



# GLOBAL COAL RISK ASSESSMENT: DATA ANALYSIS AND MARKET RESEARCH

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## KEY FINDINGS

1. According to IEA estimates, global coal consumption reached 7,238 million tonnes in 2010. China accounted for 46 percent of consumption, followed by the United States (13 percent), and India (9 percent).
2. According to WRI's estimates, 1,199 new coal-fired plants, with a total installed capacity of 1,401,278 megawatts (MW), are being proposed globally. These projects are spread across 59 countries. China and India together account for 76 percent of the proposed new coal power capacities.
3. New coal-fired plants have been proposed in 10 developing countries: Cambodia, Dominican Republic, Guatemala, Laos, Morocco, Namibia, Oman, Senegal, Sri Lanka, and Uzbekistan. Currently, there is limited or no capacity for domestic coal production in any of these countries.
4. Our analysis found that 483 power companies have proposed new coal-fired plants. With 66 proposed projects, Huaneng (Chinese) has proposed the most, followed by Guodian (Chinese), and NTPC (Indian).
5. The "Big Five" Chinese power companies (Datang, Huaneng, Guodian, Huadian, and China Power Investment) are the world's biggest coal-fired power producers, and are among the top developers of proposed new coal-fired plants.

## CONTENTS

|   |    |
|---|----|
| Introduction .....  | 2  |
| Part I: Proposed Coal-Fired Plants .....                            | 2  |
| Part II: Existing Coal-Fired Plants .....                           | 10 |
| Part III: Global Coal Trade .....                                   | 12 |
| Part IV: Coal Finance .....   | 18 |
| Part V: Data Gap .....  | 22 |
| Appendix – Complete List of<br>Proposed New Coal-Fired Plants ..... | 26 |

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6. State-owned power companies play a dominant role in proposing new coal-fired plant projects in China, Turkey, Indonesia, Vietnam, South Africa, Czech Republic and many other countries.
7. Chinese, German, and Indian power companies are notably increasingly active in transnational coal-fired project development.
8. According to IEA estimates, the global coal trade rose by 13.4 percent in 2010, reaching 1,083 million tonnes.
9. The demands of the global coal trade have shifted from the Atlantic market (driven by Germany, the United Kingdom, France and the United States) to the Pacific market (driven by Japan, China, South Korea, India and Taiwan). In response to this trend, many new infrastructure development projects have been proposed.
10. Motivated by the growing Pacific market, Australia is proposing to increase new mine and new port capacity up to 900 million tonnes per annum (Mtpa) — three times its current coal export capacity.

## INTRODUCTION

Coal-fired power plants are the largest contributor to the greenhouse gas emissions that cause climate change. In 2010, 61 countries produced coal and 104 countries consumed it (Table 1). Global coal production reached 7,228.712 million tonnes that year and coal consumption reached 7,238.028 million tonnes. More than 60 percent of the coal consumed was used to generate power.<sup>1</sup>

This working paper assesses current global coal risks to the climate. It identifies the countries and companies involved in global coal production and consumption, and sheds light on global trends by mapping the proposed new coal power plants and related infrastructure.

The paper is organized into five parts. Part 1 lists the proposed new coal-fired plants around the world, based on available data. Part 2 lists existing coal-fired plants. Part 3 offers an overview of the global coal trade, including analyses of country trends. Part 4 summarizes available studies of coal financing. Part 5 notes data gaps that can be filled by future research.

## PART I: PROPOSED COAL-FIRED PLANTS

### Methodology

To complete the data analysis required for this working paper, the authors collected data from a variety of sources. These include commercially available databases such as Platts and the International Energy Agency (IEA), government and corporate websites, nongovernmental organizations (NGOs) and research institutions, and the media.

When possible, the authors corroborated the data with field knowledge. The authors contacted over 40 researchers, NGOs, and journalists around the world who work closely on coal issues, to help verify data.

The data collected in this working paper reflect the best knowledge of the authors at the time this research was conducted in July 2012. The decision to include a project in this collection does not take into consideration whether the project is officially seeking approval, what the timeline of the project construction is or the likelihood of the project being built eventually.

The inventory of proposed coal-fired plants considered here does not include plants that are already under construction, with two exceptions:

- Construction sometimes begins before a project has secured the approvals or permits needed for full operation. This scenario is common in countries where planning and approval procedures are ambiguous, such as China and India. Often, many approvals or permits are required and the process for granting them is not well coordinated.
- In some countries, such as the United States and the Netherlands, legal decisions concerning proposed coal-fired plants are pending.

Because of differences in administrative structures among countries, this paper does not categorize the status of each proposed project according to a consistent set of definitions. Instead, when describing the status of a project, the paper uses definitions drawn from the specific country context.

Table 1 | Coal Consumption and Production by Country

| COUNTRY            | TOTAL COAL CONSUMPTION 2010E*<br>(MILLION TONNES) |      | TOTAL COAL PRODUCTION 2010E**<br>(MILLION TONNES) |      |
|--------------------|---|------|---|------|
|                    | Amount  | Rank | Amount  | Rank |
| China              | 3319.096  | 1    | 3162.193  | 1    |
| United States      | 959.113   | 2    | 997.125   | 2    |
| India              | 658.739   | 3    | 570.675   | 3    |
| Russia             | 234.370   | 4    | 323.904   | 6    |
| Germany            | 227.916   | 5    | 182.303   | 8    |
| South Africa       | 187.055   | 6    | 254.727   | 7    |
| Japan              | 186.637   | 7    | –   | –    |
| Poland             | 141.856   | 8    | 133.220   | 9    |
| Australia          | 131.683   | 9    | 420.259   | 4    |
| South Korea        | 118.380   | 10   | 2.084   | 41   |
| Turkey             | 98.630  | 11   | 71.749  | 12   |
| Kazakhstan         | 78.150  | 12   | 110.799   | 10   |
| Taiwan             | 64.818  | 13   | –   | –    |
| Ukraine            | 64.054  | 14   | 54.594  | 16   |
| Greece             | 55.461  | 15   | 56.520  | 14   |
| United Kingdom     | 51.290  | 16   | 18.159  | 24   |
| Czech Republic     | 50.386  | 17   | 55.285  | 15   |
| Indonesia          | 49.195  | 18   | 336.002   | 5    |
| Canada             | 47.121  | 19   | 67.894  | 13   |
| Serbia             | 37.357  | 20   | 37.348  | 18   |
| Thailand           | 35.216  | 21   | 18.458  | 23   |
| Bulgaria           | 32.235  | 22   | 29.334  | 21   |
| Romania            | 31.980  | 23   | 30.831  | 20   |
| North Korea        | 27.303  | 24   | 31.556  | 19   |
| Vietnam            | 23.242  | 25   | 44.663  | 17   |
| Brazil             | 23.016  | 26   | 5.709   | 33   |
| Italy              | 21.502  | 27   | 0.101   | 53   |
| Malaysia           | 21.308  | 28   | 2.399   | 39   |
| Mexico             | 18.266  | 29   | 9.975   | 27   |
| Estonia            | 17.950  | 30   | 17.934  | 25   |
| France             | 17.346  | 31   | 0.261   | 49   |
| Spain              | 16.990  | 32   | 8.431   | 30   |
| Philippines        | 16.392  | 33   | 6.500   | 32   |
| Israel             | 12.285  | 34   | –   | –    |
| Netherlands        | 11.895  | 35   | –   | –    |
| Bosnia-Herzegovina | 11.095  | 36   | 11.019  | 26   |
| Hungary            | 10.999  | 37   | 9.077   | 28   |
| Pakistan           | 10.513  | 38   | 3.384   | 36   |
| Hong Kong          | 10.324  | 39   | –   | –    |
| Mongolia           | 8.615   | 40   | 25.248  | 22   |
| Chile              | 7.764   | 41   | 0.619   | 46   |
| Macedonia          | 7.001   | 42   | 6.789   | 31   |
| Finland            | 6.914   | 43   | –   | –    |
| Slovak Republic    | 6.575   | 44   | 2.379   | 40   |
| Denmark            | 6.496   | 45   | –   | –    |
| Colombia           | 5.859   | 46   | 74.350  | 11   |
| Slovenia           | 5.085   | 47   | 4.430   | 35   |
| Austria            | 3.364   | 48   | –   | –    |
| Uzbekistan         | 3.357   | 49   | 3.300   | 37   |
| New Zealand        | 3.184   | 50   | 5.330   | 34   |
| Morocco            | 3.131   | 51   | –   | –    |
| Zimbabwe           | 3.008   | 52   | 2.997   | 38   |
| Belgium            | 2.872   | 53   | –   | –    |

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Table 1 | **Coal Consumption and Production by Country (continued)**

| COUNTRY             | TOTAL COAL CONSUMPTION 2010E*<br>(MILLION TONNES) |      | TOTAL COAL PRODUCTION 2010E**<br>(MILLION TONNES) |      |
|---------------------|---|------|---|------|
|                     | Amount  | Rank | Amount  | Rank |
| Sweden              | 2.859   | 54   | –   | –    |
| Portugal            | 2.700   | 55   | –   | –    |
| Venezuela           | 2.653   | 56   | 8.792   | 29   |
| Croatia             | 1.940   | 57   | –   | –    |
| Ireland             | 1.909   | 58   | –   | –    |
| Bangladesh          | 1.800   | 59   | 1.000   | 44   |
| Argentina           | 1.709   | 60   | 0.082   | 55   |
| Egypt               | 1.309   | 61   | 0.024   | 57   |
| Iran                | 1.185   | 62   | –   | –    |
| Guatemala           | 1.134   | 63   | –   | –    |
| Burma               | 1.013   | 64   | 1.345   | 43   |
| Norway              | 0.818   | 65   | 1.935   | 42   |
| Peru                | 0.806   | 66   | 0.322   | 48   |
| Botswana            | 0.783   | 67   | 0.738   | 45   |
| Dominican Republic  | 0.781   | 68   | –   | –    |
| Mozambique          | 0.768   | 69   | 0.038   | 56   |
| Kyrgyzstan          | 0.596   | 70   | 0.604   | 47   |
| Singapore           | 0.348   | 71   | –   | –    |
| Lithuania           | 0.317   | 72   | –   | –    |
| Senegal             | 0.313   | 73   | –   | –    |
| Lebanon             | 0.293   | 74   | –   | –    |
| Georgia             | 0.233   | 75   | 0.213   | 50   |
| Switzerland         | 0.228   | 76   | –   | –    |
| Tajikistan          | 0.200   | 77   | 0.198   | 51   |
| Sri Lanka           | 0.190   | 78   | –   | –    |
| Dem. Rep. of Congo  | 0.150   | 79   | 0.133   | 52   |
| Namibia             | 0.143   | 80   | –   | –    |
| Cambodia            | 0.138   | 81   | –   | –    |
| Nepal               | 0.135   | 82   | 0.016   | 59   |
| Latvia              | 0.125   | 83   | –   | –    |
| Kenya               | 0.103   | 84   | –   | –    |
| Luxembourg          | 0.102   | 85   | –   | –    |
| Iceland             | 0.097   | 86   | –   | –    |
| Tanzania            | 0.095   | 87   | 0.095   | 54   |
| Saudi Arabia        | 0.056   | 88   | –   | –    |
| Honduras            | 0.046   | 89   | –   | –    |
| Albania             | 0.023   | 90   | 0.022   | 58   |
| Cuba                | 0.023   | 91   | –   | –    |
| Bahrain             | 0.020   | 92   | –   | –    |
| Jamaica             | 0.012   | 93   | –   | –    |
| Belarus             | 0.011   | 94   | –   | –    |
| Nigeria             | 0.009   | 95   | 0.008   | 60   |
| Angola              | 0.008   | 96   | –   | –    |
| Cyprus              | 0.008   | 97   | –   | –    |
| Panama              | 0.006   | 98   | –   | –    |
| Zambia              | 0.006   | 99   | 0.001   | 61   |
| Costa Rica          | 0.004   | 100  | –   | –    |
| Qatar               | 0.002   | 101  | –   | –    |
| Sudan               | 0.002   | 102  | –   | –    |
| Brunei Darussalam   | 0.001   | 103  | –   | –    |
| Trinidad and Tobago | 0.001   | 104  | –   | –    |
| World Total         | 7228.712  |      | 7238.028  |      |

\* IEA, 2011. Coal Information 2011. Data reported for the year 2010 in this publication are preliminary and presented as 2010e. Preliminary estimates are based on the submissions received in early 2011 and on quarterly submissions to the IEA from member countries.

\*\* IEA, 2011. Coal Information 2011.

## Overview

By July 2012 the authors of this paper had identified 1,199 proposed new coal-fired plants, with a total installed capacity of 1,401,278 MW. These projects are spread across 59 countries. Table I.1 ranks the countries according to proposed coal-power capacity. A complete list of proposed coal-fired plants is included in the appendix.

Even after years of rapid development, China has a significant number of coal-fired power projects in the pipeline. As of July 2012, China had proposed adding 363 coal-fired plants with a combined capacity exceeding 557,938 MW.<sup>2</sup> China's 12<sup>th</sup> Five-Year-Plan approved 16 giant coal-power bases, mainly in the northern and northwestern provinces of Inner Mongolia, Xinjiang, Shanxi, and Shaanxi. Most of the proposed projects are located near coal mining fields and are spurred by local

Table I.1 | **Summary of Proposed Coal-Fired Plants**

| RANK | COUNTRY            | TOTAL INSTALLED CAPACITY (MW) | NUMBER OF PROJECTS | RANK  | COUNTRY           | TOTAL INSTALLED CAPACITY (MW) | NUMBER OF PROJECTS |
|------|--------------------|-------------------------------|--------------------|-------|-------------------|-------------------------------|--------------------|
| 1    | China              | 557,938                       | 363                | 30    | Serbia            | 2,150                         | 4                  |
| 2    | India              | 519,396                       | 455                | 32    | Colombia          | 2,104                         | 4                  |
| 3    | Russia             | 48,000                        | *c.48              | 33    | Botswana          | 2,100                         | 4                  |
| 4    | Turkey             | 36,719                        | 49                 | 33    | Dominion Republic | 2,100                         | 2                  |
| 5    | Vietnam            | 34,725                        | 30                 | 35    | South Korea       | 2,000                         | 2                  |
| 6    | South Africa       | 22,633                        | 8                  | 35    | Zimbabwe          | 2,000                         | 1                  |
| 7    | United States      | 20,236                        | 36                 | 37    | Laos              | 1,878                         | 2                  |
| 8    | Ukraine            | 14,000                        | *c.14              | 38    | Greece            | 1,650                         | 3                  |
| 9    | Poland             | 12,086                        | 13                 | 39    | Kyrgyzstan        | 1,200                         | 1                  |
| 10   | Germany            | 12,060                        | 10                 | 40    | Tanzania          | 1,040                         | 4                  |
| 11   | Mongolia           | 9,660                         | 4                  | 41    | Oman              | 1,000                         | 1                  |
| 12   | Taiwan             | 8,800                         | 5                  | 42    | Namibia           | 800                           | 1                  |
| 13   | Indonesia          | 8,360                         | 17                 | 43    | Montenegro        | 730                           | 2                  |
| 14   | Mozambique         | 6,940                         | 4                  | 44    | Peru              | 720                           | 2                  |
| 15   | Chile              | 6,742                         | 12                 | 44    | Brazil            | 720                           | 1                  |
| 16   | Pakistan           | 6,460                         | 2                  | 46    | Slovenia          | 600                           | 1                  |
| 17   | Australia          | 5,456                         | 9                  | 46    | North Korea       | 600                           | 1                  |
| 18   | Italy              | 4,170                         | 4                  | 48    | Thailand          | 540                           | 1                  |
| 19   | Romania            | 4,150                         | 8                  | 49    | Croatia           | 500                           | 1                  |
| 20   | Kazakhstan         | *c.4,000                      | 4                  | 49    | Kosovo            | 500                           | 1                  |
| 21   | Philippines        | 3,915                         | 15                 | 49    | Sri Lanka         | 500                           | 1                  |
| 22   | Bosnia-Herzegovina | 3,690                         | 8                  | 52    | Guatemala         | 420                           | 2                  |
| 23   | Cambodia           | 3,570                         | 5                  | 53    | Hungary           | 400                           | 1                  |
| 24   | Netherlands        | 3,500                         | 3                  | 54    | Tajikistan        | 300                           | 1                  |
| 25   | Japan              | 3,200                         | 4                  | 54    | Uzbekistan        | 300                           | 1                  |
| 26   | Czech Republic     | 2,785                         | 4                  | 54    | Zambia            | 300                           | 1                  |
| 27   | Burma              | 2,719                         | 7                  | 54    | Macedonia         | 300                           | 1                  |
| 28   | Morocco            | 2,676                         | 2                  | 58    | Senegal           | 250                           | 1                  |
| 29   | Malaysia           | 2,600                         | 3                  | 59    | Argentina         | 240                           | 1                  |
| 30   | Bulgaria           | 2,150                         | 4                  | Total |                   | 1,401,278                     | 1,199              |

\*Estimated by one coal-fired plant=1,000 MW

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government policies that incentivize integrating the coal mining business and power generation.

