clean energy

3 Double-count renewable energy by selling credits to Duke Energy

2 Buy renewable energy credits

1 Passively accept Duke's dirty energy mix

choice 03 Retire renewable energy credits from electricity generated on-site

choice 02 Invest directly in new renewable energy generation in North Carolina

You are now entering MAIDEN, NC

choice 01 Demand Duke Energy eliminate mountaintop removal coal from its electricity supply chain, and demand that Duke invest in new renewable energy generation, not retrofitting and extending the lifetime of dirty coal plants.



Apple has choices to make at each of its data centres, and its next ones, to live up to its promise of a coal-free iCloud



Apple sets forth three main strategies it will pursue to reach its goal to be “coal free.”

- 1) **On-site renewable energy investments, such as the two 20MW solar farms and 5MW fuel cell installation. According to Apple, these on-site renewable sources will provide “over 60% of the clean power we need.”**
- 2) **Purchase of local renewable energy from as yet unspecified sources**
- 3) **Purchase of renewable energy credits (RECs) from NC GreenPower**

A closer look at each of these strategies reveals a number of questions and choices for Apple that will have a significant impact on whether Apple can legitimately claim to be “100% renewable & coal-free” for its North Carolina iDataCenter, and by when. Those questions highlight the challenge that Apple faces to meet its coal-free goal and the need for Apple to use its influence and buying power to demand a cleaner electricity supply from Duke Energy, the only electric utility in the state, and one that is heavily invested in coal and nuclear power:

(1) On-site renewables: (Estimated at 15MW)

Apple’s recent announcement to double the amount of solar power it is generating on-site or on nearby land means it will generate close to 10MW of renewable power by its own estimates.¹⁸ Apple has also announced it will install 24 fuel cells on site, which according to regulatory filings will be powered by “directed biogas”, providing close to another 5MW of baseload generation capacity, though how green this approach is can vary significantly.¹⁹

¹⁸ ibid

¹⁹ <http://ncuc.commerce.state.nc.us/cgi-bin/webview/senddoc.pgm?dispfmt=&itype=Q&authorization=&parm2=FAAAAA40121B&parm3=000138304>

²⁰ ibid

²¹ <http://www.nytimes.com/2012/06/21/technology/ebay-plans-data-center-that-will-use-alternative-energy.html>

“Renewable” fuel cells?

While fuel cells can produce electricity with a significant improvement over coal in carbon and other pollution, whether or not they should be considered a renewable source of electricity depends on whether they are powered by natural gas or sustainably produced biogas. Regulatory filings with the North Carolina Utilities Commission show that the answer is far from clear for Apple’s fuel cells.²⁰

According to its regulatory filings, the Apple fuel cells will be powered by “directed biogas”, which – similar to RECs for electricity – means the fuel cells will be powered by natural gas, but that biogas in the same volume will be added to a natural gas pipeline elsewhere. That pipeline could even be across the country, but Apple will still be able to claim that their fuel cells are being renewably powered. California recently banned the awarding of renewable incentives for biogas produced out of state. Apple should ensure that the biogas for its fuel cells comes from sustainable sources in North Carolina, so that it actually displaces natural gas consumption.

Apple is double-counting its renewable energy generation

While Apple highlights how the amount of on-site renewable power generated at Maiden will be 60% of the amount of the power it needs, filings with the state of North Carolina show that Apple may in fact be selling all of the electricity it generates from its solar panels and fuel cells back to Duke, along with the renewable energy credits (RECs) that Duke uses to help meet its state obligations to produce renewable energy.

Apple certainly has a financial incentive to sell the electricity it generates back to Duke, as it can sell its on-site renewable generation at a premium to Duke over low industrial electricity rates. However, another company which is using a significant amount of on-site energy generation, eBay, recently announced that it would use its onsite fuel cells as its primary power source,²¹ and will maintain its connection to the local grid for backup purposes only, thus significantly reducing the electricity it needs to buy from the local utility. If Apple did this in North Carolina, it would decrease the amount of actual electricity it needs to buy from Duke Energy and its fleet of coal plants.

However, if Apple is also selling the RECs associated with its on-site generation back to Duke Energy, it is in fact selling its right to claim the Maiden facility is renewably powered, which is what the RECs convey. Because Apple has already taken public credit for its on-site generation, as witnessed recently, selling its RECs to Duke Energy creates a situation where the renewable electricity generated by Apple would be counted more than once.

By contrast, Google chooses not to sell the RECs associated with the renewable energy it claims from its wind power purchases in Iowa and Oklahoma to the utilities there, instead retiring them.²² If Apple wants to be able to claim full credit for its onsite renewable power, it should follow the example of Google and others by retiring the RECs, to prevent the renewable energy from being counted twice.

Both Google and eBay provide examples of how Apple could better handle the use and sale of its RECs and on-site electricity generation in a way that pushes Duke Energy to burn less coal and invest more in renewable energy.

(2) Purchase of local renewable energy

While Apple has stated its intention to buy renewable energy directly from local and regional sources to help meet the rest of its 100% renewable energy goal in North Carolina, it has not provided any specifics on where and when it will make those direct purchases. This approach has some of the greatest promise for Apple to overcome the current lack of renewable energy provided by Duke Energy. Google has demonstrated its ability to identify local energy partners in Iowa and Oklahoma and has signed long-term power purchase agreements to bring significant new amounts of clean energy into the surrounding grid. While the options for such purchases at scale are different in North Carolina, Apple could work with other large customers to seek to unlock some of the transmission and investment barriers to bringing new clean energy supply to the region, as evidenced by Google's investment in the new Atlantic Wind Connection, which will hopefully bring new offshore wind power into the Mid-Atlantic region.

