

# Kazakhstan

## The World's Carbon Markets: A Case Study Guide to Emissions Trading

Last Updated: September, 2013

### Environmental Policy Overview:

**COUNTRY PROFILE:** Kazakhstan houses over 16 million people, it extends over a land-mass which exceeds that of Western Europe,<sup>1</sup> and its economy is the largest in Central Asia. The country is rich in natural resources,<sup>2</sup> and a primary focus of its industrial sector is extraction and processing of these resources.<sup>3</sup> In addition, Kazakhstan is a large producer of livestock and grain. The country, according to its 2006 census, has 76.5 million hectares of agricultural land, 61% of which is permanent pastures and 32% of which is arable land. The country produces about 10-17 million tons per year of wheat, its primary crop, and it also grows barley, oats, corn, and rice.<sup>4</sup> In 2012, Kazakhstan began efforts to build a domestic emissions trading system (ETS) that began its pilot phase in January 2013. This market will aid the country in achieving its goal of reducing greenhouse gas (GHG) emissions 7% below 1990 levels by 2020, and it will make Kazakhstan the first Asian nation to undertake an economy-wide cap, as South Korea's ETS is scheduled to begin in 2015.<sup>5, 6</sup>

**EMISSIONS PROFILE:** Kazakhstan emitted 290 Mt CO<sub>2</sub>e in 2009, an amount equal to 6 percent of the EU's total output. According to World Bank and U.S. Department of Energy data, the country has one of the world's largest figures for emissions per unit of GDP. While its 2009 emissions were 23 percent below 1990 levels, the country's GHG emissions have climbed 81 percent over the past ten years, largely due to thriving energy and mining sectors (See Figure 1).<sup>7</sup>



**Figure 1 – CO<sub>2</sub> Emissions (kt) in Kazakhstan (1992-2008)<sup>8</sup>**

Kazakhstan is one of the most energy intensive countries in the world, and a major reason for this is its power production process, which relies heavily on coal and leaves renewable energy potential largely undeveloped.

According to Climate Focus (2010), the country's three most promising emission reduction opportunities lie in: (1) renewable energy projects; (2) fuel switching and energy efficiency; and (3) reducing gas flaring from extraction activities for coal, oil, and natural gas.<sup>9</sup>

**Policy:** The Kyoto Protocol was ratified in Kazakhstan on March 26, 2009,<sup>10</sup> and in November 2010 the country introduced the new law “On Amendments to Certain Legislative Acts of the Republic of Kazakhstan Relating to Environmental Issues” (Law on Amendments), which enhances the country's ability to participate in carbon markets. Along with forming general rules for emissions trading and establishing liability for GHG emissions exceeding the limit defined in an allowance certificate, the Law on Amendments both categorizes participants into major and minor emitters, and facilitates Joint Implementation (JI) activities by excluding them from environmental licensing procedures. On 11 December 2012, Kazakhstan's government approved a law which would make the Kazakh ETS the first nationwide cap-and-trade system in Asia. The Kazakh ETS will operate similarly to the EU ETS.<sup>11</sup>

## Domestic Markets:

On December 3, 2011, the Kazakh ETS was enacted into law through an amendment to the country's “Ecological Code.” According to Carbon Limits and Point Carbon (2013), this amendment established a “national market mechanism for reduction of GHG emissions which should allow for both national and international trade in emissions allowances, in addition to initiating the development of a domestic offset scheme.”<sup>12</sup> The program's rules were developed over the course of 2012 and approved as law on December 11, 2012. Many crucial design elements, such as allocation and measurement, reporting, and verification, resemble those of the EU ETS.<sup>13</sup> The two primary institutions involved in the design and coordination of the Kazakh ETS are the Low Carbon Development Department within the Ministry of Environmental Protection (MEP), and the joint stock company “Zhasyl Damu” which is 100% owned by MEP.