To curb coal consumption and reduce pollution, China's 12<sup>th</sup> Five-Year-Plan for the coal industry includes a target to cap the annual domestic coal consumption of 3.9 billion tonnes by 2015.<sup>3</sup> Many observers are skeptical that this target will be reached given that China's 2012 coal consumption is already likely to exceed it.<sup>4</sup> Some industry analysts predict that China's coal demand will reach 4.8 billion tonnes by 2016.<sup>5</sup>

Coal-fired power companies in China have suffered significant financial losses in recent years — a reality that receives little attention outside of China. According to a State Electricity Regulatory Commission report, the top five Chinese power companies lost a total of RMB 15 billion (US\$2.4 billion) in their coal-power generation business in 2011. Chinese power companies face the dual challenges of rising coal prices on the one hand, and a government-imposed electricity price freeze on the other. Investments in new coal-fired plants dropped 26 percent in 2011 to less than half of what they were in 2005.<sup>6</sup> Public opposition to coal-fired plants is increasing and construction of many approved plants has been delayed. It is unlikely that China will realize its coal ambitions.

India's coal-fired power capacity is rapidly expanding, similar to China's experience over the last 10 years. Research conducted for this paper identified 455 proposed new coal-fired power plants in India, with a total installed capacity of 519,396 MW. These projects are spread across 18 states, with the largest concentration in Andhra Pradesh (southeast coast), Chhattisgarh (interior state), Maharashtra (southwest coast), Orissa (northeast coast), Madhya Pradesh (interior state), and Jharkhand (interior state).

However, the realization rate of coal power projects in India tends to be low for a variety of factors including coal availability, land and water resource availability and public resistance. Concerns about land seizures, air and groundwater pollution, the effect of thermal discharges on fisheries, and the displacement of communities have fueled local opposition to coal-fired plants.

## Developers of the Proposed New Coal-Fired Power Plants

In total, 483 power companies are proposing new coal-fired power projects around the world. Table I.2 lists the companies that are proposing more than one new plant.

Most of the top companies are either Chinese or Indian. The top five state-owned power companies in China (Datang, Huaneng, Guodian, Huadian, and China Power Investment—collectively known as “the Big Five”) are involved in 222 proposed projects. All are located in China, except two in Burma. With 47 proposed projects, state-owned NTPC is India's most aggressive coal-fired plant developer, comparable to China's Big Five. However, the share of private companies in India's power sector is significantly increasing and the vast majority of projects in the pipeline are proposed by private corporations.<sup>8</sup>

Chinese coal power developers are already attempting to expand to other Asian countries, including Burma, Cambodia, Laos, Mongolia, North Korea, Pakistan, and Vietnam. In comparison, Indian coal power developers are more inward-looking, although they too are increasingly showing overseas ambitions. For example, Tata recently indicated that it is considering potential projects in Bangladesh, Maldives, Nepal, Pakistan, Sri Lanka, and Turkey.<sup>9</sup>

Transnational coal power developers are more common in Europe. Germany's RWE is proposing new plants in Bulgaria, Germany, the Netherlands, and Poland. E.ON—also German—is proposing projects in Germany, Italy, the Netherlands, and Romania. Italy's Enel is proposing plants in Italy and Romania.

Table I.2 | Developers of New Coal-Fired Plants

| COMPANY NAME  | NUMBER OF PROPOSED COAL-FIRED POWER PLANTS | LOCATION OF PROPOSED PLANTS                 | OWNERSHIP      | HEADQUARTERS LOCATION |
|---|--|---|----------------|-----------------------|
| Huaneng   | 66   | China, Burma                                | State-owned    | China                 |
| Guodian   | 55   | China, Burma                                | State-owned    | China                 |
| NTPC  | 47   | India, Sri Lanka                            | State-owned    | India                 |
| Datang  | 43   | China                                       | State-owned    | China                 |
| Huadian   | 37   | China                                       | State-owned    | China                 |
| China Power Investment                                | 31   | China                                       | State-owned    | China                 |
| Shenhua   | 19   | China, United States                        | State-owned    | China                 |
| Luneng  | 14   | China                                       | State-owned    | China                 |
| Maharashtra State Power Generation Company            | 14   | India                                       | State-owned    | India                 |
| JSW Group   | 12   | India                                       | Private Sector | India                 |
| Andhra Pradesh Power Generation Corporation (APGENCO) | 11   | India                                       | Private Sector | India                 |
| Essar Energy  | 11   | India                                       | Private Sector | India                 |
| PLN   | 11   | Indonesia                                   | State-owned    | Indonesia             |
| The Reliance Group                                    | 11   | India                                       | Private Sector | India                 |
| Sichuan Beineng                                       | 10   | China                                       | State-owned    | China                 |
| Calcutta Electric Supply Corporation (CESC)           | 9  | India                                       | Private Sector | India                 |
| KVK energy  | 9  | India                                       | Private Sector | India                 |
| Tamil Nadu Generation and Distribution Corporation    | 9  | India                                       | State-owned    | India                 |
| GMR Energy  | 8  | India                                       | Private Sector | India                 |
| Ind-Barath Power                                      | 8  | India                                       | Private Sector | India                 |
| Jindal Steel & Power                                  | 8  | India, Mozambique                           | Private Sector | India                 |
| Lanco   | 8  | India                                       | Private Sector | India                 |
| Neyveli Lignite Corporation                           | 8  | India                                       | State-owned    | India                 |
| Tata Power  | 8  | India                                       | Private Sector | India                 |
| Welspun Energy  | 8  | India                                       | Private Sector | India                 |
| Adani Power   | 7  | India                                       | Private Sector | India                 |
| Chhattisgarh State Power Generation Company           | 7  | India                                       | State-owned    | India                 |
| Damodar Valley Corporation                            | 7  | India                                       | State-owned    | India                 |
| E.ON  | 7  | Germany, Italy, Netherlands, Romania, Chile | Private Sector | Germany               |
| EVN   | 7  | Vietnam                                     | State-owned    | Vietnam               |
| Rajasthan RV Utpadan Nigam                            | 7  | India                                       | State-owned    | India                 |
| Shanxi International Energy                           | 7  | China                                       | State-owned    | China                 |
| State Dev Investment Co. (SDIC)                       | 7  | China                                       | State-owned    | China                 |
| ACB (India)   | 6  | India                                       | Private Sector | India                 |
| China Resources Holdings                              | 6  | China                                       | State-owned    | Hong Kong             |
| Karnataka Power Corporation                           | 6  | India                                       | State-owned    | India                 |
| AES   | 5  | Romania, Vietnam, Chile                     | Private Sector | United States         |
| CEZ   | 5  | Bosnia-Herzegovina, Czech Republic, Romania | State-owned    | Czech Republic        |
| Eskom   | 5  | South Africa                                | State-owned    | South Africa          |
| Gansu Elec. Power Investment Co.                      | 5  | China                                       | State-owned    | China                 |
| Indiabulls Power                                      | 5  | India                                       | Private Sector | India                 |
| M.P. Power Generating Company                         | 5  | India                                       | State-owned    | India                 |
| Ningxia Power Generation Co.                          | 5  | China                                       | State-owned    | China                 |
| RWE   | 5  | Bulgaria, Germany, Netherlands, Poland      | Private Sector | Germany               |
| Suryachakra Group                                     | 5  | India                                       | Private Sector | India                 |
| VISA Power  | 5  | India                                       | Private Sector | India                 |
| Abhijeet Group  | 4  | India                                       | Private Sector | India                 |
| Avantha Power and Infrastructure                      | 4  | India                                       | Private Sector | India                 |
| Enel  | 4  | Italy, Romania                              | State-owned    | Italy                 |

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Table I.2 | **Developers of New Coal-Fired Plants (continued)**

| COMPANY NAME   | NUMBER OF PROPOSED COAL-FIRED POWER PLANTS | LOCATION OF PROPOSED PLANTS | OWNERSHIP      | HEADQUARTERS LOCATION  |
|--|--|-----------------------------|----------------|------------------------|
| EPS  | 4  | Serbia                      | State-owned    | Serbia                 |
| GDF Suez   | 4  | Netherlands, Poland, Chile  | Private Sector | France                 |
| Guangdong Yuedian  | 4  | China                       | State-owned    | China                  |
| Gujarat State Electricity Corp                             | 4  | India                       | State-owned    | India                  |
| Gupta Group  | 4  | India                       | Private Sector | India                  |
| Intra Energy Corporation (IEC)                             | 4  | Tanzania                    | Private Sector | Australia              |
| Jaiprakash Power Ventures                                  | 4  | India                       | Private Sector | India                  |
| Jindal India Thermal Power                                 | 4  | India                       | Private Sector | India                  |
| KSK Energy Ventures  | 4  | India                       | Private Sector | India                  |
| HEMA Elektrik A.Ş.   | 4  | Turkey                      | –              | Turkey                 |
| Moser Baer Power & Infrastructures                         | 4  | India                       | Private Sector | India                  |
| Punjab State Electric Board                                | 4  | India                       | State-owned    | India                  |
| Singareni Collieries                                       | 4  | India                       | State-owned    | India                  |
| UP Rajya Vidyut Nigam Ltd                                  | 4  | India                       | State-owned    | India                  |
| Adhunik Power and Natural Resources                        | 3  | India                       | Private Sector | India                  |
| Anhui Wanneng  | 3  | China                       | State-owned    | China                  |
| Bajaj Hindusthan   | 3  | India                       | Private Sector | India                  |
| Dr. RKP Power  | 3  | India                       | Private Sector | India                  |
| Endesa   | 3  | Chile                       | Private Sector | Spain                  |
| Hindalco Industries  | 3  | India                       | Private Sector | India                  |
| Huainan Mining Group                                       | 3  | China                       | State-owned    | China                  |
| Jinbhuvish Power Generations                               | 3  | India                       | Private Sector | India                  |
| NEEPCO   | 3  | India                       | State-owned    | India                  |
| OPG Power Ventures   | 3  | India                       | Private Sector | India                  |
| PGE  | 3  | Poland                      | State-owned    | Poland                 |
| PPC  | 3  | Greece                      | State-owned    | Greece                 |
| Punjab State Power Corporation                             | 3  | India                       | Private Sector | India                  |
| Simhapuri Energy   | 3  | India                       | Private Sector | India                  |
| Sinohydro Co.  | 3  | China                       | State-owned    | China                  |
| SPR Infrastructure India                                   | 3  | India                       | Private Sector | India                  |
| Uttar Pradesh Power Corporation                            | 3  | India                       | State-owned    | India                  |
| Uttar Pradesh Rajya Vidyut                                 | 3  | India                       | State-owned    | India                  |
| Vietnam National Oil & Gas Group (PVN)                     | 3  | Vietnam                     | State-owned    | Vietnam                |
| Zheneng  | 3  | China                       | State-owned    | China                  |
| AES India  | 2  | India                       | Private Sector | India                  |
| Alcantara Group  | 2  | Philippines                 | Private Sector | Philippines            |
| Alta AS  | 2  | Serbia                      | Private Sector | Czech Republic         |
| Altona Resources   | 2  | Australia                   | Private Sector | Australia              |
| Aluminum Co. of China                                      | 2  | China                       | State-owned    | China                  |
| SCS Energy   | 2  | United States               | Private Sector | United States          |
| Batı Karadeniz Elektrik Üretim A.Ş.                        | 2  | Turkey                      | –              | Turkey                 |
| Bihar State Electricity Board                              | 2  | India                       | State-owned    | India                  |
| Cambodia International Investment Development Group Co Ltd | 2  | Cambodia                    | Private Sector | Cambodia               |
| CDEEE  | 2  | Dominican Republic          | State-owned    | Dominican Republic     |
| China National Coal Group                                  | 2  | China                       | State-owned    | China                  |
| China National Electric Engineering Co., Ltd. (CNEEC)      | 2  | Bosnia-Herzegovina, Laos    | State-owned    | China                  |
| CIC Energy Co.   | 2  | Botswana                    | Private Sector | British Virgin Islands |
| CLP Group  | 2  | China, India                | Private Sector | Chinese Hongkong       |
| Coastal Energen  | 2  | India                       | Private Sector | India                  |

