



# Expansion of clean energy in the U.S.

KEY PROVISIONS OF THE AMERICAN CLEAN ENERGY AND SECURITY ACT OF 2009

The American Clean Energy and Security Act of 2009 (ACES), if passed into law, could significantly transform the U.S. clean energy landscape. ACES caps greenhouse gas emissions, increasing the value of clean energy relative to other sources. It mandates a national quota of electricity capacity from renewable sources, strengthening demand. It also creates a Clean Energy Deployment Administration to streamline federal assistance. ACES, together with the American Reinvestment and Recovery Act of 2009 and other recent policy measures, could catalyze a major expansion of the U.S. clean energy market, providing opportunities to investors familiar with the new laws and ready to capitalize on them.

## Introduction

On June 26, 2009, the U.S. House of Representatives passed H.R. 2998 (originally introduced as H.R. 2454), the American Clean Energy and Security Act of 2009 (ACES), a bill 'to create clean energy jobs, achieve energy independence, reduce global warming pollution and transition to a clean energy economy.'

The vote constituted the first time either the House or Senate approved a bill curbing greenhouse gas emissions and is a major step toward national U.S. climate change legislation. Similar climate legislation will be taken up by the Senate following the July 4 recess, with proponents of the bill hoping for passage by the fall of 2009.

Together with the passage of the American Recovery and Reinvestment Act of 2009 (the Recovery Act) in February, ACES, if passed into law, is likely to have a significant positive impact on the renewable energy sector in the U.S. The Obama administration has embraced the goal of doubling renewable energy generation by 2011, with 10 percent of U.S. electricity being obtained from renewable resources by 2012. This translates into around \$210 billion of required investment in renewables by 2012.

This briefing covers the portions of ACES most significant to the U.S. power sector, including the 'cap-and-trade' system established by ACES, intended as the primary vehicle for the U.S. domestic regulation of greenhouse gases and other provisions aiming to promote the expansion of clean energy technologies.

Key provisions of ACES include:

- a 17 percent reduction of carbon emissions from major U.S. sources by 2020 compared to 2005 levels and a reduction of 83 percent by 2050;
- requiring electric utilities to meet 20 percent of their electricity demand through renewable energy sources and energy efficiency savings by 2020;
- establishment of a new Clean Energy Deployment Agency (CEDA) to manage the recently expanded Federal Loan Guarantee Program for clean energy and innovative technologies and a new Clean Energy Investment Fund; and
- significant new investment in renewable energy, energy efficiency and carbon capture and sequestration.

In addition to ACES, further national measures promoting clean energy are expected in the near future. The regulations for the new Federal Loan Guarantee Program for renewable energy (known as the 1705 Program) provided for in the Recovery Act earlier this year are due out in mid-July. There will likely be a flurry of activity following its release from developers looking to take advantage of this program. Guidance is also expected very shortly on the new cash grant program that will compliment the recent changes to the tax credits provided to renewable energy in the U.S., namely the production tax credit (the 'PTC', which is earned as energy is generated) and the investment tax credit (the 'ITC', earned on the facilities placed-in-service date).

We will provide briefings on both of these developments as they come through in July.<sup>1</sup>

The clean energy sector has three key drivers: policy, technology and finance. With the correct policy in place, finance (both debt and tax equity) will significantly increase after having stalled through much of the credit crisis, providing a huge boost to the clean energy industry and driving the technological developments that are needed to enable the industry to prosper in the U.S. and globally in the decades to come.

## Regulation of greenhouse gas emissions

### The Safe Climate Act

ACES amends the Clean Air Act of 1970 by adding Title VII, called the Safe Climate Act (the SCA). The SCA establishes two programs for reducing greenhouse gas emissions: (i) a 'cap-and-trade' system that caps the total greenhouse gas emissions for certain sources and distributes tradable permits for those emissions and (ii) an offset program allowing capped sources to 'offset' their emissions through projects reducing greenhouse gases outside of the SCA's regulatory regime. These approaches are intended to provide economic incentives for industry to reduce greenhouse gas emissions at the lowest cost to the economy by creating a market for allowances and offsets. Taken together, the intent of these programs is to reduce greenhouse gas emissions from capped sources by 17 percent below 2005 levels by 2020, and by 83 percent below 2005 levels by 2050.<sup>2</sup>

### The cap-and-trade system

The SCA establishes annual tonnage limits on total emissions of carbon dioxide and other greenhouse gases<sup>3</sup> from large U.S. sources, starting in 2012 for most sources and 2014 for certain industrial sources. Capped sources include, among others: (i) electricity utilities; (ii) certain specified industrial sources (such as aluminum production, petroleum refining and lime manufacturing); (iii) stationary sources that combust 25,000 or more metric tons of carbon dioxide equivalent

(such as industrial facilities not specified above); and (iv) stationary sources that produce or import a product that would create, through processing and/or later combustion, 25,000 or more metric tons of carbon dioxide equivalent (such as natural gas utilities).