Kazakhstan initiated a one-year trial period, or **Phase I**, of its ETS at the beginning of 2013. The length of **Phase II** is yet to be determined; it may span 2014-2020, or those years may be divided into Phase II (2014-2015) and Phase III (2016-2020). According to Carbon Limits and Point Carbon (2013), “It should be noted from the outset that despite the fact that the Kazakh ETS entered its pilot phase of operation on 1 January 2013, the scheme is still a ‘work in progress.’”<sup>14</sup>

Beginning in 2013, the Kazakh ETS imposed **allowance surrender obligations on 178 companies**, and the **cap** for these companies is 147 MtCO<sub>2e</sub>, which is the 2010 level for these capped companies, 55% of the nation's total GHG output, and 77% of the country's CO<sub>2</sub> emissions. In addition, the **reserve of allowances** available to new installations in 2013 is equivalent to 20.6 million CO<sub>2e</sub>.<sup>15, 16</sup> During Phase I, the only **gas** covered is CO<sub>2</sub>, but this may change in later phases. The **point of regulation is downstream**,<sup>17</sup> and covered **sectors** include oil and gas production, the power sector, mining and metallurgy, chemical industry, agriculture, and transportation. While Phase I covers companies, not installations, after Phase I companies are obligated to report data at an installation level, and this data is subject to verification by an independent third party before it is approved by the government.<sup>18</sup> <sup>19</sup> The **targets** of the Kazakh ETS will contribute to the country's previously-stated voluntary emissions reduction commitments. For the **medium term**, the country promised at 2012 international climate negotiations in Doha to reduce its emissions 5% relative to 1990 levels during 2013-2020 as part of the Kyoto Protocol. Domestically, Kazakhstan has pledged to reduce emissions by 7% below 1990 levels by 2020<sup>20</sup> and by 15%, or 39 MtCO<sub>2e</sub>, below 1992 levels by 2025. For the **long term**, Kazakhstan's domestic goal is 25%, or 65 MtCO<sub>2e</sub>, below 1992 levels by 2050.<sup>21</sup> The **energy sector's target** is 3% emissions reduction below 2012 levels by 2015.<sup>22</sup> See Table 1 for details.

ETS Design Element	Kazakhstan
<b>Sector Coverage</b>	Oil, coal, and gas production; the power sector; mining and metallurgy; chemical industry; agriculture (inclusion currently being debated); and transport (inclusion currently being debated)
<b>Emitters/Installations Covered</b>	178 companies, number of installations tbd
<b>Emission Coverage</b>	Phase I: About 55% of Kazakhstan’s GHG emissions and 77% of CO <sub>2</sub>
<b>Gases Covered</b>	Carbon Dioxide (CO <sub>2</sub> ) and perhaps other gases after Phase I. Methane is subject to monitoring and methane reductions are eligible under the domestic offsets regulations.
<b>Threshold for Inclusion</b>	20,000t/CO <sub>2</sub> <sup>e</sup> /yr
<b>Offsetting Allowed</b>	The following sectors are preferred for domestic offsets: mining and metallurgy; agriculture; housing and communal services; forestry; prevention of land degradation; renewables; processing of municipal and industrial waste; transport; and energy-efficient construction.
<b>Trading Periods</b>	Pilot phase in 2013, second phase tbd (either 2014-2020, or 2014-2015 with a Phase III that spans 2016-2020).
<b>Targets</b>	Overall objective is a 7% reduction below 1990 levels by 2020 and a 15% reduction by 2025 compared with the 1992 emission level. The energy sector’s target is a 3% reduction by 2015 compared with 2012 levels.

**Table 1: Kazakhstan ETS Program Details<sup>23, 24</sup>**

Kazakhstan’s MEP is **freely allocating** the vast majority of allowances in Phase I, and allocations will be made based on 2010 levels.<sup>25</sup> The ETS legislation details information participating companies must provide in their allocation applications, including a list of installations, monitoring plans, and a summary of plans to reduce emissions and comply with targets. The first of the National Allocation Plans (NAP), a document submitted by the MEP each year to establish how many allowances each participant receives,<sup>26</sup> has been adopted for 2013. The NAP for 2014 is currently being considered, and it will be informed by the 2012 emissions reports which are being submitted by the participating companies. 2011 emissions were not verified, and so could be excluded from baseline considerations – this is still to be decided.

Sector	Number of installations	2011		2012
		2011	2012	
Energy	59	72 921 952,13	76 780 658,43	21 860 554,40
Oil and Gas	74			20 952 760,59
Industry	46	56 737 701,48	53 999 299,77	
Total:	179	151 520 208,02	151 732 718,78	

Emissions for 2011 and 2012 by sector, Source: Ministry of Environmental Protection (2013)<sup>27</sup>

Further work is to be done on an NAP for 2015 and for the remainder of the period to 2020. **Auctioning** may be implemented beginning in Phase II, and, according to Carbon Limits and Point Carbon (2013), the second trading period’s allocation approach that is currently under development “is to be based on a benchmarking approach derived from that adopted by the European Union Emissions Trading System (EU ETS) for allocating emission allowances from 2013 onwards.”<sup>28</sup> However, given the time required to bed down the Kazakhstan ETS reporting regime and to establish data flows which would support benchmarking, it may be possible to continue to use updated historical emissions as the basis for free or discounted allocations. In August the Kazakh government announced that

commodities exchange Caspi was selected to sell permits to covered entities, with a first sale of 20.6 million permits expected in October 2013 at earliest.<sup>29</sup> Trading is governed by Kazakhstan Law No. 115-IV, concerning commodities exchanges.