*continued next page*



Table I.2 | **Developers of New Coal-Fired Plants (continued)**

| COMPANY NAME                                       | NUMBER OF PROPOSED COAL-FIRED POWER PLANTS | LOCATION OF PROPOSED PLANTS | OWNERSHIP      | HEADQUARTERS LOCATION |
|--|--|-----------------------------|----------------|-----------------------|
| Datong Coal Mine Group                             | 2  | China                       | State-owned    | China                 |
| Duke Energy  | 2  | United States               | Private Sector | United States         |
| Elektroprivreda BiH (EPBiH)                        | 2  | Bosnia-Herzegovina          | State-owned    | Bosnia-Herzegovina    |
| Emba elektrik üretim A.Ş.                          | 2  | Turkey                      | –              | Turkey                |
| Empresa Nacional de Electricidad S.A.              | 2  | Chile                       | Private Sector | Chile                 |
| Eroca Group  | 2  | United States               | Private Sector | United States         |
| EÜAŞ   | 2  | Turkey                      | State-owned    | Turkey                |
| Facor Power  | 2  | India                       | Private Sector | India                 |
| Far East Holding Group Co., Ltd                    | 2  | Laos, Tajikistan            | Private Sector | China                 |
| Ganga Power & Natural Resources                    | 2  | India                       | Private Sector | India                 |
| GECELCA  | 2  | Colombia                    | State-owned    | Colombia              |
| Gujarat Power Corporation                          | 2  | India                       | State-owned    | India                 |
| Gupta Coalfields & Washeries                       | 2  | India                       | Private Sector | India                 |
| GVK  | 2  | India                       | Private Sector | India                 |
| Haryana Power Generation Company                   | 2  | India                       | State-owned    | India                 |
| Henan Investment Co.                               | 2  | China                       | State-owned    | China                 |
| Huaibei Mining Group                               | 2  | China                       | State-owned    | China                 |
| Italian-Thai Development Plc                       | 2  | Burma                       | Private Sector | Thailand              |
| Jain Energy  | 2  | India                       | Private Sector | India                 |
| Jharkhand State Electricity Board                  | 2  | India                       | State-owned    | India                 |
| Jiangsu Guoxin Investment Group                    | 2  | China                       | State-owned    | China                 |
| Jingneng Group                                     | 2  | China                       | State-owned    | China                 |
| Jinneng Investment                                 | 2  | China                       | State-owned    | China                 |
| Jiuquan Steel                                      | 2  | China                       | State-owned    | China                 |
| Kineta Power Limited                               | 2  | India                       | Private Sector | India                 |
| Korea Western Power Co.                            | 2  | South Korea                 | State-owned    | South Korea           |
| LS Power Development                               | 2  | United States               | Private Sector | United States         |
| MPX  | 2  | Brazil, Chile               | Private Sector | Brazil                |
| Nagarjuna Construction Company                     | 2  | India                       | Private Sector | India                 |
| Nava Bharat Ventures Ltd                           | 2  | India                       | Private Sector | India                 |
| Navayuga Power                                     | 2  | India                       | Private Sector | India                 |
| Power Company of Karnataka (PCKL)                  | 2  | India                       | State-owned    | India                 |
| Power Finance Corporation                          | 2  | India                       | State-owned    | India                 |
| Pragdisa Power Private Ltd                         | 2  | India                       | State-owned    | India                 |
| Sarikaya Enerji Madencilik Tarım San. ve Tic. A.Ş. | 2  | Turkey                      | –              | Turkey                |
| Shenneng   | 2  | China                       | State-owned    | China                 |
| SN Aboitiz Power Group (SNAP)                      | 2  | Philippines                 | Private Sector | Philippines           |
| SPML   | 2  | India                       | Private Sector | India                 |
| State Grid Energy Development Co.                  | 2  | China                       | State-owned    | China                 |
| Sterlite Energy                                    | 2  | India                       | Private Sector | India                 |
| Tauron   | 2  | Poland                      | State-owned    | Poland                |
| Tenaska  | 2  | United States               | Private Sector | United States         |
| Thermal Powertech Corporation                      | 2  | India                       | Private Sector | India                 |
| Tokyo Electric Company                             | 2  | Japan                       | Private Sector | Japan                 |
| Tri-State Generation and Transmission Association  | 2  | United States               | Coop           | United States         |
| Vinacomin  | 2  | Vietnam                     | State-owned    | Vietnam               |
| VSF Projects                                       | 2  | India                       | Private Sector | India                 |
| West Bengal Power Development Corp.                | 2  | India                       | State-owned    | India                 |
| Xukuang Co.  | 2  | China                       | State-owned    | China                 |
| Yushen Coal  | 2  | China                       | State-owned    | China                 |

## PART II: EXISTING COAL-FIRED PLANTS

Table II.1 summarizes global coal power generation in 2009 by country. The three largest coal power producers are China (36.2 percent of the global total), the United States (23.7 percent), and India (7.7 percent).

Table II.1 | **Gross Electricity Production from Combustible Coal in 2009**

| RANK | COUNTRY        | COAL-FIRED ELECTRICITY PRODUCTION 2009* (TWH) |
|------|----------------|---|
| 1    | China          | 2891.66                                       |
| 2    | United States  | 1890.06                                       |
| 3    | India          | 615.46  |
| 4    | Germany        | 251.15  |
| 5    | Japan          | 247.11  |
| 6    | South Africa   | 232.20  |
| 7    | Australia      | 201.96  |
| 8    | South Korea    | 196.93  |
| 9    | Russia         | 156.76  |
| 10   | Poland         | 133.42  |
| 11   | Taiwan         | 122.16  |
| 12   | United Kingdom | 104.61  |
| 13   | Canada         | 91.59   |
| 14   | Indonesia      | 64.98   |
| 15   | Ukraine        | 60.46   |
| 16   | Kazakhstan     | 58.95   |
| 17   | Turkey         | 54.23   |
| 18   | Czech Republic | 45.95   |
| 19   | Italy          | 39.74   |
| 20   | Spain          | 36.16   |
| 21   | Israel         | 34.40   |
| 22   | Greece         | 34.19   |
| 23   | Malaysia       | 32.50   |
| 24   | Thailand       | 29.59   |
| 25   | Mexico         | 29.06   |
| 26   | Hong Kong      | 27.40   |
| 27   | Serbia         | 26.86   |
| 28   | France         | 25.89   |
| 29   | Netherlands    | 24.28   |
| 30   | Romania        | 21.75   |
| 31   | Bulgaria       | 21.11   |
| 32   | Denmark        | 17.69   |
| 33   | Philippines    | 16.48   |
| 34   | Vietnam        | 14.98   |

Table II.2 lists the world's 40 largest coal-fired electricity producers. The top five are Chinese state-owned power companies (Datang, Huaneng, Guodian, Huadian, and China Power Investment Group). Together, these companies account for about 40 percent of the total existing electricity market share in China.

| RANK | COUNTRY            | COAL-FIRED ELECTRICITY PRODUCTION 2009* (TWH) |
|------|--------------------|---|
| 35   | Chile              | 14.90   |
| 36   | Portugal           | 12.90   |
| 37   | Morocco            | 11.22   |
| 38   | Finland            | 11.13   |
| 39   | Bosnia-Herzegovina | 9.38  |
| 40   | North Korea        | 8.03  |
| 41   | Estonia            | 7.63  |
| 42   | Hungary            | 6.34  |
| 43   | Brazil             | 5.45  |
| 44   | Macedonia          | 5.31  |
| 45   | Belgium            | 5.17  |
| 46   | Slovenia           | 5.13  |
| 47   | Colombia           | 4.10  |
| 48   | Mongolia           | 4.03  |
| 49   | Ireland            | 4.01  |
| 50   | Slovak Republic    | 3.86  |
| 51   | Austria            | 3.76  |
| 52   | Zimbabwe           | 3.65  |
| 53   | New Zealand        | 2.73  |
| 54   | Uzbekistan         | 2.04  |
| 55   | Dominican Republic | 1.94  |
| 56   | Argentina          | 1.70  |
| 57   | Croatia            | 1.66  |
| 58   | Peru               | 0.90  |
| 59   | Guatemala          | 0.74  |
| 60   | Bangladesh         | 0.64  |
| 61   | Sweden             | 0.52  |
| 62   | Botswana           | 0.44  |
| 63   | Kyrgyzstan         | 0.31  |
| 64   | Namibia            | 0.30  |
| 65   | Tanzania           | 0.13  |
| 66   | Pakistan           | 0.12  |
| 67   | Norway             | 0.04  |
|      | <b>World Total</b> | <b>7991.93</b>                                |

\* IEA, 2011. Electricity Information 2011.

Table II.2 | Top 40 Coal-Fired Electricity Producers

| RANK | COMPANY                                    | COUNTRY OF ORIGIN      | COUNTRY OF OPERATION  | COAL-FIRED CAPACITY (MW) |
|------|--|------------------------|---|--------------------------|
| 1    | Datang                                     | China                  | China   | 81,138                   |
| 2    | Huaneng                                    | China                  | China   | 79,550                   |
| 3    | Guodian                                    | China                  | China   | 71,287                   |
| 4    | Huadian                                    | China                  | China   | 59,940                   |
| 5    | China Power Investment                     | China                  | China   | 43,200                   |
| 6    | Eskom                                      | South Africa           | South Africa  | 34,658                   |
| 7    | NTPC                                       | India                  | India   | 28,299                   |
| 8    | RWE  | Germany                | Germany, United Kingdom, Netherlands  | 26,097                   |
| 9    | Southern Company                           | United States          | United States   | 24,918                   |
| 10   | KEPCO                                      | South Korea            | South Korea   | 24,205                   |
| 11   | American Electric Power                    | United States          | United States   | 23,907                   |
| 12   | Enel                                       | Italy                  | Italy, Spain, Slovakia, Russia  | 22,933                   |
| 13   | E.ON                                       | Germany                | Western Europe, Russia, United States   | 19,278                   |
| 14   | Guangdong Yuedian Group                    | China                  | China   | 18,810                   |
| 15   | Zhejiang Provincial Energy Group           | China                  | China   | 18,290                   |
| 16   | China Resources Group                      | China                  | China   | 17,943                   |
| 17   | Duke Energy                                | United States          | United States   | 16,983                   |
| 18   | Shenhua Group Corporation                  | China                  | China   | 16,548                   |
| 19   | Tennessee Valley Authority                 | United States          | United States   | 14,573                   |
| 20   | Vattenfall                                 | Sweden                 | Denmark, Germany, Poland  | 12,350                   |
| 21   | GDF Suez + International Power             | France, United Kingdom | United Kingdom, Portugal, United States, Australia, Indonesia, China, South America | 12,100                   |
| 22   | Polska Grupa Energetyczna (PGE)            | Poland                 | Poland  | 11,622                   |
| 23   | Ameren                                     | United States          | United States   | 10,015                   |
| 24   | DTEK                                       | Ukraine                | Ukraine   | 9,707                    |
| 25   | MidAmerican Energy                         | United States          | United States   | 9,494                    |
| 26   | SDIC                                       | China                  | China   | 9,320                    |
| 27   | Evonik Industries                          | Germany                | Germany   | 9,091                    |
| 28   | Taipower                                   | Taiwan                 | Taiwan  | 8,800                    |
| 29   | J-Power                                    | Japan                  | Japan   | 8,412                    |
| 30   | Edison International                       | United States          | United States   | 8,395                    |
| 31   | Xcel Energy                                | United States          | United States   | 8,017                    |
| 32   | CLP Group                                  | Hong Kong              | Hong Kong   | 7,929                    |
| 33   | DominicanResources                         | United States          | United States   | 7,898                    |
| 34   | NRG Energy                                 | United States          | United States   | 7,585                    |
| 35   | EnBW                                       | Germany                | Germany   | 7,548                    |
| 36   | FirstEnergy                                | United States          | United States   | 7,457                    |
| 37   | Maharashtra State Electricity Board (MSEB) | India                  | India   | 6,800                    |
| 38   | Chugoku EPCo                               | Japan                  | Japan   | 6,353                    |
| 39   | CEZ Group                                  | Czech Republic         | Czech Republic  | 5,940                    |
| 40   | Tauron                                     | Poland                 | Poland  | 5,448                    |

Source: Heffa Schücking, Lydia Kroll, Yann Louvel and Regine Richter, 2011. Bankrolling Climate Change: A Look into the Portfolios of the World's Largest Banks, Profundo, urgewald, groundWork, Earthlife Africa Johannesburg and BankTrack.

## PART III: GLOBAL COAL TRADE

### Overview

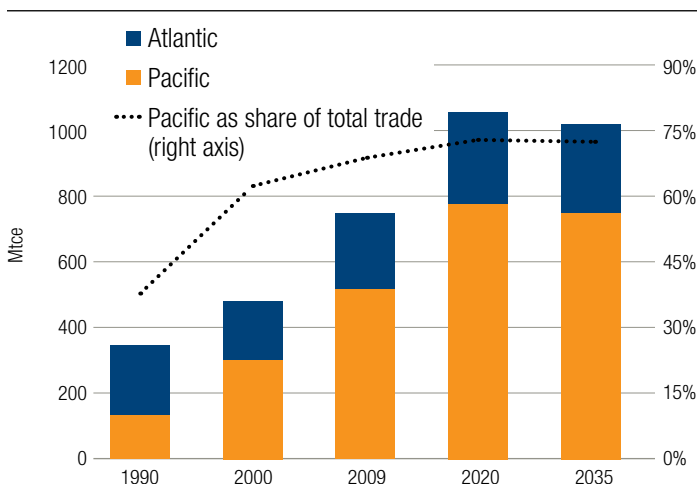
After a slight decline in 2008, the global coal trade has rebounded and continues to grow.<sup>10</sup> In 2010 the global coal trade rose by 13.4 percent, reaching 1,083.1 million tonnes. This growth was fueled by the worldwide economic recovery and China's expanding coal intake;<sup>11</sup> in 2009, China moved from being a long-term net exporter to net importer of coal.<sup>12</sup>

The two primary coal-trade markets—the Pacific and the Atlantic—are characterized by different trends. The Pacific market is expanding rapidly, driven mainly by China and India, but also by the traditional big importers in the region: Japan, Taiwan, and South Korea. Conversely, the Atlantic market has declined due to the economic slowdown and growing social resistance to coal-fired plants in Europe and North America.

Figure III.1 illustrates the growth history and IEA future-demand predictions for the two markets. China and India together imported 267.1 million tonnes of coal in 2010. IEA predicts that China and India will account for 90 percent of the growth in coal demand by 2016. During the same period, demand in the OECD countries will be sluggish, at 0.2 percent per year.<sup>13</sup>

In 2010, the top five coal importers were all in the Pacific market (Table III.1). Japan, Taiwan, and South Korea—the

Figure III.1 | **World Inter-regional Hard Coal Net Trade by Major Region**



Source: IEA, 2011. World Energy Outlook 2011.

Table III.1 | **World Top Coal Import Countries (2010e,\* in million tonnes)**

| RANK | COUNTRY        | TOTAL COAL IMPORT | TOTAL COAL CONSUMPTION | IMPORT PERCENTAGE OF CONSUMPTION |
|------|----------------|-------------------|------------------------|----------------------------------|
| 1    | Japan          | 186.64            | 186.64                 | 100.0%                           |
| 2    | China          | 176.96            | 3319.10                | 5.3%                             |
| 3    | South Korea    | 118.59            | 118.38                 | 100.2%                           |
| 4    | India          | 90.14             | 658.74                 | 13.7%                            |
| 5    | Taiwan         | 69.60             | 64.82                  | 107.4%                           |
| 6    | Germany        | 45.73             | 227.92                 | 20.1%                            |
| 7    | United Kingdom | 26.52             | 51.29                  | 51.7%                            |
| 8    | Russia         | 19.62             | 234.37                 | 8.4%                             |
| 9    | France         | 17.59             | 17.35                  | 101.4%                           |
| 10   | United States  | 17.56             | 959.11                 | 1.8%                             |
| 11   | Spain          | 12.82             | 16.99                  | 75.4%                            |
| 12   | Canada         | 12.64             | 47.12                  | 26.8%                            |
| 13   | Belgium        | 2.45              | 2.87                   | 85.3%                            |

\* Data reported for the year 2010 in this publication are preliminary and presented as 2010e. Preliminary estimates are based on the submissions received in early 2011 and on quarterly submissions to the IEA from member countries.

three traditional big importers—have enormous coal-power generation capacity (Japan ranked fifth, Taiwan eleventh, and South Korea eighth) but almost no domestic coal producing capacities. Together, they imported 374.83 million tonnes of coal in 2010. As pressure mounts to phase out nuclear power—especially in Japan in the wake of the Fukushima accident—Japan and Taiwan's coal imports are likely to continue to grow.

In response to the market shift to more robust Asian demand, all the major exporters are exploring ways to increase their sales in the region. The world's two biggest coal exporters are Australia and Indonesia (Table III.2). Their locations give them a unique advantage in reaching Asian markets, and both are developing new mines and transport infrastructure.