The SCA authorizes the EPA to issue permits, or 'allowances', each year, in aggregate equaling the limit on all capped sources for that year. A holder of an allowance is authorized to emit a metric ton of carbon dioxide equivalent in the vintage year of that allowance. These allowances are freely tradable among private parties. Tradability allows a capped source of emissions to choose the more cost effective of (i) reducing its emissions to the level of its allowances or (ii) obtaining allowances from other parties possessing allowances in excess of their emissions. This regime parallels the emissions trading regime under the Kyoto Protocol of the United Nations Framework Convention on Climate Change (the Kyoto Protocol). Allowances are distributed without charge or auctioned, as further discussed below.

### Emission offsets

In addition to the cap-and-trade regime described above, the SCA allows a capped source to increase its greenhouse gas emissions above the level permitted by its total allowances by obtaining offsetting emission reductions from certain domestic or international uncapped sources. Offset credits are created by projects not capped under the SCA that can certify through specified procedures that they reduce the emission of greenhouse gases, such as domestic projects destroying industrial pollutants or landfill methane or international projects averting deforestation or developing wind energy. This regime is similar to the offsetting permitted under the Clean Development mechanism of the Kyoto Protocol.

Under the offset regime of the SCA, a capped source exceeding its allowance of greenhouse gas emissions not only has a choice between reducing emission directly or purchasing allowances from other parties, but may also choose to obtain offset credits generated by uncapped sources. Offset credits are often a cheaper way for a capped source to ensure its total emissions are permitted, as opposed to directly reducing emissions or purchasing allowances from other parties, giving capped sources further flexibility to comply with the SCA in a cost-effective manner.

<sup>1</sup> If you would like further detail on the 1705 Program or the Recovery Act, please contact our clean energy team in New York.

<sup>2</sup> The SCA also aims to reduce economy-wide greenhouse gases by 20 percent below 2005 levels by 2020.

<sup>3</sup> Greenhouse gases under the SCA are measured by their 'carbon dioxide equivalent', the amount of such greenhouse gases needed to have an equivalent effect on climate change per metric ton of carbon dioxide.

The legislation allows capped sources to use offsets to collectively acquire up to 2 billion tons of emission credits annually. Half of these offsets may come from domestic sources and half may come from international sources, unless insufficient domestic offsets are available, in which case the EPA can increase the international offset allowance to a maximum of 1.5 billion tons of emission credits.

International offsets may only be obtained from foreign states that are developing countries with which the U.S. has entered into an agreement establishing the terms of an offset program. The EPA may also permit, in certain circumstances, the issuance of international offset credits as issued by an international regime (such as credits issued under the Kyoto Protocol).

#### **Distribution of allowances**

The SCA requires major U.S. emissions sources to obtain an allowance for each ton of carbon dioxide equivalent emitted into the atmosphere beginning in 2012 (with some sources beginning in 2014). The total number of allowances is established by schedule in the SCA (subject to narrowly limited adjustment by the EPA).

From 2012 through 2025, approximately 80 percent of allowances will be distributed without charge, with the remaining allowances distributed by auction. For the period from 2012 through 2025:

- 55 percent of the allowances will be used to protect consumers from energy price increases, primarily by distributing allowances to electric and natural gas utilities, thereby preventing the utilities from needing to increase consumer electricity and natural gas prices to pay for purchased allowances;
- 19 percent will be used primarily to assist trade-vulnerable industries such as those for iron, steel, cement and paper processing, giving these industries sufficient allowances to remain internationally competitive, and additionally to other industries including oil refiners, merchant coal producers, electricity producers obligated to supply electricity under long-term contracts and for small refineries;
- 13 percent will be used to support investments in clean energy and energy efficiency, primarily by distributing allowances to state-administered programs that will promote investment by allowance trading, and additionally for carbon capture and sequestration costs; and

- 13 percent will be used for domestic and international adaptation, averted deforestation, worker assistance and training and to ensure the SCA remains budget neutral.

Last minute amendments to ACES also provide for a small set of allowances (1 percent) in 2012 to reward early actors who have made mitigations prior to 2012.

From 2026 through 2050, the program will gradually shift to an auctioned system. By 2031, about 70 percent of the allowances will be auctioned. Auctions are to be held quarterly under a single-round, sealed-bid uniform price format, except for allowances for carbon capture and sequestration (CCS) technology (discussed further below), which will be held by reverse auction. Further auction rules are to be promulgated within a year of ACES's enactment (details on auctioning were left vague intentionally by the drafters, as this is one of the more politically contentious aspects of the bill). During this phase of the program, the percentage of directly distributed allowances allocated to vulnerable industries and the promotion of clean energy is also reduced.