Regarding flexibility mechanisms, the legislation does not allow for **banking** between Phase I and Phase II. In addition, the legislation details modalities for non-ETS sector offset projects, and it establishes that offset projects must apply basic CDM principles. **Domestic offsets** from within Kazakhstan prefer, but are not exclusive to, the following sectors: mining and metallurgy (utilization of mine methane); agriculture; housing and communal services; forestry; prevention of land degradation; renewables; processing of municipal and industrial waste; transport; and energy-efficient construction. The crediting period for domestic offset projects approved prior to December 31, 2015 lasts until December 31, 2020; and, the crediting period for domestic offset projects approved after December 31, 2015 is yet to be determined. According to Carbon Limits and Point Carbon (2013), “currently there does not appear to be any regulation pertaining to limits on the amount of carbon units from domestic offset programs which can be used by an operator for compliance purposes.” In addition, domestic offset projects that reduce CO<sub>2</sub> and other GHGs are acceptable, and installations covered under the NAP are not eligible for generating offsets.<sup>30</sup> **International offsets**, such as CERs and ERUs, are allowed under the “Ecological Code”,<sup>31</sup> and systems for trading AAUs and ERUs have been drafted, but their implementation is contingent upon Kazakhstan’s future inclusion as part of Annex B of the Kyoto Protocol.<sup>32</sup> According to Carbon Limits and Point Carbon (2013), the use of CERs and ERUs for compliance “is not envisaged”.<sup>33</sup> However, there may be further consideration of the limited use of CERs and ERUs for flexibility in the Kazakhstan ETS, particularly as the economy continues to grow, new entrants establish themselves, and emissions intensity stabilizes.

The **threshold** for a company’s ETS inclusion is 20,000 tCO<sub>2</sub>e/year.<sup>34</sup> The Law on Amendments separates entities into two categories: Major Emitters, entities whose overall annual emissions exceed 20,000 tCO<sub>2</sub>e, and Subjects of Administrative Regulation (SARs), entities that emit below 20,000 tCO<sub>2</sub>e annually. Major emitters are allowed to **trade** allowances domestically through emissions exchanges. The Ministry does not allocate allowances to SARs, but these entities will be obligated to pay an emissions-related tax.<sup>35</sup>

Companies that fail to submit the necessary reports and documentation to the MEP will be subject to **finances and criminal prosecution**, and sanctions would not relieve facilities from their duty to submit allowances.<sup>36</sup> Penalties will not be imposed on companies that do not surrender sufficient allowances during Phase I.<sup>37</sup>

According to Carbon Limits and Point Carbon (2013), “no studies have been undertaken to determine either the **anticipated carbon price** in the scheme or the level of costs associated with the running of the scheme.”<sup>38</sup>

## International Markets:

The two Kyoto Protocol-based market oriented **flexibility mechanisms** in which Kazakhstan has expressed participation interest are **emissions trading** and **joint implementation**.<sup>39</sup> Kazakhstan’s Kyoto Protocol flexibility mechanism participation options have been in limbo in recent years because the country has been considered an Annex 1 country since 2001, thusly excluding it from creating CERs, but it has not been a member of Annex B, so it has been unable to participate in ERU or AAU generation. Until Kazakhstan is accepted into Annex B, its ETS efforts can only impact its domestic market. According to Climate Focus (2010), “The inclusion of Kazakhstan into the circle of countries accepting to cap their GHG emissions will send a powerful signal to the international community as it does not only prepare a leading Central Asian country for a low carbon trajectory but it will also strengthen the case for broader adoption of Annex I commitments.”<sup>40</sup>

