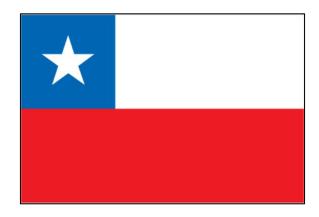
CLIMATE CHANGE LEGISLATION IN

CHILE

AN EXCERPT FROM

The 2015 Global Climate Legislation Study A Review of Climate Change Legislation in 99 Countries



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Chile

Legislative Process

Chile's democratic system of government is based on the separation of powers. It is a multiparty republic with a presidential system based on the 1980 constitution. The constitution sets the format for the National Congress, composed of a Senate and a Chamber of Deputies. The Senate has 47 members (38 elected and nine appointed) who serve eight-year terms. The Chamber of Deputies has 120 members who are directly elected for 4 years. The last Congressional election was held in 2013, the next is scheduled for 2017. A Bill replacing the Binomial Electoral System and adjusting the number of legislators (to 155 Deputies and 50 Senators) is currently awaiting publication and should take effect from the 2017 election. The President of the Republic is elected for a six-year term without possibility for re-election. The executive branch is composed of 16 ministries and four cabinet-level agencies.

In several areas the President is given sole authority to introduce bills, such as for measures related to spending and duties of public-sector administrative entities and modifications to the political-administrative configuration of the state. The President can also call the legislature into extraordinary session, during which only legislative and treaty proposals introduced by the President can be considered. The President may grant certain initiatives priority status, requiring that Congress act within 3, 10, or 30 days, depending on the degree of urgency. In this sense, the President has the exclusive power to set the legislative agenda.

The Constitution is the highest norm and establishes the hierarchy of other legislation. Congress adopts the laws or statutes, with an internal hierarchy depending on quorum of approval and regulated matter: institutional act, special act, and ordinary act (including decree laws, delegated laws and ordinary laws, all of which are of equal hierarchy). The executive branch enacts regulations (supreme decrees), which are issued by the President of the Republic, and plain decrees or resolutions, which are issued by the rest of the executive branches. A bill, once approved first by the Chamber of Deputies and then the Senate, is sent to the President for approval. Upon endorsement of the bill, the President issues a decree of promulgation and submits the bill for constitutional review by the Comptroller-General. After the bill has been declared constitutionally sound, the President has the bill published as law in the Official Journal.

Approach to Climate Change

Chile ratified the UNFCCC in 1994 and established its National Advisory Committee for Global Change in 1996. Between its first National Communication under the UNFCCC in 1999 and its second National Communication in 2011 Chile made notable progress in incorporating climate change into its strategic long-term decision-making through institutional reforms. Public administration has been reformed to establish an institutional framework providing a platform for strengthened climate action. Extensive sectoral studies on the impact of climate change and on mitigation strategies have been carried out and informed a wide range of action plans and policies.

The National Strategy for Climate Change was adopted in 2006 and made operational by the National Action Plan for Climate Change 2008–2012 prepared by the Department of Climate Change of the National Environmental Commission. Under this Action Plan, in 2009 an Inter-ministerial Committee on Climate Change was set up, including the Ministers of the Environment, Foreign Affairs, Agriculture, Transport and Telecommunications, Energy, Economy, Finance, Mining and Public Works and two dialogue platforms, one for public—private partnerships and one for the civil society. An update of the National Action Plan for Climate Change (2016-2020) is currently under preparation, with public consultation scheduled for 2015.

In 2010 a new environmental institutional structure was inaugurated, a process that began in 2006 and transformed the country's multisectoral model, in which environmental matters were coordinated by the National Environmental Commission (CONAMA) into a more centralised model under the new Ministry of the Environment, which was set up as the State body in charge of cooperating with the President in the design and implementation of environmental policies, plans and programmes. The Ministry has a special mandate to propose and develop national climate policy.

Climate change remains one of the five thematic focuses of the Ministry. The Office of Climate Change was created in 2010 under the under-secretary of the Ministry of the Environment, and endowed with an annual budget and permanent staff. This office is also responsible for national representation in international negotiations related to the implementation of the UNFCCC Convention and acts as Co-ordinator of the Committee for the Designated National Authority for the Clean Development Mechanism. It is also the focal point for the Intergovernmental Panel on Climate Change (IPCC) and the technical secretariat for Inter-ministerial committees on climate change. In addition, within the preparatory process for the 2015 Paris COP21 meeting, Chile has prepared a draft Intended Nationally Determined Contribution (INDC) to be communicated to the UNFCCC secretariat after public consultation (December 2014-March 2015).