In contrast, other major exporters (including swing suppliers such as South Africa and the United States, and traditional Atlantic market suppliers such as Russia and Colombia) face transport bottlenecks in reaching Asian markets. A growing number of infrastructure projects are addressing these bottlenecks. In addition to the major exporters already mentioned, rising demand from China is fueling the growth of two new exporting countries: Mongolia and North Korea.

Table III.2 | **World Top Coal Export Countries (2010e,\* in million tonnes)**

| RANK | COUNTRY       | TOTAL COAL EXPORT** | TOTAL COAL PRODUCTION*** | IMPORT PERCENTAGE OF CONSUMPTION |
|------|---------------|---------------------|--------------------------|----------------------------------|
| 1    | Australia     | 297.68              | 420.26                   | 70.8%                            |
| 2    | Indonesia     | 286.81              | 336.00                   | 85.4%                            |
| 3    | Russia        | 108.96              | 323.90                   | 33.6%                            |
| 4    | United States | 74.13               | 997.13                   | 7.4%                             |
| 5    | South Africa  | 69.57               | 254.73                   | 27.3%                            |
| 6    | Colombia      | 68.49               | 74.35                    | 92.1%                            |
| 7    | Canada        | 33.41               | 62.94                    | 53.1%                            |
| 8    | Kazakhstan    | 32.89               | 110.80                   | 29.7%                            |
| 9    | China         | 20.06               | 3162.19                  | 0.6%                             |
| 10   | Poland        | 10.08               | 133.22                   | 7.6%                             |
| 11   | Venezuela     | 6.18                | 8.79                     | 70.3%                            |
| 12   | Ukraine       | 6.10                | 54.59                    | 11.1%                            |
| 13   | India         | 2.07                | 570.68                   | 0.4%                             |

\* Data reported for the year 2010 in this publication are preliminary and presented as 2010e. Preliminary estimates are based on the submissions received in early 2011 and on quarterly submissions to the IEA from member countries.

\*\* IEA, 2011. Coal Information 2011.

\*\*\* Ibid.

## Country Analyses

### Australia

Australia exports most of its coal to the Pacific market, specifically China, India, Japan, South Korea, and Taiwan. It exports a small amount of metallurgical coal to Europe and Brazil.<sup>14</sup>

Most exploration is centered in Queensland and New South Wales (NSW). The Bowen Basin in central Queensland is a major export region for coking coal.<sup>15</sup> The utilization rate of export mining capacity in Australia was around 80% in 2010.<sup>16</sup>

Driven by growing Asian demand, 20 new mines began operating in Australia between 2008 and 2010. Chinese and Indian companies are increasing their investments in Australia, also in response to Asian demand. IEA estimates that coal mining projects awaiting approval or under construction in Australia will add over 50 million tonnes of production capacity by 2016. An additional 125 million tonnes per annum (Mtpa) has been announced or planned.<sup>17</sup>

According to experts who have reviewed the companies' proposals, IEA's predicted numbers are far lower than the proposed expansion. In reality, additional production capacity could reach as high as 800 to 900 Mtpa, although such a massive expansion is unlikely. Notably, the Galilee Basin and the Surat Basin in Queensland, the Gunnedah Basin, and the Hunter Valley in NSW are expected to bring vast deposits of steam coal into production between 2013 and 2015.<sup>18</sup>

Australian inland coal is transported to the export terminal by rail. Inland transport costs are moderate compared with other major exporters. Currently, Australia has seven major coal ports in operation: Abbot Point, Hay Point/Dalrymple Bay, Gladstone, and Brisbane, all in Queensland, and Newcastle and Port Kembla in NSW.<sup>19</sup>

Transport facilities development has failed to keep pace with the rapid growth of the coal mining industry. Since 2006, transport bottlenecks have been a growing problem. In Newcastle, rail and port capacity shortages caused severe congestion of coal bulk carriers until 2010. An agreement among the companies involved resolved the problem and port capacity expanded with the construction of a third coal loader at Kooragang Island. Currently, the two coal terminals at Hay Point are struggling with transport bottlenecks.<sup>20</sup>

According to local experts, pending proposals will, theoretically, increase export capacity from 445 to 1289 Mtpa. In Queensland, infrastructure projects include the new Galilee Basin rail line, the new Surat Basin rail link, the Abbott Point coal port expansion, the Dudgeon Point port expansion at Hay Point, the new Balaclava Point Coal Terminal, and the new Wiggins Island Coal Terminal at Gladstone.<sup>21</sup>

A series of "mega mines" have been proposed in the Galilee Basin and this area is expected to become the new frontier for Australian coal exports. Several integrated mine, rail, and port projects have been proposed to control costs. The first project to be approved was the Alpha Coal Project, developed by Gina Rinehart and the Indian conglomerate GVK. It is the most advanced of the Galilee Basin projects and consists of a 30 Mtpa mine, a rail line, and a 60 Mtpa coal export terminal at Abbot Point. GVK will own 79 percent of the Alpha mine and 100 percent of the transport infrastructure. Adani is due to release its environmental impact study for the massive 60 Mtpa Carmichael mine by the end of the September 2012, and its 180 Mtpa coal port expansion at Dudgeon Point is progressing through the approval process.<sup>22</sup>

The new Queensland government recently abandoned the Multi-Cargo Facility proposed for Abbot Point. This will likely accelerate the development of Galilee Basin, because large coal companies are able to build stand-alone coal export terminals more quickly and cheaply than governments. BHP and GVK are now planning two 60 Mtpa coal export terminals, known as T2 and T3, at Abbot Point. Similarly, Adani is planning a 35 Mtpa expansion (known as T0) and Clive Palmer is proposing a 240 Mtpa coal terminal at the site.<sup>23</sup>

Newcastle provides most of the port capacity in NSW. Port Kembla provides back-up infrastructure but has little room for expansion. There are plans to expand the capacity of one of the first two coal terminals at Newcastle, from 77 Mtpa in 2010 to 101 Mtpa after 2012.<sup>24</sup> A third coal terminal with an initial handling capacity of 30 Mtpa, commissioned in late 2010, will reach 53 Mtpa by 2013 and 66 Mtpa in 2015.<sup>25</sup> The Terminal 4 project, slated to begin construction in 2014 or 2015, is designed to increase coal exports by 120 Mtpa. The mines under development at Gunnedah Basin and Hunter Valley are further from the Port of Newcastle and require new rail infrastructure.

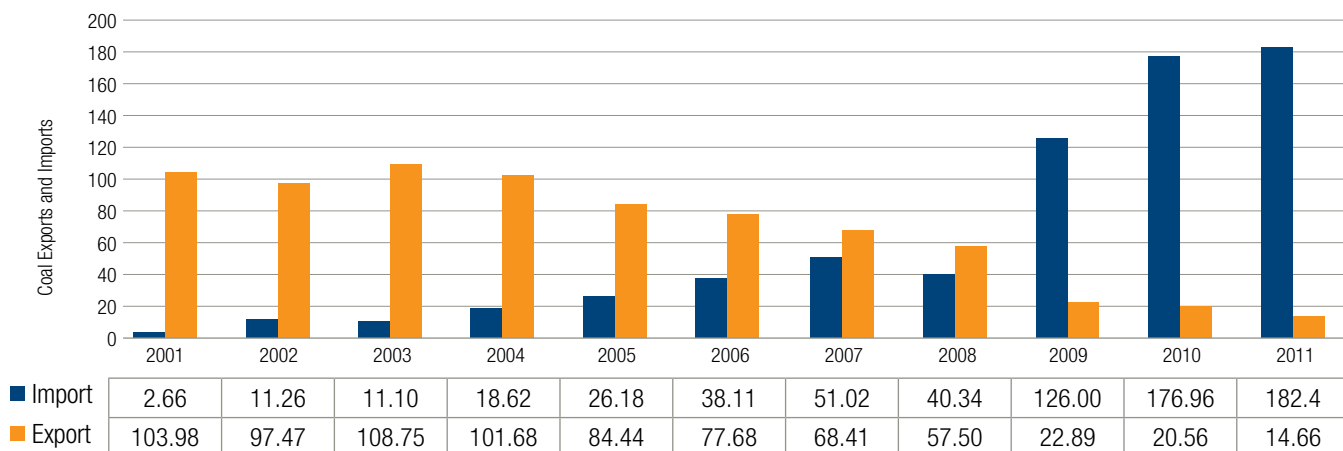
## China

China is the world's largest coal producer and consumer, and a major coal importer and exporter. Driven by its rapid economic growth and high reliance on coal for electricity generation, China's domestic coal production no longer satisfies its coal demand. China became a net coal importer in 2009 (Figure III.2) and overtook Japan as the world largest coal importer in 2011.<sup>26</sup>

The imbalanced geographic distribution of coal production and consumption is a longstanding challenge for China's domestic coal transport. China's coal production is mostly concentrated in its northern and western regions, while demand is centered in the east and along the Pacific coast. Over the past decade, mining activities have moved towards the western inland regions of Inner Mongolia, Shaanxi, Gansu, Qinghai, and Xinjiang provinces, even further from the market.<sup>27</sup>

The capacity of the three existing major rail links that connect the western inland coalfields to the northern coal ports nearly doubled between 2005 and 2010. New rail infrastructure has not yet been built to deliver coal from Xinjiang to the faraway ports.<sup>28</sup> There are seven major ports in northern China from which coal is transported to southern China (Qinhuangdao, Tianjin, Jingtang, Huanghua, Qingdao, Rizhao and Lianyungang).

Figure III.2 | China's Coal Exports and Imports, 2001-2011 (million metric tons)



Source: 2001–2010 data from U. S. EIA, International Energy Statistics, [www.eia.gov/cfapps/ipdbproject/iedindex3.cfm?tid=1&pid=1&aid=3&cid=&syid=2006&eyid=2008&unit=TST](http://www.eia.gov/cfapps/ipdbproject/iedindex3.cfm?tid=1&pid=1&aid=3&cid=&syid=2006&eyid=2008&unit=TST); 2011 data from [coal.com.cn](http://coal.com.cn), [www.coal.com.cn/Gratis/2012-5-30/ArticleDisplay\\_306261.shtml](http://www.coal.com.cn/Gratis/2012-5-30/ArticleDisplay_306261.shtml)



According to 2011 data, the top 10 countries from which China imports coal are Indonesia, Australia, Vietnam, Mongolia, North Korea, Russia, South Africa, the United States, Canada, and Colombia.<sup>29</sup>

Coal from Russia and Mongolia is mainly imported by rail and road. In 2011, Mongolia became the top coking coal exporter to China, overtaking Australia thanks to its lower prices.<sup>30</sup> Additional transport infrastructure developments have likely been proposed or are already underway, but detailed information is difficult to obtain.

Coal from Canada, Colombia, North Korea, and the United States arrives in China primarily through the seven major northern coal ports (Qinhuangdao, Tianjin, Jingtang, Huanghua, Qingdao, Rizhao, and Lianyungang). These ports are also used to transport coal to southern China, Japan, and South Korea.

The southern coastal areas, in particular Guangdong and Fujian provinces, import coal from Australia, Indonesia, South Africa, and Vietnam. Because of the high cost of transporting coal domestically, it is usually cheaper for Guangdong and Fujian to purchase coal from abroad.<sup>31</sup>

In the north the seven major ports and a number of smaller ones, including Yingkou and Weifang, have announced expansion plans for the 12<sup>th</sup> Five-Year Plan (2011–2015).<sup>32</sup> In the south, three ports (Zhuhai,<sup>33</sup> Fujian,<sup>34</sup> and Meizhou<sup>35</sup>) have also announced expansion plans that could enhance their capacities to accommodate more coal imports.

## Indonesia

Indonesia is the most important supplier of steam coal in the Pacific market and exports to China, India, Japan, South Korea, and Taiwan.<sup>36</sup> Most of coal mines in Indonesia are located on Kalimantan Island and Sumatera Island.

To promote mining development, new policies have been enacted that simplify licensing and clarify responsibilities among central, provincial, and district authorities. The “coal contracts of work” licensing system grants contract holders exploitation rights to a coal deposit for 30 years and royalty payments equal to 13.5 percent of the coal price. With help from the government, coal production has grown remarkably in the past decade.<sup>37</sup> An additional 60 Mtpa of export mining capacity is projected by 2016.<sup>38</sup>

On Kalimantan Island, there are six large deepwater ports: Adang Bay, Banjarmasin, Kotabaru, Pulau Laut, Tanjung

Bara, and Tarahan. Together, they have a total handling capacity of 268 Mtpa. Smaller coal terminals across the country have a total capacity of 60 to 80 Mtpa. So far, physical infrastructure has not constrained exports from Indonesia for two reasons. First, most of the coal deposits that have been developed are close to the coast. Second, domestic coal is transported by road or river, which makes railway construction for coal transport unnecessary.

Adoni Global has announced plans to build a 250-kilometer (km) railway and a port with 60 Mtpa throughput capacity in the Sumatra region.<sup>39</sup> In the long run, inland infrastructure may need to be improved as coal mines further from the coast are exploited.<sup>40</sup> As of now, the flexibility of its inland transport system enables Indonesia to respond faster than its main competitors—Australia and South Africa—to new markets in China and India.<sup>41</sup>

## South Africa

South African coal is cost competitive and the country’s location makes it a convenient swing supplier between the Pacific and the Atlantic markets. South Africa exports coal mainly to Europe (including Belgium, Denmark, France, Germany, Italy, Netherlands, Portugal, Spain, Switzerland, and the United Kingdom), but an increasing share is going to the East (mainly India, but also China, South Korea, Malaysia, Pakistan, and Taiwan). It also supplies a small amount of coal to several countries in the Middle East, Africa, and Latin America.<sup>42</sup>

Most of South Africa’s coal mines are located in the Central Basin.<sup>43</sup> The expanded or recently developed Waterberg, Limpopo, and Soutpansberg Basins will further boost coal production.<sup>44</sup> Total mining capacity may reach 132 Mtpa by 2016, up from 79 Mtpa in 2010.<sup>45</sup>

South Africa’s rail system has long been considered the main constraint on exports. The Richards Bay terminal was recently expanded to handle 91 Mtpa of coal exports, although its real utilization rate is much lower because of the lack of rail capacity to the coast.<sup>46</sup>

Some of the rail system upgrades currently underway are expected to help alleviate these transport constraints.<sup>47</sup> The development of South Africa’s coal transport system has four key components: the Waterberg Feeder line, the coal backbone system through the Mpumalanga and Witbank area, the Richards Bay Coal Terminal coal export line, and the Swazilink system.<sup>48</sup>



## The United States

The United States is an important swing supplier in the global hard coal market. Compared with coal from other major suppliers, U.S. coal has price and quality disadvantages. Nevertheless, the recent demand boom from China and India, as well as the decline in domestic consumption linked to low natural gas prices, has given the United States greater incentive to export.<sup>49</sup>

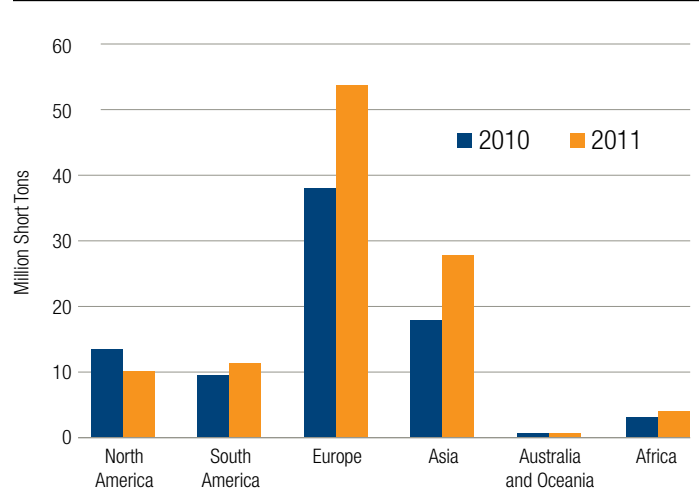
In 2011, U.S. coal exports reached a new high and ranked third globally, below Australia and Indonesia. Exports to both Europe and Asia increased dramatically from 2010 to 2011. In the Atlantic market, supply was inadequate; Russian and Colombian exports were constrained by capacity, and South Africa shifted steam coal exports to Asia. In the Pacific market, the United States filled the gap left by Australian export disruptions from flooding in Queensland.<sup>50</sup>

Currently, hard coal from the Appalachia region accounts for a large portion of U.S. exports. Some high-sulfur steam coal from the Illinois Basin is traded at a lower price than the Appalachian coal.<sup>51</sup> The coal from public land in the Powder River Basin of Montana and Wyoming has attracted interest from companies hoping to transport it by rail to West Coast ports for export to Asia.<sup>52</sup>

In the 1990s, the United States became an important coal supplier and developed its transport infrastructure for export. However, transport costs restrict the competitiveness of U.S. coal in the global market. Rail distances from Central Appalachia to the Atlantic ports run from 600 km to 1,350 km; coal from the Illinois Basin travels around 1,000 km by barge to reach ports on the U.S. Gulf Coast. Inland transport costs are significantly higher in the United States than in other main supply countries, including Australia, Colombia, Indonesia, and South Africa.<sup>53</sup> High transport costs in the United States may create export barriers in the long term.