According to Point Carbon (2012), Kazakhstan hopes to improve its domestic ETS stability by **linking** to larger carbon markets, such as the European Union ETS (EU ETS) or a Japanese ETS in the future. Talks with Japan have

already begun.<sup>41</sup> Climate Focus and the Dutch government are working together to provide ETS design assistance to the Kazakhstan government. One reason Kazakhstan uses the EU ETS as a model for its own system is that it hopes to link with the EU ETS in the future.<sup>42</sup> In addition, the European Bank of Reconstruction and Development (EBRD) has selected a consortium led by Thomson Reuters Point Carbon's Advisory Board to advise the MEP on how to design an ETS that facilitates linkage with other programs. This project is known as Preparedness for Emissions Trading in the EBRD Region (PETER). According to Gulmira Sergazina, Head of the MEP's Low Carbon Development Department, "the PETER project is an important information source because it will help us to look at the opportunities that will arise from the second phase of the Kazakh ETS, which will start in 2014."<sup>43</sup>

Kazakhstan's ETS is often discussed in connection with prospective Russian and Ukrainian markets. According to Sterk et. al (2011) and Hood (2010), Kazakhstan has announced regional trading system cooperation with Russia, Ukraine, and Belarus, but concrete actions have yet to transpire.<sup>44, 45</sup>

**REGULATION AND OVERSIGHT:** As is the case for allocation, the MEP is in charge of Kazakhstan's ETS **regulatory activity**. The ETS legislation mandates that trades must occur on designated emissions trading platforms. In addition, the legislation defines a national emissions registry, the accreditation process for validators of monitoring plans, and the accreditation process for verifiers of emissions reports. ETS implementation will build capacity for the monitoring and reporting of both plans and annual reports.<sup>46</sup> Kazakhstan has established infrastructure for **monitoring** and **reporting** of GHG emissions by installations.<sup>47</sup> According to Carbon Limits and Point Carbon (2013),

"The importance of future linking with the EU is reflected in the **design of Monitoring, Reporting, and Verification (MRV)** procedures for the Kazakh ETS, which are currently under development, and which are based on EU procedures and templates... Significant challenges may be faced in ensuring that **installation-level data** is properly collected in time for the launch of the second trade period, and delays may also be faced in the **setting-up of the allowance registry**. Although the basics of the oversight system are known, this is an area where significantly more work is thought to be required... With respect to **institutional/legal readiness**, although the legal basis for MRV is well grounded, the current drafts of the legislative documents are in need of some amendments, which is a process that is currently ongoing. **Administrative penalties and penalties for exceeding the cap** have been identified, although the procedure for enforcement of these penalties needs further development."<sup>48</sup>

For the pilot phase (2013), there are **no penalties** for non-compliance<sup>49</sup> with the requirement to surrender allowances, but there are **penalties for not submitting** the required documents and reports to the MEP.

## Recent Environmental History:

Apart from ETS progress, wide-ranging **environmental legislation** has been enacted by Kazakhstan in recent years. In January 2007, the "Ecological Code of Republic Kazakhstan" became the standard document regulating GHG emissions and absorption.<sup>50</sup> In July 2009, the country adopted the law "On Supporting the Use of Renewable Energy Sources," which aims to begin the country's gradual transition to **renewable energy** sources (RES) by using economic mechanisms to induce investments in this sector. Solar, wind, large-scale hydro, geothermal, and biomass projects have all garnered attention, and, according to GRATA Law Firm, the country as a whole has "huge potential" for RES. While this law has stimulated action, the country's development of RES sources is still in its initial stage.<sup>51</sup> In the first half of 2013 there have been **substantial developments in a nation-wide feed-in-tariff** regime, which will play a major role in incentivizing the use of renewable energy in Kazakhstan.

## CHALLENGES:

1. The **absence of non-compliance penalties** for sufficient surrender of allowances in the pilot phase makes compliance less of a priority for covered installations than if there were non-compliance penalties. However, the enforcement response for not submitting the required reports and documents could have substantial impact on how covered installations behave in the second phase.

## UNIQUE ISSUES:

1. In terms of geography, Kazakhstan will be the **first country in Asia** to implement an economy-wide ETS. South Korea's economy-wide ETS is scheduled to begin in 2015.
2. At least during Phase I, the Kazakh ETS applies to **companies**, not installations.
3. Kazakhstan's **Kyoto status** as an Annex 1 country that is not part of Annex B is unique.
4. So far, Kazakhstan's **implementation of ETS has occurred relatively unhindered** following the enactment of pertinent laws and the approval rules. On December 3, 2011, the Kazakh ETS was enacted through an amendment to the country's "Ecological Code". On December 11, 2012, rules and regulations for the Kazakh ETS were approved. On January 1, 2013, the pilot phase for the Kazakh ETS was initiated.