Chile has also developed a number of research programmes. It has signed Memoranda of Understanding and Framework Co-operation Agreements on climate action with Denmark and France, as well as a technical and scientific co-operation agreement on bioenergy with Colombia. The Public Works Ministry also created the Glaciology and Snow Unit within the Water Directorate-General in 2008 to establish and run a national glaciological programme that will develop a glacier inventory, study and monitor glaciers in Chile, define present and future responses to climate change in regard to glaciers and identify adaptation strategies for different climate scenarios. In February 2009, the Council of Ministers adopted a National Policy for Glacier Protection and Conservation foreseeing the creation of a national glacier register, the study of their vulnerability to climate change and the introduction of preservation and conservation policies.

Energy supply

Over the past decade, Chile has steadily diversified its energy mix, especially in the context of rising energy demand and prices. Currently, the energy production mix is composed of around 30% of oil and 30% biomass and waste-to-energy, 22% coal, 13% natural gas, 5% hydroelectricity and less than 1% solar and wind energy (Ministry of Energy, 2013). Most electricity generated comes either from hydropower or thermoelectric power, although renewable capacity is expanding at a rapid pace.

In 2009, the National Congress passed a law creating the Ministry of Energy as a high level agency that works with the President to govern and administer the energy sector. Institutions under the Ministry's purview that play a key role in the sectoral mitigation of GHG emissions include the Centre for Renewable Energies (2009) and the Chilean Energy Efficiency Agency (AchEE).

The Ministry's primary objective is to prepare and co-ordinate the implementation of plans, policies and standards to guarantee energy security and high-quality competitive energy supply, while ensuring environmental protection at local and global level and advising the Government on energy-related matters. In 2012 it adopted the National Energy Strategy 2012-2030.

The main energy policy objectives are: to increase energy availability and security to satisfy demand, assuming an average economic growth rate of 6% annually up to 2020; to promote the development of competitive and sustainable investments; to work towards having 20% of installed capacity for electricity generation from non-conventional renewable energies by 2020; to enhance existing regulations to increase investment in renewable energy; to promote research programmes in energy and educate new generations of citizens on the importance of energy savings and efficiency; to improve the information available on the country's energy resources to support the formulation of a policy to promote energy efficiency and energy savings projects; and to enhance

existing energy efficiency standards and certification programmes for residential construction, household appliances, lighting and transportation vehicles.

Energy demand

In 2005, the Ministry of Economy set up the National Energy Efficiency Programme in response to a Review by the Organisation for Economic Co-operation and Development (OECD), which recommended that Chile incorporate energy efficiency into its national development. The Programme has contributed to the development of sustainable energy by promoting advances such as reducing energy demand in the Central Interconnected System (SIC) energy grid and establishing energy efficiency as a central pillar of national energy policy.

Thermal regulations for housing were incorporated into the General Construction and Urbanism Bylaw and have been in force since 2000. The first stage established minimum R-values for housing roof systems that improved resistance to heat flow significantly. The second stage came into force in 2007 and set out requirements for limiting heat loss through walls, floors and ventilated floors and windows, limiting size according to R-values.

The National Energy Efficiency Programme also aimed to identify potential energy efficiency applications for the mining sector. In 2006 the Mining Energy Efficiency Working Group was established to encourage the country's largest mining companies to manage their energy consumption, exchange experiences and best practice, study the application of energy efficiency indicators that may be suitable for these companies and formulate innovation projects in this area. The Working Group is a voluntary technical board made up of representatives of the large mining companies, ENAMI, the EEPP and the Mining Undersecretary's Office. The Chilean Energy Efficiency Agency is the successor to the National Energy Efficiency Programme and includes representatives of the ministries of Transportation and Telecommunications, Housing and Urbanism, and Energy, as well as the academic and business sectors. The Agency has an updated mandate that replaces the lines of action of the PPEE with the role of designing and establishing public policies for energy efficiency in the respective divisions of the Ministry of Energy.