#### **Pricing of allowances**

The EPA estimates that in 2005 dollar terms, each emission allowance will cost \$13 in 2015 (the CBO estimate is \$16) and the cost will increase to between \$26-27 by 2030 (\$36 according to the CBO). In comparison, current prices in Europe are just under \$20 per metric ton. A coal-fired power plant producing 4 million metric tons of carbon dioxide would require \$40-50 million in allowances in 2015 (some portion of which would be granted for free under the SCA). At these allowance prices, the total value of the allowances created under the legislation ranges from roughly \$70-80 billion in 2015 to \$90-120 billion in 2030. However, the SCA creates a free-market mechanism, with no government-mandated price for allowances, and EPA and CBO estimates are highly speculative.

Although the price for allowances is not mandated, the SCA contains various cost-containment measures intended to avoid market-disrupting fluctuations in the price of allowances. Many of these measures were included pursuant to recommendations made by the U.S. Climate Action Partnership (USCAP), a co-operative group of businesses and leading environmental organizations. Such measures include:

- unlimited banking of allowances for use in future years;
- a two-year compliance period for allowances, allowing borrowing one year in advance;
- a strategic reserve of allowances that are available for auction if allowance prices exceed 160 percent of their three-year average (the proceeds of such auction to replenish the reserve by acquiring international offsets); and
- a minimum floor price for auctioned allowances of \$10 (in 2009 dollar terms) to provide stability and investment certainty.

## Clean energy provisions

### Investment in clean energy

Allowance allocations to clean energy and energy efficiency projects (as discussed above) are expected to constitute a massive investment in the sector. The EPA estimates that the value of allowances from ACES invests roughly \$190 billion through 2025 in clean energy and energy efficiency programs, including:

- \$90 billion in state programs to promote renewable energy and energy efficiency;
- \$60 billion in carbon capture and sequestration technologies (including \$10 billion generated through a small assessment charges on electricity generated using fossil fuels);
- \$20 billion in electric and other advanced technology vehicles; and
- \$20 billion in basic research and development into clean energy and energy efficiency.

Much of the allocation for clean energy and energy efficiency projects are provided through allowances issued to states for such purposes. States are to establish State Energy and Environment Development Accounts (SEED Accounts) to manage the tracking of allowances allocated to them. SEED Account allowances not dedicated to specific purposes can be used as loans, grants, or other forms of support for renewable energy, energy efficiency and other authorized programs.

### Combined energy efficiency and renewable electricity standard

ACES establishes a combined energy efficiency and renewable electricity standard (RES) that requires retail

electricity suppliers to meet a growing percentage of their load with electricity generated from renewable resources, other qualifying energy sources and electricity savings. Renewable energy sources that qualify under the bill include wind, solar, geothermal, renewable biomass,<sup>4</sup> qualified hydropower and marine and hydrokinetic renewable energies. Other qualifying energy resources encompassed by the bill include landfill gas, wastewater treatment gas, coal mine methane used to generate electricity at or near the mine mouth and qualified waste-to-energy facilities. Electricity savings are reductions in electricity consumption as a result of customer facility savings of electricity, reductions in distribution system losses of electricity, combined heat and power savings and fuel cell savings.

The RES begins at 6 percent in 2012 and gradually rises to 20 percent in 2020.<sup>5</sup> At least 75 percent of the requirement must be met by renewable energy. In 2020, 15 percent of the electricity load in each state must be met with renewable electricity and 5 percent with electricity savings.

Retail electricity suppliers demonstrate their compliance with RES by submitting 'Federal Renewable Energy Credits', each of which representing one megawatt hour of renewable electricity. Such energy credits will be fungible regardless of where in the U.S. they were generated. Retail electricity suppliers will be able to trade them or bank them for up to three years. The program also allows retail electric suppliers to pay a fee in lieu of submitting credits equal to \$25 per credit to the state treasury.

### Clean Energy Manufacturing Revolving Loan Fund Program

ACES establishes a \$15 billion Clean Energy Manufacturing Revolving Loan Fund Program under the Department of Commerce. The fund will award grants to states to establish revolving loan funds to provide loans to small and medium-sized manufacturers to finance the cost of (a) re-equipping or establishing manufacturing facilities to produce clean energy technology products, energy efficient products and integral component parts

<sup>4</sup> ACES expands the definition of 'renewable biomass' under the Clean Air Act to include various additional materials collected from plants, algae and animal waste and includes biofuels and biogas derived exclusively from renewable biomass.

<sup>5</sup> Current state-level standards would, in aggregate, require 4.7 percent of projected electricity generation capacity to be obtained from renewable energy sources in 2025.

of such products or (b) reducing the energy intensity or greenhouse gas emissions of manufacturing facilities. Individual grants to states under this program are not to exceed \$500 million in a given fiscal year. In order to receive grants, states must ensure that for every loan provided by the program, not less than 20 percent of the amount of each loan comes from a non-Federal source.