## Author Acknowledgements:

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The authors would like to thank Ruben Lubowski, Joe Billick, Clayton Munnings, Oleg Lugovoy, Alexander Golub, Rob Fowler, and Jennifer Andreassen for very helpful comments and information for this case study. We take full responsibility for any remaining errors.

**Disclaimer:** The authors encourage readers to please contact them with any corrections, additions, revisions, or any other comments, including any relevant citations. This will be invaluable in strengthening and updating the case studies and ensuring they are as correct and informative as possible

<sup>1</sup> Kruppa, Marton (April 2012). "Kazakhstan to launch carbon market next year." Thomson Reuters Point Carbon. Available at <http://www.pointcarbon.com/news/1.1825513>

<sup>2</sup> The country's abundant natural resources include oil and natural gas, uranium, chromium, lead, zinc, manganese, copper, coal, iron, and gold.

<sup>3</sup> Trading Economics (2012). "CO<sub>2</sub> Emissions (KT) in Kazakhstan." Available at <http://www.tradingeconomics.com/kazakhstan/co2-emissions-kt-wb-data.html>

<sup>4</sup> United States Department of Agriculture (January 2010). "Kazakhstan Agricultural Overview." Available at [http://www.pecad.fas.usda.gov/highlights/2010/01/kaz\\_19jan2010/](http://www.pecad.fas.usda.gov/highlights/2010/01/kaz_19jan2010/)

<sup>5</sup> Carbon Limits and Thomson Reuters Point Carbon (April 2013). "The Domestic Emissions Trading Scheme in Kazakhstan." Available at <http://www.ebrdpeter.info/Reports/20130424%20EBRD%20PETER%20Project%20-%20Kazakhstan%20ETS.pdf>

<sup>6</sup> Kruppa, Marton (December 2012). "Kazakhstan approves emission limits for big polluters." Thomson Reuters Point Carbon. Available at <http://www.pointcarbon.com/news/1.2096955>

<sup>7</sup> *Supra*, Note 1.

<sup>8</sup> *Supra*, Note 3.

<sup>9</sup> Climate Focus (January 2010). "Option Review for Kazakhstan to Participate in the International Carbon Market." Available at

<http://www.ebrd.com/downloads/sector/eccc/kaz.pdf>

<sup>10</sup> Yessimkhanov, Yerzhan (February 2012). "Kazakhstan Introduces Legislation on Climate Change." Grata Law Firm. <http://www.hg.org/article.asp?id=25059>

<sup>11</sup> *Supra*, Note 6.

<sup>12</sup> *Supra*, Note 5.

<sup>13</sup> Ni, Vadim, Jelmer Hoogzaad, and Darragh Conway, "New Market Mechanism: Will Kazakhstan be the next country to establish a carbon emissions trading scheme?" *Carbon Trading Magazine*. Volume 1, Issue 8. October 2012. <http://www.carbon-tradingmagazine.com/wp-content/uploads/2012/09/Carbon-Trading-October-20121.pdf>

<sup>14</sup> *Supra*, Note 5.