The Agency has proposed a National Energy Efficiency Action Plan 2010–2020 with a roadmap towards a 15% energy efficiency improvement by 2025. Some of its proposals have been incorporated in the National Energy Strategy published in 2012. Energy efficiency was included as the first pillar in the 2012-2030 National Energy Strategy and a national goal of reducing projected 2020 energy consumption by 12% has been set — a goal also highlighted in the 2013 National Action Plan for Energy Efficiency.

Chile has been promoting energy efficiency and energy savings through a number of programmes and initiatives, including energy efficiency standards and a labelling programme; 'Light Up Good Energy' initiative through which compact fluorescent light bulbs were distributed to the most vulnerable 40% of the population; subsidy on electric motors in the industrial and mining sectors; technical and financial assistance to investment in energy efficiency by small and medium enterprises; and a specific credit line.

Carbon pricing

A voluntary carbon market was created in 2009, when the Santiago Climate Exchange provided platform for voluntary GHG reductions trading. In 2013, the government also created a "Platform for the Generation and Trading of Carbon Credits from the Forestry Sector in Chile", which cooperates with the Verified Carbon Standard, a major voluntary, global GHG certification programme. In the long-term, Chile is considering a transition to an ETS (emissions trading system).

In a shift of policy priorities, Chile approved in September 2014 a carbon tax for thermal power generators (thermal input equal or above 50MW, biomass power plants exempt). From 2017 on,

emitters are to pay USD5/metric ton of CO2 emitted, with tax level for other GHG emissions yet to be determined.

REDD+ and LULUFC

Chile, contrary to the general world trend, has managed to increase the area of forests, both native and planted. The Vegetation Registry showed that between 1997 and 2011 forests area increased by more than 1m ha, helping to mitigate the negative effects of climate change. One reason was the forest bonus support scheme established through the Decree Law 701 and operational until December 2012, which allowed Chile to increase largely the planted forest area and make forestry the country's second-biggest export sector, behind mining.

The Ministry for Agriculture set up the Climate Change and Agriculture Council in 2008, chaired by the Minister and including representatives of the productive, public and academic sectors. The Council's main objective is to build a common understanding of how climate change will impact activities in the agriculture, livestock and forestry sectors and to define major lines of action to address this impact. The Council supports the Ministry in defining the main features and priorities of a climate change adaptation programme for the agriculture, livestock and forestry sectors and in defining potential mitigation measures to be implemented in each sector.

In 2013, the Ministry of Agriculture, through its National Forestry Corporation, presented the National Strategy on Forests and Climate Change. This Strategy aims to link forestry initiatives with existing carbon market, specifically through the generation and commercialisation of emission reduction certificates (carbon credits), operationalised through the "Platform for Generation and Trading of Carbon Credits in the Chilean Forestry Sector", created by CONAF in 2012.

Moreover, Chile is currently preparing a new Forestry Development Act (expected in 2015), which should include measures supporting sustainable development of forests supporting their carbon sequestration function, such as payment for environmental services or subsidies for reforestation and forest protection (new version of the bonus forest scheme).

Adaptation

The National Climate Change Adaptation Plan was adopted in December 2014. It provides the overall framework for the adaptation activities of different sectors and different administrative levels. The Plan has eight streams, grouped under four main themes, namely: scientific research; communication and environmental education; institutional strengthening; and disaster risk reduction (DRR). It calls for development or update of sectoral adaptation plans, some of which have been already developed following the requirements of the National Climate Change Action Plan 2008-2012. Sectoral adaptation measures have been included in the Forestry and Agriculture Sector Climate Change Adaptation Plan (2013) and the Biodiversity Climate Change Adaptation Plan (2014). The Fisheries and Aquaculture and the Health Sector Climate Change Adaptation Plans are expected to be presented in 2015 and the Infrastructure, the Cities, the Energy Sector, the Tourism and the Hydrology Resources Climate Change Adaptation Plans are being developed.

Chile: Legislative Portfolio

Name of law	Law No. 20571 on environmental taxation (carbon tax)
Date	26 September 2014
Summary	As part of a comprehensive tax reform, two new types of green taxes have been introduced, one of which is an annual tax on emissions from fixed sources, which takes into account the global damage due to climate change (CO2 emissions) from "fixed sources made up of boilers and turbines with a thermal power greater or equal to 50MW".