“ Both Google and eBay provide examples of how Apple could better handle the use and sale of its RECs and on-site electricity generation in a way that pushes Duke Energy to burn less coal and invest more in renewable energy. ”

3) Partnership with NC Greenpower and the purchase of RECs

The third piece of Apple's 100% renewable strategy for Maiden is a partnership with NC Greenpower, a non-profit partnership which uses the voluntary purchases of Renewable Energy Credits (RECs) to provide support to renewable energy generators. RECs allow companies to express their support for renewable electricity by buying credits that are supposed to support renewable energy projects. In exchange, companies who buy RECs receive the right to claim to be powered by renewable electricity. In many cases, however, the actual electricity associated with the REC is sold completely separately and far away from where the claim of renewable power is being made.

While the purchase of RECs allows Apple to show it supports renewable energy, the RECs give Apple the right to claim to be renewably powered on paper only. Such voluntary purchases/contributions do little to change the amount of dirty energy demand Apple is creating from its Maiden data center, given that Duke Energy is providing the same dirty mix of electricity to the grid and to Apple. In other words, if Apple was to rely primarily on REC purchases, it means that no less coal is burned by Duke Energy in North Carolina or Pacific Power in Oregon, and no more renewable energy is produced to power its cloud. RECs do not send a strong, long-term investment signal to energy providers that encourage them to bring more clean energy on the grid.

Apple clearly has some important choices to move it closer to its “coal free” goal in North Carolina. Apple should produce evidence of a more robust plan and commitment to maximise the renewable energy options currently available to it in North Carolina. Without a significant new renewable energy contract or investment in local renewable energy generation, the Apple iDatacenter will still be buying coal-fired electricity from Duke for the foreseeable future, and the amount of electricity Apple buys from Duke is likely to increase given the likelihood that the data centre continues to expand beyond its first phase. ²³

²² <http://www.google.com/intl/fr/corporate/green/114megawatt.html>

²³ <http://www.greenpeace.org/international/en/news/Blogs/makingwaves/apple-come-cleanabout-your-coal-problem-then/blog/40221/>

“ To demonstrate it is committed in the long term to building a truly renewable iCloud, Apple needs to adopt a corporate policy that shows a commitment to renewable energy for the iCloud as it continues its surging growth. ”

Clean energy advocacy champion

Ultimately, if Apple is serious about its commitment to a coal-free iCloud, the most important thing the company can do is to use its buying leverage with Duke to push for cleaner energy options. Currently, Duke's investment plans call for continued reliance on coal and nuclear power, with less than 4% of the electricity coming from renewable energy in North Carolina by 2030.²⁴ If Duke made the right investments today, North Carolina could be on a pathway to be 100% renewable and coal-free by 2030.

Apple should start by explicitly asking Duke to cease burning coal from mountaintop removal mining, the most destructive form of coal mining for ecosystems and communities in Appalachia. Pressuring Duke to phase out mountaintop removal mining, decrease its dependence on coal, and significantly increase renewable electricity in North Carolina is the long-term solution for Apple to achieve its ambitious “coal free” goal at its Maiden data centre. That would be good not only for Apple, but for the citizens of North Carolina, and particularly for communities in North Carolina and Appalachia suffering from the impacts of coal mining and burning.

“ Ultimately, if Apple is serious about its commitment to a coal-free iCloud, the most important thing the company can do is to use its buying leverage with Duke to push for cleaner energy options. ”

Growing a green iCloud over the long term

Apple has made important strides in its embrace of clean energy for the iCloud in recent weeks. To demonstrate it is committed in the long term to building a truly renewable iCloud, Apple needs to adopt a corporate policy that shows a commitment to renewable energy for the iCloud as it continues its surging growth. Two principle ways Apple could demonstrate such a commitment are to:

- (1) Adopt a siting policy that expresses a preference to build data centres where the grid is already clean, as Facebook has done.²⁵ A siting policy would be a clear indication of lasting renewable leadership and would send a clear signal to the marketplace that the cloud should be powered by renewable energy.
- (2) Set a steadily increasing renewable energy goal – one that does not rely on the use of RECs – for Apple's data centre infrastructure as it continues to grow. While RECs allow Apple to quickly pay for the right to claim its iCloud is renewable powered, the reality on the ground will continue to reflect that the iCloud is increasing demand for dirty energy, particularly in North Carolina where nearby plants are powered by mountaintop removal coal.

Greenpeace will continue to work with Apple and Apple's customers until the company develops a commitment that all of its current and future data centres move toward clean energy, not coal. While Apple has made impressive recent strides in investing in on-site renewable energy, it still has a lot of work to do to make good on this commitment. If it does that, and develops a policy that promises the same for its future growth, Greenpeace – and, more importantly, Apple's customers – will recognise the company for becoming a leader in the new clean energy economy.

²⁴ Duke Energy Carolinas' Integrated Resource Plan and 2011 REPS Compliance Plan, p 55

²⁵ http://www.greenpeace.org/international/Global/international/publications/climate/2011/Cool%20IT/Facebook/Facebook_Statement.pdf

GREENPEACE

Greenpeace is an independent global campaigning organisation that acts to change attitudes and behaviour, to protect and conserve the environment and to promote peace.

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