The majority of U.S. coal exports move through the seaports of the East Coast (Norfolk and Baltimore) and the Gulf Coast (Mobile and New Orleans). Together with Detroit and Seattle, these seaports shipped 94 percent of total U.S. coal exports in 2010.<sup>54</sup> The utilization rate of U.S. export terminals was less than 40 percent in 2009 and about 55 percent in 2010. These low numbers reflect the less competitive supply costs of U.S. coal and less effective coordination between rail and port operators.<sup>55</sup>

Figure III.3 | USA Coal Export, By Region, 2010–2011



Source: U.S. EIA, 2012. USA Coal Consumption Fell while Exports Increased during the Fourth Quarter of 2011, 04/25/2012, 205.254.135.7/todayinenergy/detail.cfm?id=5990

An export hub is planned for the Pacific Northwest to help bring Powder River coal to Asia. The proposed hub will substantially enhance the region's export capacity.<sup>56</sup> Two large port projects have been proposed in Washington State—Longview Terminal and Gateway Pacific Terminal at Cherry Point, near Ferndale. Along with four smaller projects, the proposals in Oregon and Washington will add between 136.8 and 187.8 Mtpa in total export capacity. In addition, 10 proposed terminals, although each small in scale, will together add 95.2 to 152.2 Mtpa in port capacity along the Gulf Coast.<sup>57</sup>

## Russia

In 2010, the largest export destinations for Russian coal were Europe, India, Taiwan, South Korea, Japan, and China.<sup>58</sup> Russia became the world's third largest coal exporter, behind Australia and Indonesia, but it is the top exporter in the Atlantic market. More than half of Russian coal is currently sold to the European Union, but it is expected that exports will shift to the Pacific market, especially China.<sup>59</sup> Russia imports coal primarily from Kazakhstan, at a steady rate of around 20 metric tonnes of coal equivalent per year.

Although the Kuznets Basin dominates current production, growth is expected in the Kansk-Achinsk Basin and Eastern Siberia, to accommodate to increasing demand from Asia.<sup>60</sup>

Long rail distances and inadequate railway capacity have doubled the cost of inland coal transport in Russia over the past few years, making Russian coal less competitive in the global market.<sup>61</sup> From 2008 to 2030, railway infrastructure investments will amount to US\$55.5 billion. Five routes are targeted: the Hinterland connection between Novorossiysk and Tuapse, new rail lines between Ust-Luga and St. Petersburg, connecting mines in the North Ural to Northwest ports, capacity extension in Siberia, and the area around Vanino.<sup>62</sup>

Most of the ports for Russian coal exports are located in three regions: North Russia (the Baltic Sea Ports of Murmansk, Vysotsk, Riga, Ventspils, Tallin, St. Petersburg, and Ust-Luga); South Russia and Ukraine (Mariupol, Tuaspse, and Yuzhny); and Far Eastern Russia (Vostochny, Vanino, and Muchka). Coal exports through the Baltic ports have dropped due to high transit fees levied by the Baltic States, but have increased through the Far East ports.<sup>63</sup> The seaports of Vanino, Vostochny, and Nakhodka serve an important role in maintaining trade with Japan and South Korea.

To respond to strong demand growth in China and India, port capacity in the Far East will be further enhanced. Vanino, the second largest coal port in Russia, will update its handling capacity from 13.5 Mtpa to 18.5 Mtpa by 2013. The port of Posiet is also expanding, from 5 Mtpa to between 7 and 9 Mtpa by the end of 2012. In total, Russian export terminal capacity is projected to increase by about 13 Mtpa over the next five years.<sup>64</sup>

## Kazakhstan

Kazakhstan exports around 30 to 35 percent of its total coal production. Most of Kazakhstan's exported coal is destined for Russia, but some is destined for a small number of European countries.<sup>65</sup>

Kazakhstan has the world's third-largest open pit mine: the Bogatyr mine, in the Ekibastuz Basin in northern Kazakhstan. Bogatyr has a reserve of around 10 billion tonnes of coal. Another massive coal basin is near Karaganda, at the center of the country. With numerous other smaller deposits, Kazakhstan has recoverable coal reserves of around 34 billion tonnes, placing it among the world's top-10 producers. Coal production is expected to reach 134 Mtpa by 2015 and 151 Mtpa by 2020. Exports will increase from the current 20 to 22 Mtpa, to 32 Mtpa in 2014.<sup>66</sup>

Each of Kazakhstan's major coal producing companies has announced plans to increase its output. Bogatyr Coal is planning to nearly double its production by 2020. The energy division of ENRC, Kazakhstan's largest metals company and one of the largest producers of electricity and coal in the country, increased coal production to 20.1 Mtpa in 2010. Between 2011 and 2015, ArcelorMittal, which has eight coalmines in the Karaganda region, is investing some US\$300 million to expand its coal capacity.<sup>67</sup>

## Mongolia

The recent development of coal mining and exporting in Mongolia has significantly boosted its economy. In 2011, 32.99 million tonnes of coal was mined and 25.5 million tonnes exported, making coal the country's leading export product. Recognizing the global demand for coal, especially from Asia, the Mongolian government has prioritized the coal industry for the past several years.<sup>68</sup>

As a landlocked country, Mongolia must build new transport infrastructure to deliver its coal to the Chinese and Russian markets. The Mongolian Government has announced plans to cooperate with the governments of Russia and China to resolve these transport challenges. Russia and Mongolia collaborated on the second phase of a railway project in Mongolia. Russian Railways helps transport Mongolian coal from Naushki station, on the Mongolian border, to Far East ports and other points in the world.<sup>69</sup>

The distance from Mongolia to the Chinese port of Tianjin is much shorter than the distance to the Russian seaports. However, in addition to poor road and rail infrastructure, inadequate border crossing capacity hampers transport from Mongolia to China. In the South Gobi region, coal mined by one of the largest coal companies in Mongolia is transported to China through the Shivee Khuren-Ceke border, where crossing infrastructure was recently expanded.<sup>70</sup>

## North Korea

Most North Korean coal is exported to China.<sup>71</sup> One of North Korea's largest coal mines is located in Jikdong, Suncheon-si, Pyongannam-do, and is managed by the Suncheon District Coal Company and the Ministry of Coal Industry. The mine is designed for a capacity of 1 Mtpa, and the current production is around 30,000 tonnes per annum (tpa). A 100 km railway delivers coal from Suncheon to Nampo Port.<sup>72</sup>

Another mine is located in the Gogeonwon labor district, Kyeongwongun, Hamgyeongbuk-do, and is managed by the Gogeonwon Labor District Coal Company and the Ministry of Coal Industry. It is also designed with a capacity of 1 Mtpa. However, actual annual mining production data from the site are unavailable. This site is connected to Najin Port by a 100 km railway.<sup>73</sup>

## Colombia

Colombia's mining capacity is projected to increase from 79 Mtpa in 2010 to 138 Mtpa by 2016.<sup>74</sup> Like South Africa, Colombia is a major supplier to the Atlantic market, exporting coal to the United States and Europe, particularly the Netherlands. Despite transport barriers, Colombia has become China's tenth largest source of coal imports.

All of Colombia's existing export terminals are situated on the Caribbean coast, leaving an inadequate transport infrastructure to serve the growing Asian market. Until now, the Panama Canal has been a bottleneck in the Pacific route. However, its expansion will be complete by 2014 and the costs of transportation to China and other Pacific buyers will drop significantly. Moreover, a 220 km railway line between the Colombian port city of Cartagena and the Pacific Ocean is under consideration. This rail line would facilitate coal exports to China.<sup>75</sup>

According to the IEA, port capacity bottlenecks could be a limiting factor for Colombian exports over the medium term. Expansions are scheduled for some ports in the Santa Marta and Ciénaga regions. The capacity of Puerto Drummond, where production from the César region is exported, will be increased to 27 Mtpa by 2013 or 2014. The port of Puerto Nuevo near Santa Marta has a targeted capacity of 23 Mtpa by 2013 or 2014. Additionally, the capacity of the railway that links the César deposits to the ports near Ciénaga and Santa Marta will be enhanced from 42 to 44 Mtpa, to 88 Mtpa by the end of 2013.<sup>76</sup> A Brazilian coal mining company is building a new port near Dibulla, with the first-stage capacity of 10 Mtpa to be achieved by 2013 or 2014, and a total capacity of 28 Mtpa by 2016. Around the same time, a new rail line will be built to link four newly developed mines with the new port.<sup>77</sup>

## PART IV: GOAL FINANCE

This section summarizes available studies on coal finance. In recent years, several publications have provided useful overviews of the financing and lending options for coal and its relevant industries. This summary is organized in three parts: the role of international financial institutions in coal finance, the role of commercial banks in coal finance, and other forms of subsidies for coal projects.

### The Role of International Financial Institutions in Coal Finance

International public financial institutions are important and long-time contributors to the coal industry. Since 1994, multilateral development banks (MDBs) and industrialized countries' export credit agencies (ECAs) have helped finance 88 new and expanded coal plants in developing countries, as well as projects in Europe. Together, MDBs and ECAs have provided more than US\$37 billion in direct and indirect financial support for new coal-fired power plants worldwide. The World Bank has actually increased lending for fossil fuel projects and coal plants in recent years.<sup>78</sup> An analysis by the Environmental Defense Fund concludes that the lending strategies of MDBs and ECAs in the energy sector do not sufficiently consider the environmental harm wrought by fossil fuel projects.

Table IV.1 lists the top public international financial institutions (IFIs) that support coal power projects. Table IV.2 lists the top financing countries by rank. Through the Japan Bank for International Cooperation and Nippon Export and Investment Insurance, Japan plays a significant role in funding coal-fired power plants. Japanese investments have targeted developing countries in Asia, notably Indonesia and the Philippines. The United States employs a variety of IFI channels to support coal-fired power plants in developing countries. These include the U.S. Export-Import Bank, the Overseas Private Investment Corporation, the World Bank (the United States is the biggest contributor), and a number of other multilateral public financial institutions to which the United States is a major contributor.<sup>79</sup> Coal-fired power plants sponsored by IFIs are largely concentrated in Asia, in countries such as Indonesia, the Philippines, China, India and Vietnam (Table IV.3).

Figure IV.1 shows the top IFI financers of coal plants in Asia. Figure IV.2 shows the top IFI financers of coal plants in Europe.

Table IV.1 | **Public International Financers of Coal-Fired Power Plants**

| PUBLIC FINANCIAL INSTITUTION  | COUNTRY OF ORIGIN | TOTAL FINANCING (IN MILLION US\$) | NUMBER OF PROJECTS FINANCED |
|---|-------------------|-----------------------------------|-----------------------------|
| Japan Bank for International Cooperation (JBIC)                     | Japan             | 8,138.65                          | 21                          |
| World Bank Group (IBRD/IDA/IFC/MIGA) *                              | Multilateral      | 5,315.49                          | 29                          |
| Asian Development Bank (ADB)  | Multilateral      | 3,912.95                          | 21                          |
| US Export-Import Bank   | United States     | 3,478.80                          | 17                          |
| European Investment Bank (EIB)                                      | Multilateral      | 2,510.94                          | 9                           |
| Nippon Export and Investment Insurance (NEXI)                       | Japan             | 2,089.48                          | 6                           |
| Kreditanstalt für Wiederaufbau (KfW)                                | Germany           | 1,769.15                          | 6                           |
| China Development Bank  | China             | 1,680.60                          | 3                           |
| Euler Hermes  | Germany           | 1,174.14                          | 5                           |
| European Bank for Reconstruction and Development (EBRD)             | Multilateral      | 869.39                            | 9                           |
| Servizi Assicurativi del Commercio Estero (SACE)                    | Italy             | 789.10                            | 2                           |
| Export-Import Bank of Korea (Kexim)                                 | Korea             | 700.00                            | 1                           |
| Overseas Private Investment Corporation (OPIC)                      | United States     | 685.00                            | 6                           |
| Export Credits Guarantee Department (ECGD)                          | United Kingdom    | 605.78                            | 2                           |
| China Exim Bank   | China             | 580.00                            | 1                           |
| Sinosure  | China             | 562.40                            | 1                           |
| African Development Bank (AfDB)                                     | Multilateral      | 500.00                            | 1                           |
| Compagnie Francaise d'Assurance pour le Commerce Exterieur (COFACE) | France            | 474.81                            | 3                           |
| Bank of China   | China             | 308.40                            | 2                           |
| Korea Export Insurance Corporation (KEIC)                           | South Korea       | 300.00                            | 1                           |
| Nordic Investment Bank (NIB)  | Multilateral      | 201.81                            | 2                           |
| Garanti-instituttet for eksportkreditt (GIEK)                       | Norway            | 147.39                            | 1                           |
| CESCE   | Spain             | 76.00                             | 1                           |
| Export Development Canada (EDC)                                     | Canada            | 62.27                             | 1                           |
| Black Sea Trade and Development Bank (BSTDB)                        | Multilateral      | 41.34                             | 2                           |
| Geschäftsstelle für die Exportrisikogarantie (ERG)                  | Switzerland       | 39.90                             | 1                           |
| Netherlands Development Finance Company (FMO)                       | Netherlands       | 16.45                             | 1                           |
| Deutsche Investitions- und Entwicklungsgesellschaft (DEG)           | Germany           | 13.59                             | 1                           |
| <b>Total</b>  |                   | <b>37,043.83</b>                  | <b>156</b>                  |

Note: \*The World Bank Group includes financing from IFC (\$ 2,467 mln, 17 projects), MIGA (\$ 393 mln, 4 projects) and IBRD/IDA (\$ 2,455 mln, 8 projects).