Name of law	Law No. 20571 regulating the payment of electricity tariffs of residential generators
Date	22 March 2012
Summary	The law introduces modifications to the General Law for Electric Services of 1982 with the objective of regulating the payment of electricity tariffs to residential generators. Final users are thus authorised to inject electricity from renewable installations of up to 100kW in the distribution grid through their connection line.

Name of law	Law No. 20.365 on Tax Exemption for Solar Thermal Systems
Date	19 August 2010
Summary	The law grants tax deductions equivalent to the cost, or a share of the cost, of the installation of new solar thermal systems providing at least 30% of the hot water consumed in a given building per annum.
	The tax exemption targets construction companies that are willing to use solar systems in new housing developments, allowing them to discount the cost of solar collectors they install from their taxes on a sliding scale indexed to the value of each home. This measure seeks to promote the use of solar technology and extend its benefits to houses and buildings across the country by offering up to 100% of the installed cost of these hot water systems for new houses eligible by the tax exemption. The exemption covers 100% of the tax on solar thermal systems for houses priced at approximately 2,000 UF (unidad de fomento, USD87, 000) and up to 20% of the tax for houses worth approximately 4,500 UF (USD195, 000.
	The law also includes a consumer protection provision that mandates a 5-year guarantee against failures in the solar thermal system and a free inspection within the first year of home ownership.
	Decree 331 of 26 May 2010 lays down the implementation rules establishing the eligibility

Name of law	Law No. 20.257 on Non-Conventional Renewable Energies
Date	1 April 2008
Summary	The law mandates that a certain percentage of power sold by electricity companies operating in systems with an installed capacity greater than 200MW come from NCREs. It is applicable only to new projects implemented by electricity companies that remove energy from power grids by selling it to distributors or end users. The following targets have been adopted:
	 From 2010 to 2014, all energy contracts signed on or after 2007 shall be required to supply at least 5% of their energy from non-conventional renewable sources As of 2015, this percentage will increase by 0.5% per year until reaching 10% in 2024 This gradual increase will be applied in the following way: 5.5% of all energy
	removed from the system shall be subject to this mandate in 2015, 6% in 2016, and so on, until reaching the goal of 10% by 2024

of technical conditions for solar thermal systems.

Name of law	Law No. 19.940 modifying the General Electrical Services Law (LGSE) of 1982
Date	13 March 2004
Summary	The law reformed the LGSE, changing several aspects of the energy generation market in Chile that affected all forms of energy generation, but included special provisions for Non-Conventional Renewable Energy sources (NCREs), defined as wind, hydropower installations up to 20MW, biomass, biogas, geothermal, solar and tidal energy. The reform opened up the spot market and guaranteed the right to be connected to the country's power grids to small generating plants, many of which fall into the NCRE category. This move increased commercial and generating opportunities for these small producers.
	In addition, the reform exempted projects using NCREs from paying transmission fees, using a differentiated scale—one for plants generating up to 9 MW and another for those generating between 9MW and 20MW. In addition to benefiting those sources, this exemption serves to recognise a positive externality, given their low impact on transmission grids and on investments associated with their expansion.

Name of law	Law No. 19.657 on Geothermal Energy and its Regulation by Decree 114
Date	7 January 2000 and 7 May 2013
Summary	This law established a special system for granting concessions for the exploration and
	development of geothermal energy. The Decree 114 then updated and simplified the
	procedure for granting concessions for geothermal energy development.

Chile: Executive Portfolio

Name of policy	National Climate Change Adaptation Plan
Date	December 2014
Summary	The National Climate Change Adaptation Plan provides the overall framework for the coordination of adaptation activities of different sectors and different territorial administrative levels. Its principal objectives are:
	 Establish the conceptual framework for adaptation in Chile. Establish the institutional framework to guarantee implementation of the National Adaptation Plan and sectoral plans.
	3. Determine the sectors that require adaptation plans and establish criteria and guidelines for their development and implementation.
	4. Define the cross-sector actions necessary for adaptation to climate change.
	The Plan has determined a set of eight transversal action directions, grouped under four main themes, that are to be reached through the corresponding measures: 1. Scientific Research
	 Scientific framework on climate change (determine reference scenarios to serve as basis for sectoral adaptation plans; consolidate and maintain a national monitoring network; establish a set of indicators to evaluate the effectiveness of adaptation processes)
	 Promoting scientific research on climate change (foster co-operation with universities and other research institutions; establish a permanent category of climate change investment in public funds supporting R&D)
	• Dissemination of results (create an inter-institutional platform to integrate monitoring results from different institutions).
	2. Communication and Environmental Education
	 Define a communication strategy (create a registry of adaptation measures undertaken at the territories and national levels; create an accessible website to share information on climate change adaptation with the public; communicate to the citizens in general as specific sectors the risks of climate change impacts; create a logo for the National Adaptation Plan and related activities;
	communicate through all available means the progress of the adaptation

for education of members of civil society organisations)