### **Carbon capture and sequestration**

ACES uses a combination of regulatory requirements and financial incentives to ensure that fossil-fuel based power plants and industrial operations will operate with CCS. Eligible industrial operations are those that, absent CCS, would emit greater than 50,000 tons of carbon dioxide per year.

ACES requires all new coal plants constructed after 2020 to use CCS on commencing operations. Coal plants permitted between 2009 and 2015 lose eligibility for federal financial assistance if they do not retrofit CCS within five years after commencing operations. Coal plants permitted between 2015 and 2020 lose eligibility for federal financial assistance if they do not use CCS when they commence operations. All coal plants that have not used CCS must retrofit CCS by no later than 2025.

ACES also contemplates the creation of a 'Carbon Storage Research Corporation' to accelerate the development of viable CCS technology, governed by representative of a broad array of public interests (eg utilities, fossil fuel producers, non-profits). The corporation would pay for its programs by collecting a small assessment from electricity distribution utilities at rates that vary depending on the fuel source and expected to generate a total of \$10 billion.

### **CEDA**

ACES establishes a self-sustaining CEDA to support private investments in clean energy technologies, including nuclear power. ACES transfers from the Department of Energy (DOE) to CEDA the Federal Loan Guarantee Program for renewable energy and innovative technologies, established under the Energy Policy Act of 2005 and expanded with the 1705 Program under the Recovery Act, and augments the loan guarantee program with a Clean Energy Investment Fund.

CEDA is structured as an independent, government-owned corporation, modeled after the

Export-Import Bank of the United States and the Overseas Private Investment Corporation. Its mandate is to promote access to affordable financing for the accelerated and widespread deployment of clean energy technologies, advanced or enabling energy infrastructure technologies, energy efficient technologies and related manufacturing technologies.

The Clean Energy Investment Fund has been designed to supplement the loan guarantee program with a broader set of investment mechanisms. ACES provides that no particular technology is to be given more than 30 percent of the fund's available financial support. The initial capitalization of CEDA's fund is supplied by the issuance of 'green bonds' totaling \$7.5 billion. Additionally, ACES authorizes further Congressional appropriations as necessary to accomplish CEDA's goals.

### **Transmission, distribution and demand infrastructure**

#### **Smart Grid technology**

ACES includes provisions to promote deployment of Smart Grid technology and enhanced transmission planning, including a program developing and implementing peak demand reduction goals that are applicable to certain public and private energy utilities.

#### **Transmission planning**

Provisions on electricity transmission planning call for the Federal Energy Regulatory Commission (FERC) to reform regional planning in order to modernize the electricity transmission and distribution grid and work to provide new transmission lines for the delivery of energy from renewable sources. The ACES measures require FERC to coordinate state and interstate planning with national grid planning.

#### **Electric vehicle infrastructure**

ACES amends the Public Utility Regulatory Policies Act of 1978 (PURPA) by providing for the development of infrastructure to support electric cars and other vehicles. The program, if successful, will dramatically increase electricity demand as such infrastructure shifts vehicle energy demands from fossil fuels to grid power. Under this provision, each electricity utility is to develop a plan to support the use of plug-in electric drive vehicles (PEDV), including heavy-duty hybrid electric vehicles. The Energy Secretary is also to establish a program deploying and integrating PEDVs into the electricity grid

in multiple regions. Further, state and local governments may apply to the DOE for financial assistance in furthering the regional deployment and integration into the electricity grid of PEDVs.

### Energy efficiency provisions

ACES also provides extensive measures intended to promote energy efficiency, many of which are likely to effect power demand. These provisions include standards for new buildings (requiring new buildings to increase efficiency by 30 percent in 2012 and 50 percent in 2016), vehicles (including heavy-duty vehicles and aircrafts and other non-road vehicles) and appliances, and various small-scale rebate programs.

### Market Assurance Provisions

The Federal Power Act of 1920 will be amended to provide for the FERC's strict oversight and regulation of the new carbon markets. The FERC is charged with promulgating regulations providing comprehensive market oversight, the prohibition of fraud and market manipulation and the assurance of market transparency and efficient price discovery.

### Exporting Clean Energy

Finally, on clean energy, ACES establishes an 'International Clean Technology Account' to channel resources promoting deployment of clean energy technologies in developing countries that have ratified an international agreement or have undertaken domestic measures to achieve significant greenhouse gas reductions. Least developed countries may also receive assistance to build capacity allowing them to meet the eligibility criteria. Such assistance is to be coordinated, to the extent feasible, with broader U.S. development, poverty alleviation and natural resource management foreign policy goals.

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