Source: CoalSwarm

## The Role of Commercial Banks in Coal Finance

The world's largest commercial banks continue to invest significantly in the coal industry, from coal mining to coal-fired plants. A study by Profundo, an energy research firm, concludes that "while banks are employing a lot of climate speak, this is more or less a smoke screen to continue their financing of the coal industry. None of the adopted policies focus on what counts: the calculation and publication of banks' 'financed emissions' and the implementation of emissions reduction targets."<sup>80</sup>

Figure IV.3 illustrates the financing provided for coal-fired plants and coal mining globally by the top 20 commercial banks, from 2005 to 2011.

In the past three years, the Rainforest Action Network, the Sierra Club, and BankTrack have published annual report cards that grade U.S. banks according to their financial investments and policies on mountaintop removal and coal-fired plants. The findings suggest that the largest U.S. banks are highly engaged in the coal industry.<sup>81</sup> Banks often do not have policies regard-

Table IV.2 | **Public International Financing for Coal Power, by Providing Countries**

| COUNTRIES      | TOTAL FINANCING (IN MILLION US\$) | NUMBER OF FINANCING PROJECTS |
|----------------|-----------------------------------|------------------------------|
| Multilateral   | 13,351.91                         | 73                           |
| Japan          | 10,228.13                         | 27                           |
| United States  | 4,163.80                          | 23                           |
| China          | 3,131.40                          | 7                            |
| Germany        | 2,956.88                          | 12                           |
| South Korea    | 1,000.00                          | 2                            |
| Italy          | 789.10                            | 2                            |
| United Kingdom | 605.78                            | 2                            |
| France         | 474.81                            | 3                            |
| Norway         | 147.39                            | 1                            |
| Spain          | 76.00                             | 1                            |
| Canada         | 62.27                             | 1                            |
| Switzerland    | 39.90                             | 1                            |
| Netherlands    | 16.45                             | 1                            |

Source: CoalSwarm

ing coal finance and when they do, there may be a gap between their policy and practice. None of the eight U.S. banks<sup>82</sup> evaluated has completely excluded mountaintop removal from its financing activities. Although Bank of America, JPMorgan Chase, Citi, Morgan Stanley, and Wells Fargo all signed the “Carbon Principles,”<sup>83</sup> which apply to financing coal-fired plants, they were the top five U.S. banks in coal financing in 2012. As the Rainforest Action Network has noted, “There is no evidence that the Carbon Principles have stopped, or even slowed, financing to carbon-intensive projects.”<sup>84</sup>

In the United Kingdom, the Royal Bank of Scotland has been most heavily involved in financing coal. From 2008 through 2010, it provided €791.8 million to companies that are among the world’s top 20 coal mine operators, and €7,201.8 million to companies that are among the top 20 coal-based electricity generators — a total of almost €8 billion. Ironically, the bank’s public position on coal finance is shifting towards more “climate-consciousness.”<sup>85</sup>

In Australia, Profundo evaluated seven banks based on their investments in coal mining, coal-fired power stations, coal export ports, and renewable energy. Bendigo Bank and Mecu did not provide financing to any of the four sectors from 2006 to 2010. The other five banks —

Table IV.3 | **Public International Financing for Coal Power, by Receiving Countries**

| COUNTRIES      | TOTAL FINANCE RECEIVED (IN MILLION US\$) |
|----------------|--|
| Indonesia      | 10,264.06                                |
| Philippines    | 6,041.17                                 |
| China          | 4,712.84                                 |
| India          | 4,325.68                                 |
| Bulgaria       | 1,892.68                                 |
| Germany        | 1,586.33                                 |
| South Africa   | 1,128.62                                 |
| Vietnam        | 1,039.13                                 |
| Morocco        | 849.70                                   |
| Poland         | 813.08                                   |
| Chile          | 740.00                                   |
| Malaysia       | 736.96                                   |
| Thailand       | 681.00                                   |
| Turkey         | 659.93                                   |
| Mexico         | 611.00                                   |
| Slovenia       | 479.76                                   |
| Ukraine        | 113.00                                   |
| Slovakia       | 87.69                                    |
| Romania        | 86.40                                    |
| Kazakhstan     | 70.00                                    |
| Colombia       | 62.40                                    |
| Guatemala      | 32.00                                    |
| Czech Republic | 30.40                                    |

Source: CoalSwarm

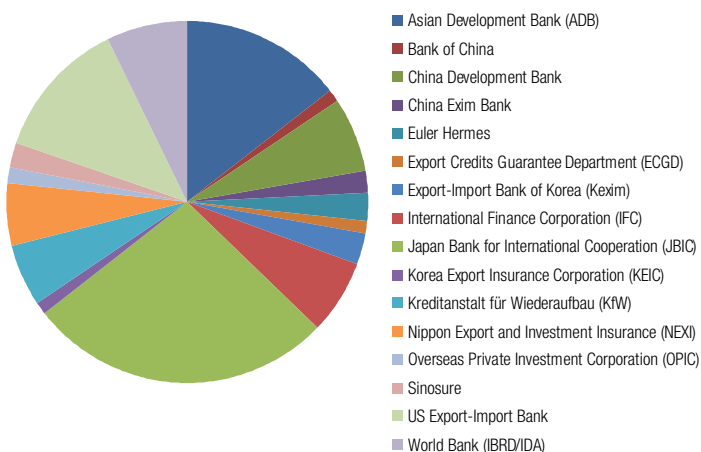
Australia and New Zealand Banking, Commonwealth Bank of Australia, National Australia Bank, Suncorp, and Westpac Banking — made a total of \$A 5.5 billion coal-related investments and \$A 783.5 million renewable-related investments during the same period.<sup>86</sup>

### Other Forms of Subsidies for Coal Projects

In addition to IFIs and commercial banks, coal is subsidized in many other ways. Common forms include direct subsidies, tax credits, public loan or loan guarantees, favorable accounting treatments, avoided carbon price, and ignored social costs.

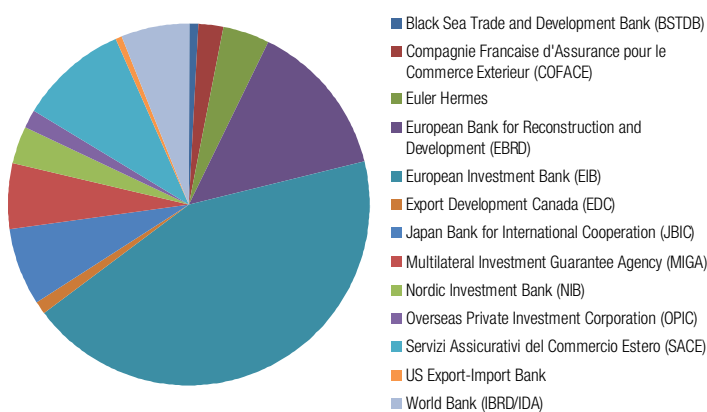


Figure IV.1 | **Top International Public Financers of Coal Plants in Asia**



Source: www.CoalSwarm.org

Figure IV.2 | **Top International Public Financers of Coal Plants in Europe\***



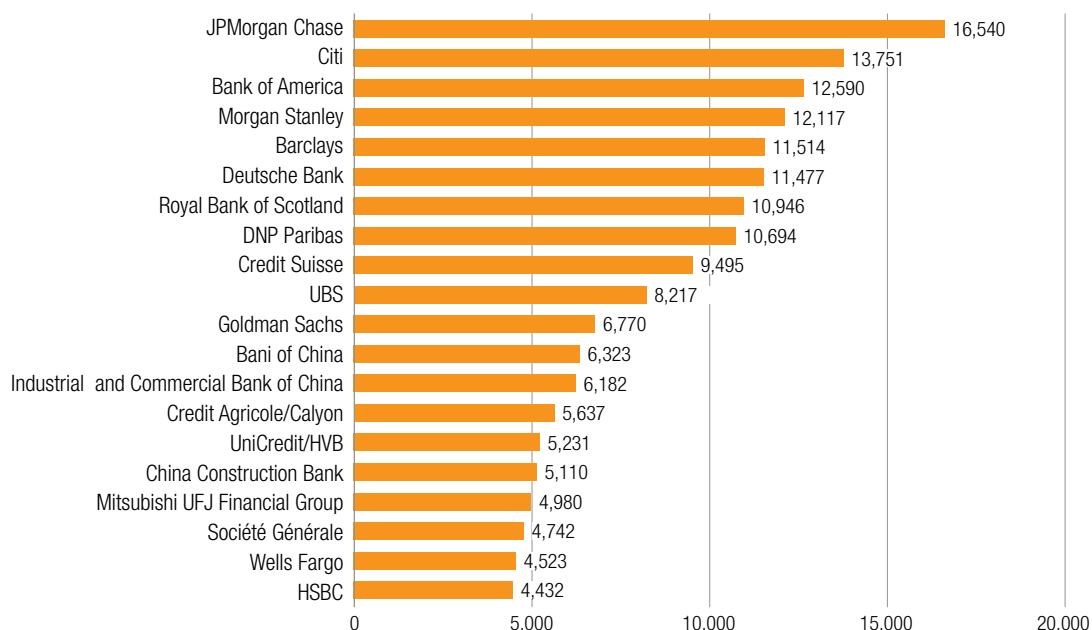
Source: www.CoalSwarm.org

\* Bulgaria, Czech Republic, Germany, Poland, Romania, Slovakia, Slovenia, Turkey and Ukraine.

Direct subsidies for new coal power plants and coal mines are widely applied in the European Union. For example, until 2020, construction of new high-efficiency coal plants with carbon capture and storage implementation can receive financial support of up to 15 percent of total investment.<sup>87</sup> The European Union requires that coun-

tries phase out coal mining subsidies by 2018, but until then, countries including Germany, Poland, Romania, and Spain continue to provide investment aids for coal mining.<sup>88</sup> Poland also provides tax breaks that exempt all coal mining operations from paying for their water use.

Figure IV.3 | **Top 20 Commercial Banks Financing Coal (in million euro, 2005–2011)**



Source: Heffa Schücking, Lydia Kroll, Yann Louvel and Regine Richter, 2011. Bankrolling Climate Change: A Look into the Portfolios of the World's Largest Banks, published by Profundo, urgewald, groundWork, Earthlife Africa Johannesburg and BankTrack.

In the E.U. context, carbon is priced through the E.U. Emission Trading Scheme. However, the power sector has received free allowances, which have contributed to windfall profits. Although free allocation will be replaced by auction in 2013, it is possible that new facilities will be exempt from purchasing the initial allocation for another seven years.<sup>89</sup>

In the United States, domestic coal plant construction and retrofits are subsidized through the Treasury Department, the Department of Energy, and the Department of Agriculture's Rural Utilities Service. For example, states and local public authorities can use federal tax-exempt funding, overseen by the Treasury Department, to finance new coal plant construction and life extension for existing coal plants.<sup>90</sup> A 2011 study found that the utilities/electric industry accounted for 14 percent of federal subsidies, second only to the finance industry. From 2008 to 2010, the industry reported a US\$100 billion profit but as a whole paid only a 3.7 percent tax rate.<sup>91</sup>

Another example of a U.S. subsidy is a federal tax provision that reduces the income and capital gain tax rates for coal mine owners by reclassifying income and capital gains as "royalty." The credit is estimated to have totaled US\$1.17 billion in tax expenditures from 2002 to 2009. Non-standard accounting practices have also favored the U.S. coal industry. By applying percentage depletion, mineral extraction companies are able to predefine a percentage deduction rate of gross income that is usually higher than the actual costs induced by resource depletion.<sup>92</sup>

A broader definition of coal subsidization considers the recognized and unrecognized social cost of extracting and burning coal. Air pollution generated by coal imposes significant costs on human health and the environment. Black lung disease, for example, is caused by inhaling coal dust during mining activities. The National Academy of Sciences calculated the non-climate-related external costs associated with coal electricity generation in the United States at US\$62 billion for 2005.<sup>93</sup> Similarly, the European Environment Agency concluded that air pollution from coal plants cost Europe €112 billion in 2009.<sup>94</sup> A study of China estimated that the external costs of all the coal used in 2007 totaled RMB 1.7 trillion, or 7.1 percent of China's gross domestic production for the same year.<sup>95</sup> Indeed, coal is much more expensive when all the externalities are factored into the equation.

## PART V: DATA GAP

### Data Gap for New Coal-Fired Plants

- For Russia, the authors were only able to obtain the total figure for proposed coal power capacity announced by the Russian Government. Additional efforts are needed to identify particular projects. Researchers may send requests for data to the Russian Energy Forecasting Agency at <http://www.e-apbe.ru/en/contacts>.
- For Ukraine, the authors were only able to find the total figure of proposed coal power capacity announced in the Ukrainian energy policy.
- For Kazakhstan, the authors found only four proposed coal-fired plants. Further efforts should be taken to identify the details of these four projects.
- For Turkey, data about the status of coal-fired plant proposals are missing. According to field knowledge, the Turkey data is not as reliable as the other European country data.
- It is difficult to identify sources of field knowledge in most Central Asian countries (Kazakhstan, Mongolia, Tajikistan, and Uzbekistan) to help verify the data.
- Understanding the approval/permitting process for coal-fired plants is crucial for the development of a country coal strategy. In general, the administrative and legal systems in North America and Europe are more transparent than in other parts of the world, and it is easier for civil society actors to intervene in proposed coal power projects. More research should be carried out on how coal-fired plant projects are approved in countries such as China, where such knowledge is lacking.

### Data Gap for Existing Coal-Fired Plants

- The authors did not consider existing coal-fired plants for specific countries. Complete datasets of existing coal-fired plants are commercially available. Further analysis could help identify the data gaps for existing coal-fired plants.



## Data Gap for Global Coal Trade

- Further research is required to identify the major companies/investors in infrastructure developments for coal trade expansion.
- The proposed capacity of new infrastructure development is significantly bigger than projected demands. Further study should analyze the possibilities and consequences of over-construction.
- Further research is needed to understand how growing coal imports will affect domestic coal markets and coal power developments in countries such as China and India.
- Further research is required to analyze how the reductions in nuclear power in Japan and Taiwan will affect their coal imports. Both countries depend entirely on coal imports for their huge coal power generations.
- Further research is required to identify the source of coal supply for the proposed new coal-fired plants in countries with no domestic coal production capacities. These include Cambodia, Dominican Republic, Guatemala, Laos, Morocco, Namibia, Oman, Senegal, Sri Lanka, and Uzbekistan.

## Data Gap for Coal Finance

- Most of the literature reviewed for this paper was produced by NGOs, including Coalswarm, the Environmental Defense Fund, and the Sierra Club. It would be useful to review industry materials, in order to better understand how the industry views the risks of financing coal development. An understanding of how risks associated with coal finance are assessed by the industry would be especially useful for climate advocates.
- More in-depth research is required to unpack how financing for coal projects works: the elements of a financing package, how public and private banks interact, and what role government plays. A solid understanding of how deals are made is crucial to developing an effective work strategy.
- This paper briefly touches on different forms of subsidies for coal projects. More country-based research is needed to understand how coal is subsidized in a particular country. Further research should also attempt to quantify the size of subsidies. This work could be linked to the ongoing global “phase out fossil fuel subsidies” discussions.
- There is little existing research that examines how coal finance works in India and China—the two fastest growing markets dominated by domestic players. It is not clear to what extent coal-fired plant projects rely on bank financing in these countries. Banks in China and India do not appear vulnerable to the same reputational risks as their international peers. A closer look at the coal financing models in India and China could perhaps shed light on how effective finance campaigning can be organized in these two countries.