- <sup>15</sup> Kruppa, Marton (January 2013). "FACTBOX – Carbon pricing extended to 9 pct of world population." Reuters Point Carbon. <http://www.pointcarbon.com/news/1.2121545>
- <sup>16</sup> *Supra*, Note 5.
- <sup>17</sup> International Carbon Action Partnership (icap) (April, 2013). "Interactive ETS Map Detailed ETS Profile: Kazakhstan Emissions Trading Scheme (KAZ ETS)." Available at [http://icapcarbonaction.com/index.php?option=com\\_wrapper&view=wrapper&Itemid=147](http://icapcarbonaction.com/index.php?option=com_wrapper&view=wrapper&Itemid=147)
- <sup>18</sup> Transportation and agricultural sectors are technically covered, but the combination of low political will to include all types of corporations, such as railroad companies and airlines, and the small size of the majority of installations within these sectors imply that these sectors will likely not be covered before 2020.
- <sup>19</sup> *Supra*, Note 5.
- <sup>20</sup> *Supra*, Note 5.
- <sup>21</sup> Sterk, Wolfgang and Florian Mersmann (August 2011). "Domestic Emission Trading Systems in Developing Countries—State of Play and Future Prospects." Wuppertal Institute for Climate, Environment, and Energy. JIKO Policy Paper 2/2011. Available at <http://www.jiko-bmu.de/files/basisinformationen/application/pdf/pp-ets-developing-countries.pdf>
- <sup>22</sup> *Supra*, Note 13.
- <sup>23</sup> *Supra*, Note 13.
- <sup>24</sup> *Supra*, Note 5.
- <sup>25</sup> Federal Ministry of Environment, Nature Conservation, and Nuclear Safety (April 2013). "Regional Pioneers: The New Frontier of Emissions Trading." International Conference 11-12 April 2013, Berlin Germany. Available at [http://www.ets-conference.org/files/en/documents-links/application/pdf/session\\_regional-pioneers\\_the-new-frontier-of-emissions-trading.pdf](http://www.ets-conference.org/files/en/documents-links/application/pdf/session_regional-pioneers_the-new-frontier-of-emissions-trading.pdf)
- <sup>26</sup> *Supra*, Note 13.
- <sup>27</sup> Presentation, Ministry of Environmental Protection and Zhasyl Damu, *NAP 2014-2015 Discussion - Working Group Meeting*. August 26, 2013
- <sup>28</sup> *Supra*, Note 5.
- <sup>29</sup> <http://www.pointcarbon.com/news/1.2563306?date=20130910&sdct=1>
- <sup>30</sup> *Supra*, Note 5.
- <sup>31</sup> *Supra*, Note 5.
- <sup>32</sup> Yessimkhanov, Yerzhan. "Climate Change – New opportunities for Subsoil Users." Grata Law Firm. Available at [http://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&sqi=2&ved=0CB4QFjAA&url=http%3A%2F%2Fwww.gratanet.com%2Fup\\_files%2Fgrata\\_climate%2520change\\_2011.ppt&ei=U1-IUL\\_zKpO2oAGn3YGICQ&usq=AFQjCNG9wBqNaD86LW9-7TOQRLAIFdaKfQ&sig2=EOlqFVZkqBNGq8kNoouWTA](http://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&sqi=2&ved=0CB4QFjAA&url=http%3A%2F%2Fwww.gratanet.com%2Fup_files%2Fgrata_climate%2520change_2011.ppt&ei=U1-IUL_zKpO2oAGn3YGICQ&usq=AFQjCNG9wBqNaD86LW9-7TOQRLAIFdaKfQ&sig2=EOlqFVZkqBNGq8kNoouWTA)
- <sup>33</sup> *Supra*, Note 5.
- <sup>34</sup> *Supra*, Note 13.
- <sup>35</sup> *Supra*, Note 10.
- <sup>36</sup> *Supra*, Note 10.
- <sup>37</sup> *Supra*, Note 1.
- <sup>38</sup> *Supra*, Note 5.
- <sup>39</sup> To expedite JI implementation, the Law on Amendments includes JI-related GHG emissions from the following mandatory environmental licensing procedures: (i) Environmental Impact Evaluation; (ii) State Environmental Expert Examination; (iii) Permits for Emissions into the Environment; and (iv) Environmental Audit. (Source: *Supra*, Note 8).
- <sup>40</sup> *Supra*, Note 9.
- <sup>41</sup> *Supra*, Note 1.
- <sup>42</sup> Climate Focus (January 2011). "Projects: ETS Trainings in Kazakhstan." Available at [http://www.climatefocus.com/pages/ets\\_trainings\\_in\\_kazakhstan](http://www.climatefocus.com/pages/ets_trainings_in_kazakhstan)
- <sup>43</sup> Jones Candida, "Ukraine and Kazakhstan eye linkage of ETSs with EU scheme." Thomas Reuters Point Carbon. October 9, 2012. Available at <http://www.pointcarbon.com/aboutus/pressroom/pressreleases/1.2015661>
- <sup>44</sup> *Supra*, Note 1.
- <sup>45</sup> Hood, Christina (November 2010). "Reviewing Existing and Proposed Emissions Trading Systems." OECD/IEA. Available at [http://www.iea.org/papers/2010/ets\\_paper2010.pdf](http://www.iea.org/papers/2010/ets_paper2010.pdf)
- <sup>46</sup> *Supra*, Note 13.
- <sup>47</sup> *Supra*, Note 9.
- <sup>48</sup> *Supra*, Note 5.
- <sup>49</sup> *Supra*, Note 15.
- <sup>50</sup> Kazakh Carbon. "Legislation on regulation of GHG emissions in the Republic of Kazakhstan." Available at <http://kzc.kz/en/legislation/legislation>
- <sup>51</sup> *Supra*, Note 10.