Environmental education and awareness (integrate the climate change topic into curricula of primary, secondary and university education; create materials

3. Institutional Strengthening

- Institutional Strengthening (create a Climate Change Unit in each Ministry to coordinate creation, implementation and update of the adaptation plans for their
 institution; prepare a proposal for institutional strengthening of the climate
 change legislative framework and for creation of a National Adaptation Fund;
 develop methodology for integrating climate change risks and possibilities for
 adaptation in social evaluation of projects)
- Mainstreaming Climate Change in environmental management at regional and local level.

4. Disaster Risk Reduction (DRR)

National Congress.

 Information for decision-making in the context of disaster risk management (include in disaster risk maps and in the statistical registry of disasters (under development) information on current and projected extreme weather events related to climate change; develop a programme of activities aimed at strengthening climate resilience to be carried out by public institutions and other interested actors)

The Adaptation Plan further calls for development or update of sectoral adaptation plans, some of which have been already developed following the requirements of the National Climate Change Action Plan 2008-2012. Sectoral adaptation measures have been included among others in the Forestry and Agriculture Sector Climate Change Adaptation Plan (2013), the Biodiversity Climate Change Adaptation Plan (2014). The Fisheries and Aquaculture and the Health Sector Climate Change Adaptation Plans are to be presented in 2015 and the Infrastructure, the Cities, the Energy Sector, the Tourism and the Hydrology Resources Climate Change Adaptation Plans are being developed.

Name of policy November 2013 The National Strategy on Forests and Climate Change aims to link Chile's forestry initiatives with existing carbon market, specifically through the generation and commercialization of emission reduction certificates (carbon credits), operationalized through the "Platform for Generation and Trading of Carbon Credits in the Chilean Forestry Sector", created by CONAF in June 2012. The platform seeks to reduce the different technical, financial, administrative and institutional barriers to the generation of forestry carbon credits. The Strategy also aims at attracting foreign investment and financial support for the reforestation and forest protection activities through for example the REDD+ mechanism, it also calls for introducing a payment for environmental services (in particular carbon sequestration) of forests. The proposed measures and requirements are expected to be adopted as binding by the proposed Forestry Development Act, currently discussed in the

Name of policy	Resolution 370 regulating the subsidies for power transmission lines to facilitate access to the grid for renewable energy installations
Date	18 July 2012
Summary	The regulation aims to contribute to reaching a 20% target of installed power generation capacity by 2020. It establishes a subsidy for power lines granting access to the grid to renewable energy installations in the event that the demand is lower than expected, reducing the investment risks. The agent applying for the subsidy shall be facilitating access to the grid to at least three renewable energy installations. The subsidy is capped at USD700, 000 and applies between the sixth and the tenth year of exploitation of the power line.

Name of policy	National Energy Strategy 2012–2030
Date	4 December 2008
Summary	The National Energy Strategy lays down policy directions and proposes measures to ensure that Chile has sufficient, competitive, clean, safe and economical energy resources to transform itself into a developed country. The strategy is based on six fundamental pillars and proposes a set of related measures to achieve the objectives.