## ENDNOTES

1. IEA, 2011. World Energy Outlook 2011. Paris, France: IEA Publications.
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## APPENDIX – COMPLETE LIST OF PROPOSED NEW COAL-FIRED PLANTS

The 12 tables in this appendix are arranged as follows:

| TABLE NO. | COUNTRY  |
|-----------|--|
| A.1       | China  |
| A.2       | India  |
| A.3       | Russia   |
| A.4       | Turkey   |
| A.5       | Europe (except Russia and Turkey): Germany, Poland, Italy, Bosnia-Herzegovina, Romania, Netherlands, Greece, Czech Republic, Bulgaria, Serbia, Hungary, Ukraine, Montenegro, Slovenia, Croatia, Kosovo |
| A.6       | United States  |
| A.7       | Australia  |
| A.8       | East Asia (except China): Taiwan, Japan, South Korea, North Korea  |
| A.9       | Southeast Asia and South Asia (except India): Vietnam, Philippines, Cambodia, Indonesia, Burma, Malaysia, Laos, Thailand, Pakistan, Sri Lanka  |
| A.10      | Central Asia: Mongolia, Kyrgyzstan, Kazakhstan, Tajikistan, Uzbekistan, Oman   |
| A.11      | Africa: South Africa, Mozambique, Botswana, Zimbabwe, Morocco, Tanzania, Namibia, Zambia, Senegal  |
| A.12      | Latin America: Dominican Republic, Peru, Brazil, Colombia, Guatemala, Chile, Argentina   |

Table A.1 | Proposed Coal-Fired Power Plants in China

| PROVINCE                | PLANT   | DEVELOPER   | CAPACITY (MW) | STATUS                                       |
|-------------------------|---|---|---------------|--|
| Anhui <sup>1</sup>      | Wanneng Hefei Power Plant                                   | Anhui Wanneng   | 600           | NDRC Permitted                               |
| Anhui <sup>2</sup>      | Huaibei Guoan Power Plant Phase II                          | Anhui Wanneng and SDIC  | 2,000         | Permitting                                   |
| Anhui <sup>3</sup>      | Huainan Pingwei Power Plant Phase III                       | China Power Investment  | 2,000         | Designing                                    |
| Anhui <sup>4</sup>      | Wuhu Power Plant Phase V Unit 2                             | China Power Investment  | 600           | NDRC Permitted                               |
| Anhui <sup>5</sup>      | Huaibei Power Plant Unit 8&9                                | Datang  | 1,200         | Planning                                     |
| Anhui <sup>6</sup>      | Chuzhou Power Plant   | Datang  | 2,000         | Permitting                                   |
| Anhui <sup>7</sup>      | Huainan Luohe Power Plant Phase IV                          | Datang  | 1,000         | Permitting                                   |
| Anhui <sup>8</sup>      | Anhui Bengbu Power Plant Phase II                           | Guodian   | 1,320         | Permitting                                   |
| Anhui <sup>9</sup>      | Chizhou Jiuhe Power Plant Unit 3&4                          | Huadian   | 1,200         | Planning                                     |
| Anhui <sup>10</sup>     | Huadian Lu'an Power Plant Unit 5&6                          | Huadian   | 2,000         | Planning                                     |
| Anhui <sup>11</sup>     | Huadian Liu'an Power Plant Unit 4                           | Huadian and Liu'an Industrial Investment and Development Ltd. | 660           | Planning                                     |
| Anhui <sup>12</sup>     | Huaibei Linhuan Power Plant Unit 1&2                        | Huaibei Mining Group  | 660           | Planning                                     |
| Anhui <sup>13</sup>     | Huainan Fengtai Power Plant Phase II                        | Huainan Mining Group and Zheneng                              | 1,320         | Permitted, Preparing Construction            |
| Anhui <sup>14</sup>     | Huainan Tianji Power Plant Phase II                         | Huainan Mining Group and Shanghai Elec. Power Co.             | 1,320         | MEP Permitted, Tendering                     |
| Anhui <sup>15</sup>     | Huaneng Chaohu Power Plant Unit 3&4                         | Huaneng   | 1,200         | Planning                                     |
| Anhui <sup>16</sup>     | Huaneng Huainan-1 Power Plant Unit 1–4                      | Huaneng   | 2,400         | Planning                                     |
| Anhui <sup>17</sup>     | Huaneng Huainan-2 Power Plant Unit 1–4                      | Huaneng   | 2,400         | Planning                                     |
| Anhui <sup>18</sup>     | Anhui Xuancheng Power Plant Phase II                        | SDIC  | 660           | Planning                                     |
| Anhui <sup>19</sup>     | Anqing Laofeng Power Plant Phase II                         | Shenhua   | 2,000         | Permitting                                   |
| Anhui <sup>20</sup>     | Huaibei Pingshan Power Plant Phase I                        | Shenneng, Huaibei Mining Group, and Anhui Wanneng             | 1,320         | Permitting, Designing                        |
| Anhui <sup>21</sup>     | Anqing Power Plant Phase II                                 | Shenhua   | 2,000         | Permitting                                   |
| Chongqing <sup>22</sup> | Xishui Erlang Power Plant                                   | China Power Investment  | 2,640         | Feasibility Study Permitted, NDRC Permitting |
| Chongqing <sup>23</sup> | Huadian Fengjie Power Plant                                 | Huadian   | 1,200         | Permitting                                   |
| Fujian <sup>24</sup>    | Datang Ningde Power Plant Phase III                         | Datang  | 2,000         | Feasibility Study, Tendering                 |
| Fujian <sup>25</sup>    | Fujian Hongshan Thermal Power Plant Phase III               | Fujian Energy Co.   | 2,000         | Planning                                     |
| Fujian <sup>26</sup>    | Fujian Yanshi Power Plant Unit 1&2                          | Fujian Yanshi Power Gen Co.                                   | 600           | Planning                                     |
| Fujian <sup>27</sup>    | Fuzhou Kemen Power Plant Phase III                          | Huadian   | 2,520         | Planning                                     |
| Fujian <sup>28</sup>    | Fuzhou Power Plant Unit 6                                   | Huaneng   | 600           | NDRC Permitted                               |
| Gansu <sup>29</sup>     | Chinalco Qingyang Zhengning Luochuan Power Generation Units | Aluminum Co. of China   | 1,200         | Planning                                     |
| Gansu <sup>30</sup>     | CPI Wuwei Liangzhou Power Generation Units                  | China Power Investment  | 2,000         | Planning                                     |
| Gansu <sup>31</sup>     | CPI Jiuquan Jinta Power Plant Phase I                       | China Power Investment  | 2,000         | Planning                                     |
| Gansu <sup>32</sup>     | CPI Tianshui Qingshui Power Plant                           | China Power Investment  | 2,000         | Planning                                     |
| Gansu <sup>33</sup>     | Datang Yumen Changma Power Plant                            | Datang  | 1,200         | Planning                                     |
| Gansu <sup>34</sup>     | Datang 803 Power Plant                                      | Datang  | 600           | Planning                                     |
| Gansu <sup>35</sup>     | Datang Jingtai Power Plant Phase II                         | Datang  | 2,000         | Planning                                     |

continued next page

Table A.1 | Proposed Coal-Fired Power Plants in China (continued)

| PROVINCE                | PLANT  | DEVELOPER  | CAPACITY (MW) | STATUS                       |
|-------------------------|--|--|---------------|------------------------------|
| Gansu <sup>36</sup>     | Gansu Elec. Power Investment Datang Yongchang Power Plant                          | Gansu Elec. Power Investment Co. and Datang                      | 2,000         | Planning                     |
| Gansu <sup>37</sup>     | Gansu Elec. Power Investment SDIC Power Holdings. Zhangye Power Plant              | Gansu Elec. Power Investment Co. and SDIC                        | 1,200         | Planning                     |
| Gansu <sup>38</sup>     | Gansu Elec. Power Investment Guazhou Changle Power Plant Phase I                   | Gansu Elec. Power Investment Co.                                 | 2,000         | Planning                     |
| Gansu <sup>39</sup>     | Gansu Elec. Power Investment Ningzhong Power Generation Units                      | Gansu Elec. Power Investment Co.                                 | 2,000         | Planning                     |
| Gansu <sup>40</sup>     | Gepic Changle Power Plant Unit 1&2   | Gansu Elec. Power Investment Co.                                 | 2,000         | Planning                     |
| Gansu <sup>41</sup>     | Guodian Jiuquan Thermal Power Plant  | Guodian  | 4,000         | Planning                     |
| Gansu <sup>42</sup>     | Guodian Power Wuwei Thermal Power Plant Phase I                                    | Guodian  | 660           | Planning                     |
| Gansu <sup>43</sup>     | Guodian Jingyuan Power Plant   | Guodian  | 2,000         | Feasibility Study            |
| Gansu <sup>44</sup>     | Huadian Wuwei Minqin Power Generation Units  | Huadian  | 1,200         | Planning                     |
| Gansu <sup>45</sup>     | Huadian Guazhou Liugou Power Plant Phase I   | Huadian  | 4,000         | Planning                     |
| Gansu <sup>46</sup>     | Huaneng Xifeng Thermal Power Plant   | Huaneng  | 600           | Planning                     |
| Gansu <sup>47</sup>     | Huaneng Pingliangzhuang Langhandian Power Plant                                    | Huaneng  | 2,000         | Planning                     |
| Gansu <sup>48</sup>     | Huaneng Pingliang Lingtai Power Generation Units                                   | Huaneng  | 2,000         | Planning                     |
| Gansu <sup>49</sup>     | Huaneng Pingliang Power Plant Phase III  | Huaneng  | 2,000         | Planning                     |
| Gansu <sup>50</sup>     | Huaneng Qingyang Zhengning Power Plant Phase I                                     | Huaneng  | 2,000         | Planning                     |
| Gansu <sup>51</sup>     | Huaneng Tianshui Maijiqu Power Plant Phase I                                       | Huaneng  | 700           | Planning                     |
| Gansu <sup>52</sup>     | Huaneng Huanxian Power Plant Phase I   | Huaneng  | 2,000         | Planning                     |
| Gansu <sup>53</sup>     | Jiugang Luneng Jiuquan Suzhou Jiayu Coal-Power Base Power Generation Units Phase I | Jiuquan Steel and Luneng   | 1,200         | Planning                     |
| Gansu <sup>54</sup>     | Jiugang Pingliang Jingchuanxian Waste Coal Thermal Power Plant Phase I             | Jiuquan Steel  | 600           | Planning                     |
| Gansu <sup>55</sup>     | Sinohydro Jinta Power Plant  | Sinohydro Co.  | 2,000         | Planning                     |
| Gansu <sup>56</sup>     | Sinohydro Huating Power Plant Phase II   | Sinohydro Co.  | 2,000         | Planning                     |
| Gansu <sup>57</sup>     | Sinohydro Chongxin Power Plant Phase II  | Sinohydro Co.  | 2,000         | Permitting                   |
| Guangdong <sup>58</sup> | Datang Huayin Dongwan Sanlian Thermal Power Plant                                  | Datang, Dongwan Dongtang Co. Ltd. and Dongwan Dianhua Shiye Ltd. | 700           | Permitting                   |
| Guangdong <sup>59</sup> | Guangdong Yuedian Dapu Power Plant   | Guangdong Yuedian  | 1,200         | MEP Permitting               |
| Guangdong <sup>60</sup> | Guangdong Yuedian Huilai Power Plant Phase I Unit 3&4                              | Guangdong Yuedian  | 2,000         | MEP Permitting, Tendering    |
| Guangdong <sup>61</sup> | Bohe Power Plant   | Guangdong Yuedian  | 2,000         | Permitting, Tendering        |
| Guangdong <sup>62</sup> | Huaneng Shantou Haimen Power Plant Phase II Unit 4                                 | Huaneng  | 1,000         | Protest, Temporarily Stopped |
| Guangdong <sup>63</sup> | Nanhai-1 Power Plant Phase III   | Kingsun Power  | 400           | Planning                     |
| Guangdong <sup>64</sup> | Shaoguan Power Plant   | Shaoguan Yuejiang Power Ltd.                                     | 2,400         | Tendering, Permitting        |
| Guangdong <sup>65</sup> | Shenhua Guohua Yangjiang Power Plant Phase I                                       | Shenhua  | 2,000         | Feasibility Study            |
| Guangxi <sup>66</sup>   | Dadong Power Plant   | China Southern Grid  | 120           | Planning                     |
| Guangxi <sup>67</sup>   | Fangchenggang Power Plant Phase II   | CLP Group and CEEC Guangxi Water, Elec. Power Construction Group | 1,320         | Planning                     |

continued next page



Table A.1 | Proposed Coal-Fired Power Plants in China (continued)

| PROVINCE                   | PLANT  | DEVELOPER  | CAPACITY (MW) | STATUS                        |
|----------------------------|--|--|---------------|-------------------------------|
| Guangxi <sup>68</sup>      | Heshan Power Plant Unit 11                                 | Datang   | 600           | Planning                      |
| Guangxi <sup>69</sup>      | Chongzuo Power Plant                                       | Guodian  | 1,200         | Planning                      |
| Guangxi <sup>70</sup>      | Guodian Nanning Power Plant Phase II                       | Guodian  | 2000          | Planning                      |
| Guangxi <sup>71</sup>      | Guigang Power Plant Unit 3&4                               | Huadian  | 1,320         | Planning                      |
| Guangxi <sup>72</sup>      | Beihai Bebuwan Power Plant Phase II                        | SDIC   | 1320          | Permitting                    |
| Guangxi <sup>73</sup>      | Shenhua Guohua Guangtou Beihai Power Plant                 | Shenhua  | 2,000         | Permitting                    |
| Guizhou <sup>74</sup>      | CPI Guizhou Qianxi Power Plant Phase II                    | China Power Investment                                       | 1,320         | Feasibility Study, Permitting |
| Guizhou <sup>75</sup>      | CPI Guizhou Qianbei Power Plant                            | China Power Investment                                       | 1,320         | Feasibility Study, Tendering  |
| Guizhou <sup>76</sup>      | Guizhou Bijie Coal Power Base                              | Chongqing Energy Investment Co. and China Resources Holdings | 6,600         | Planned, Site Selection       |
| Guizhou <sup>77</sup>      | Datang Pannan Power Plant Unit 5&6                         | Datang   | 1,320         | Permitting                    |
| Guizhou <sup>78</sup>      | Guizhou Faer Power Plant Unit 5&6                          | Guangdong Yuedian  | 1,200         | Planning                      |
| Guizhou <sup>79</sup>      | Guodian Anshun Power Plant Phase III                       | Guodian  | 1,320         | Permitting                    |
| Guizhou <sup>80</sup>      | Huadian Anshun Power Plant                                 | Huadian  | 1,200         | Planning                      |
| Hainan <sup>81</sup>       | Guodian Hainan Southwest Power Plant                       | Guodian  | 700           | Site Selection                |
| Hebei <sup>82</sup>        | Hebei Datang Weixian Power Plant                           | Datang   | 1,200         | Planning                      |
| Hebei <sup>83</sup>        | Hebei Weizhou Power Plant Unit 1&2                         | Hebei Weizhou Power Resources                                | 1,320         | Planning                      |
| Hebei <sup>84</sup>        | Caofeidian Power Plant Phase I                             | Huadian  | 2,000         | Feasibility Study Permitted   |
| Hebei <sup>85</sup>        | Huadian Shijiazhuang Power Plant Unit 9&10                 | Huadian  | 700           | Planning                      |
| Heilongjiang <sup>86</sup> | Heilongjiang Suihua Thermal Power Plant                    | Datang   | 700           | Announced                     |
| Heilongjiang <sup>87</sup> | Guodian Longxing Dahezhen Power Generation Units           | Guodian  | 4,000         | Planning                      |
| Heilongjiang <sup>88</sup> | Guodian Longxing Qixinghe South Power Generation Units     | Guodian  | 2,000         | Planning                      |
| Heilongjiang <sup>89</sup> | Harbin-1 Thermal Power Plant Phase II                      | Huadian  | 600           | Planning                      |
| Heilongjiang <sup>90</sup> | Hegang Power Plant Unit 4&5                                | Huaneng  | 1,200         | Planning                      |
| Heilongjiang <sup>91</sup> | Luneng Baoqing Chaoyang Coal Mine Power Plant Phase I & II | Luneng   | 5,200         | Planning                      |
| Heilongjiang <sup>92</sup> | Luneng Baoqing Dahezhen Coal Mine Power Plant              | Luneng   | 4,000         | Planning                      |
| Heilongjiang <sup>93</sup> | Luneng Baoqing Qixinghe South Coal Mine-2 Power Plant      | Luneng   | 4,000         | Planning                      |
| Henan <sup>94</sup>        | Gongyi-2 Power Plant Unit 3&4                              | Banpu Power Co.  | 200           | Planning                      |
| Henan <sup>95</sup>        | Gucheng Power Plant Unit 3&4                               | China Resources Holdings                                     | 2,000         | Planning                      |
| Henan <sup>96</sup>        | Datang Gongyi Power Plant                                  | Datang   | 1,200         | Permitting                    |
| Henan <sup>97</sup>        | Hebi Fenghe-4 Power Plant Unit 1&2                         | Henan Investment Co. and Hebi Coal Group                     | 2,000         | Planning                      |
| Henan <sup>98</sup>        | Xinxiang Zhongyi Power Plant                               | Henan Investment Co. and Yunneg                              | 1,200         | Financed                      |
| Henan <sup>99</sup>        | Henan Xinwang Power Plant Unit 1&2                         | Henan Xinwang Power Co.                                      | 270           | Planning                      |
| Hubei <sup>100</sup>       | Xisai Shan Power Plant Phase II Unit 4                     | Huadian and Meiya Power (Korea)                              | 680           | NDRC Permitted                |
| Hubei <sup>101</sup>       | Huaneng Huazhong Power Plant Unit 1–4                      | Huaneng  | 1,200         | Planning                      |
| Hubei <sup>102</sup>       | Ezhou Power Plant Unit 5&6                                 | Hubei Energy Co.   | 2,000         | Preparing Construction        |