- 1. Commitment to energy efficiency to reduce consumption and unlink growth and energy demand: decrease by 12% the final energy demand projected for 2020.
 - Measures: Energy Efficiency Action Plan 2012-2020; Energy Efficiency Seal –
 certification system; Minimum Energy Performance Standards and appliances
 labelling; Efficient Residential and Street Lighting Programs; Creation of the
 Inter-ministerial Commission for the Development of Energy Efficiency Policies.
- Increasingly incorporate non-conventional renewable energy sources into the Chilean electricity matrix.
 - Measures: Improving Procedures for Granting Electricity Concessions; Creation
 of Utility Corridors which may be expropriated or the object of easements in the
 public or national interest; Harmonization of the regulatory framework
 governing transmission systems; Facilitating Connection for Small Generators
 and Intelligent Networks and developing a smart network.
- 3. Strengthen traditional renewable energy sources (mainly hydro and biomass) and overcome administrative, investment and technical challenges and more than double non-conventional renewable energy sources (NCRE solar, wind, etc.) over the next decade, currently only around 3% of electricity production. A target for traditional hydroelectricity to achieve 45% to 48% share of the electricity mix over the next decade.
 - Measures: Tender Mechanism to encourage the Development of NCRE; Geo referenced Platform – Economic Potential for NCRE Projects to support investment; other financing and insurance mechanisms; and support to R&D.
- Strengthen the design and solidity and boost the development of our transmission system.
- 5. Address the different challenges presented by the market and electricity distribution.
- 6. Promote sustained progress with developing international inter-connections.

Name of policy National Climate Change Action Plan 2008–2012

Date

4 December 2008

Summary

The Action Plan is intended as a short-term measure designed to generate key information that will be used to prepare longer-term national and sector-specific adaptation and mitigation plans. The Plan includes both situation analysis and strategic considerations as its base, and details of actions to be taken on three areas (adaptation, mitigation and capacity-building) and the entities responsible for delivery.

The analysis takes into account climate change science in Chile and abroad, the country's vulnerability and the actions needed for adaptation. It includes GHG emissions from the energy sector, advances in analysing emission scenarios and mitigation potential. It also delves into the country's capacity to design and implement policies, strategies and actions for adaptation and for mitigating emissions from legal, institutional and public policy perspectives. It further assesses national capacities for participating in international negotiations, meetings and reviews of IPCC reports, international and national cooperation initiatives on climate change, clean development mechanisms, and the carbon offset market, among others.

The main adaptation actions proposed are: generating local climate scenarios, determining the impacts of climate change and the corresponding adaptation measures and formulating national and sector-based plans for adaptation to climate change. Specifically, the Plan affirms the need to determine impacts on water resources, biodiversity, the forestry, agriculture and livestock sectors, hydropower generation, infrastructure, coastal zones, fishery resources and public health.

The Plan calls for a national programme and sector-based plans for mitigating GHGs. The actions proposed include: designing a system to update GHG inventories; assessing the total and sector-specific potential for reducing GHGs; preparing indicators to monitor the impact of actions taken; preparing GHG mitigation plans, policies and strategies and generating mitigation scenarios for different timeframes.

The capacity building and development actions contemplated include: a national programme of education and awareness-raising; a national fund for researching biodiversity and climate change; technical and economic assessment for a climate change monitoring network; and a national registry of glaciers.

Sources

- APEC Energy Working Group (2012). Survey of Market Compliance Mechanisms for Energy Efficiency Programmes in APEC economies. Retrieved from: http://www.clasponline.org/en/ResourcesTools/Resources/SLHeadlines/~/media/Files/SLDocuments/2012/MVEworksh op/APEC-MVEsurvey-FullReport.pdf on 20 September 2013.
- National Environmental Commission (2010). National Climate Change Action Plan 2008-2012. Retrieved from: http://www.mma.gob.cl/1304/articles-49744 Plan 02.pdf on 20 December 2014.
- Ministry of Energy (2012). National energy Strategy 2012-2030: Energy for the Future clean, safe, economical. Retrieved from: http://kallman.com/shows/iftenergy_2012/pdfs/Energy-for-the-Future-Chile's-National-Energy-Strategy-2012-2030-English.pdf on 18 December 2014.
- Ministry of Environment (2011). Chile's second national communication to the United Nations Framework Convention on Climate Change (FCCC). Retrieved from: http://unfccc.int/essential background/library/items/3599.php?rec=j&priref=7592#beg on 15 August 2012.
- Ministry of environment (2014). Plan Nacional de Adaptación al Cambio Climático. Retrieved from: http://cambioclimaticochile.cl/wp-content/uploads/2014/12/PLAN-2014.pdf on 29 December 2014.
- Inter-American Development Bank (2012. Energy Matrix Chile. Retrieved from: http://www.iadb.org/en/topics/energy/energy-innovation-center/energy-database,8879.html?view=v11 on 21 December 2014.