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Table A.1 | **Proposed Coal-Fired Power Plants in China (continued)**

| PROVINCE                      | PLANT   | DEVELOPER   | CAPACITY (MW) | STATUS                      |
|-------------------------------|---|---|---------------|-----------------------------|
| Hunan <sup>103</sup>          | Huadian Changde Power Plant Phase I   | Huadian and Shaanxi Coal and Chemical Industry Group Co.                      | 1,320         | Permitting                  |
| Hunan <sup>104</sup>          | Huaneng Yuezhou Power Plant   | Huaneng   | 4,000         | Feasibility Study           |
| Hunan <sup>105</sup>          | Zhuzhou Youxian Power Plant Phase II  | Datang  | 1,200         | Planning                    |
| Hunan <sup>106</sup>          | Shenhua Guohua Yongzhou Power Plant Phase I                                   | Shenhua   | 2,000         | Feasibility Study Permitted |
| Inner Mongolia <sup>107</sup> | Baolixixin Zhongnengguuye Power Generation Units                              | Baolixixin Co.  | 600           | Planning                    |
| Inner Mongolia <sup>108</sup> | CPI Huolinhe Region Micro-Grid Low Quality Coal Power Plant                   | China Power Investment  | 1,050         | Planning                    |
| Inner Mongolia <sup>109</sup> | CPI Xing'an Meng Wulanhaote Power Plant                                       | China Power Investment  | 2,000         | Planning                    |
| Inner Mongolia <sup>110</sup> | Cpi Huolinhe Coal Mine Power Plant Phase II                                   | China Power Investment  | 1,200         | Planning                    |
| Inner Mongolia <sup>111</sup> | CPI Chifeng Yuanbaoshan Power Plant Phase Iv                                  | China Power Investment  | 2,000         | Planning                    |
| Inner Mongolia <sup>112</sup> | CPI Mengdong Energy Chifeng New City Region                                   | China Power Investment  | 600           | Planning                    |
| Inner Mongolia <sup>113</sup> | CPI Chifeng Balinyou Qi Daban Power Plant Phase II                            | China Power Investment  | 2,000         | Planning                    |
| Inner Mongolia <sup>114</sup> | CPI Baiyinhua Power Plant Phase I   | China Power Investment  | 1,200         | Planning                    |
| Inner Mongolia <sup>115</sup> | CPI Baiyinhua Industrial Park Self-Supply Power Plant Phase I                 | China Power Investment  | 270           | Planning                    |
| Inner Mongolia <sup>116</sup> | Huarun Jinneng Dengkou Power Plant Phase II                                   | China Resources Holdings  | 1,320         | Planning                    |
| Inner Mongolia <sup>117</sup> | Huarun Tongliao Naiman Power Plant  | China Resources Holdings  | 600           | Planning                    |
| Inner Mongolia <sup>118</sup> | Datang Wulate Middle Qi Jinquan Power Plant                                   | Datang  | 4,000         | Planning                    |
| Inner Mongolia <sup>119</sup> | Datang Bayan Nur Wuyuan Power Plant   | Datang  | 1,200         | Planning                    |
| Inner Mongolia <sup>120</sup> | Datang Intl. Hailar Power Plant Phase I                                       | Datang  | 1,200         | Planning                    |
| Inner Mongolia <sup>121</sup> | Datang Intl. Hulunber Power Plant Phase I                                     | Datang  | 1,200         | Planning                    |
| Inner Mongolia <sup>122</sup> | Datang Xilinhaote Waste Coal Power Plant                                      | Datang  | 600           | Planning                    |
| Inner Mongolia <sup>123</sup> | Datang Xiwu Qi Wujianfang Power Plant   | Datang  | 1,320         | Planning                    |
| Inner Mongolia <sup>124</sup> | Datang Xiwu Qi Wujianfang Waste Coal Power Plant                              | Datang  | 600           | Planning                    |
| Inner Mongolia <sup>125</sup> | Datang Chifeng Keshiketeng Power Plant Phase I                                | Datang  | 2,000         | Planning                    |
| Inner Mongolia <sup>126</sup> | Datang Chifeng Fulong Thermal Power Plant                                     | Datang  | 600           | Planning                    |
| Inner Mongolia <sup>127</sup> | Datang Duolun Power Plant Phase I   | Datang  | 2,400         | Planning                    |
| Inner Mongolia <sup>128</sup> | Datang Xilinhaote Power Plant Phase I   | Datang  | 1,320         | Planning                    |
| Inner Mongolia <sup>129</sup> | Datang Beineng Tuoketuo Power Plant Phase V                                   | Datang and Sichuan Beineng  | 1,200         | Planning                    |
| Inner Mongolia <sup>130</sup> | Datang International Zhunger Al-Si-Ti Project Air-Cool Power Generation Units | Datang  | 600           | Planning                    |
| Inner Mongolia <sup>131</sup> | Datang Keshiketeng Power Plant Unit 1&2                                       | Datang  | 2,000         | Planning                    |
| Inner Mongolia <sup>132</sup> | Inner Mongolia Zhunger Zhujiaping Power Plant Phase I                         | Guangdong Huaxia Energy Investment Ltd. and Shanghai Chengrui Investment Ltd. | 1,200         | Feasibility Study           |
| Inner Mongolia <sup>133</sup> | Guodian Mengneng Bayan Nur Nongken Power Plant                                | Guodian   | 1,320         | Planning                    |
| Inner Mongolia <sup>134</sup> | Guodian Mengneng Al Self-Supply (Donghe Thermal) Power Plant Phase I          | Guodian   | 600           | Planning                    |
| Inner Mongolia <sup>135</sup> | Guodian Mengneng Elunchun Power Generation Units                              | Guodian   | 600           | Planning                    |

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Table A.1 | Proposed Coal-Fired Power Plants in China (continued)

| PROVINCE                      | PLANT  | DEVELOPER                | CAPACITY (MW) | STATUS   |
|-------------------------------|--|--------------------------|---------------|----------|
| Inner Mongolia <sup>136</sup> | Guodian Mengneng Hulunber Yakeshi Power Generation Units Phase I                 | Guodian                  | 600           | Planning |
| Inner Mongolia <sup>137</sup> | Guodian Mengneng Xinbarhuzuo Qi Nuomenhan Power Plant Phase I                    | Guodian                  | 1,200         | Planning |
| Inner Mongolia <sup>138</sup> | Guodian Tongliao Naiman Menglong Power Plant                                     | Guodian                  | 1,200         | Planning |
| Inner Mongolia <sup>139</sup> | Guodian Mengneng Xing'an Meng Youzhong Power Plant                               | Guodian                  | 1,320         | Planning |
| Inner Mongolia <sup>140</sup> | Guodian Mengneng Xing'an Thermal Power Plant Phase II                            | Guodian                  | 600           | Planning |
| Inner Mongolia <sup>141</sup> | Guodian Mengneng Xing'an Meng Youqian Qi Guiliuhe Huowulukou Power Plant Phase I | Guodian                  | 1,320         | Planning |
| Inner Mongolia <sup>142</sup> | Guodian Mengneng Alashan Left Qi Wusitai Power Plant Phase II                    | Guodian                  | 1,200         | Planning |
| Inner Mongolia <sup>143</sup> | Guodian Chifeng Yuanbaoshan Power Generation Units                               | Guodian                  | 600           | Planning |
| Inner Mongolia <sup>144</sup> | Guodian Mengneng Chifeng Keshiketeng Thermal Power Plant                         | Guodian                  | 600           | Planning |
| Inner Mongolia <sup>145</sup> | Guodian Xilinhaote Power Plant Phase II & III                                    | Guodian                  | 1,800         | Planning |
| Inner Mongolia <sup>146</sup> | Guodian Chifeng Lindong Power Generation Units Phase I                           | Guodian                  | 2,000         | Planning |
| Inner Mongolia <sup>147</sup> | Guodian Mengneng Xilinguole Wulagai Power Plant Phase I                          | Guodian                  | 1,320         | Planning |
| Inner Mongolia <sup>148</sup> | Guodian Zhunger Youyi Power Plant  | Guodian                  | 1,320         | Planning |
| Inner Mongolia <sup>149</sup> | Guodian Mengneng Dafanpu Power Plant   | Guodian                  | 3,800         | Planning |
| Inner Mongolia <sup>150</sup> | Guodian Zhunger Changtan Power Plant Phase I                                     | Guodian                  | 1,200         | Planning |
| Inner Mongolia <sup>151</sup> | Erdos Cahasu Power Plant Unit 1&2  | Guodian                  | 1,320         | Planning |
| Inner Mongolia <sup>152</sup> | Erdos Yinjinhuolo Power Plant Unit 1&2   | Guodian                  | 1,320         | Planning |
| Inner Mongolia <sup>153</sup> | Guodian Dongsheng Thermal Power Plant Unit 3&4                                   | Guodian                  | 600           | Planning |
| Inner Mongolia <sup>154</sup> | Mengneng Wulate Front Qi Power Plant   | Guodian                  | 600           | Planning |
| Inner Mongolia <sup>155</sup> | Bayan Nur Wulate Middle Qi Power Plant   | Huadian                  | 800           | Planning |
| Inner Mongolia <sup>156</sup> | Huadian Baotou Donghua Thermal Power Plant Phase II                              | Huadian                  | 2,000         | Planning |
| Inner Mongolia <sup>157</sup> | Huadian Baotou Hexi Power Plant Phase II   | Huadian                  | 2,000         | Planning |
| Inner Mongolia <sup>158</sup> | Huadian Baotou Tuyou Power Plant Phase I   | Huadian                  | 1,200         | Planning |
| Inner Mongolia <sup>159</sup> | Huadian Power Generation Units   | Huadian                  | 6,000         | Planning |
| Inner Mongolia <sup>160</sup> | Huadian Wuhai City Wuda Thermal Power Plant                                      | Huadian                  | 1,200         | Planning |
| Inner Mongolia <sup>161</sup> | Huadian Baiyinhua Jinshan Power Plant Phase II                                   | Huadian                  | 1,320         | Planning |
| Inner Mongolia <sup>162</sup> | Huadian Hubei Energy Zhunger Shierliancheng Power Plant                          | Huadian and Hubei Energy | 2,640         | Planning |
| Inner Mongolia <sup>163</sup> | Huadian Zhunger Dalu Waste Coal Power Plant Phase I                              | Huadian                  | 600           | Planning |
| Inner Mongolia <sup>164</sup> | Erdos Shuangxin Power Plant Unit 5&6   | Huadian                  | 1,200         | Planning |
| Inner Mongolia <sup>165</sup> | Huaneng Beifang Bayan Nur Linhe Thermal Power Plant Phase II                     | Huaneng                  | 600           | Planning |

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Table A.1 | **Proposed Coal-Fired Power Plants in China (continued)**

| PROVINCE                      | PLANT   | DEVELOPER                       | CAPACITY (MW) | STATUS   |
|-------------------------------|---|---------------------------------|---------------|----------|
| Inner Mongolia <sup>166</sup> | Huaneng Beifang Wulate Front Qi Wulashan Power Plant Phase Iv                 | Huaneng                         | 1,200         | Planning |
| Inner Mongolia <sup>167</sup> | Huaneng Beifang Helin Power Plant Phase II                                    | Huaneng                         | 2,000         | Planning |
| Inner Mongolia <sup>168</sup> | Huaneng Beifang Hohhot Jinqiao Thermal Power Plant                            | Huaneng                         | 1,200         | Planning |
| Inner Mongolia <sup>169</sup> | Huaneng Beifang Hohhot Tuzuo Power Plant                                      | Huaneng                         | 1,200         | Planning |
| Inner Mongolia <sup>170</sup> | Huaneng Beifang Baotou No.1 Thermal Power Plant                               | Huaneng                         | 1,200         | Planning |
| Inner Mongolia <sup>171</sup> | Huaneng Beifang Baotou No.2 Thermal Power Plant                               | Huaneng                         | 1,200         | Planning |
| Inner Mongolia <sup>172</sup> | Huaneng Yimin Power Generation Phase Iv                                       | Huaneng                         | 2,000         | Planning |
| Inner Mongolia <sup>173</sup> | Huaneng Manzhouli Low-Heat-Coal Power Plant                                   | Huaneng                         | 400           | Planning |
| Inner Mongolia <sup>174</sup> | Huaneng Yakeshi Huliuhe Power Plant   | Huaneng                         | 400           | Planning |
| Inner Mongolia <sup>175</sup> | Huaneng Beifeng And Beineng Chenbarhu Qi Baorixile Power Plant                | Huaneng and Sichuan Beineng     | 2,400         | Planning |
| Inner Mongolia <sup>176</sup> | Huaneng Beifang Yakeshi Huiliuhe Power Plant                                  | Huaneng                         | 1,200         | Planning |
| Inner Mongolia <sup>177</sup> | Huaneng Shenneng Manzhouli Zhalaunor Power Generation Units Phase I           | Huaneng and Shenneng            | 1,200         | Planning |
| Inner Mongolia <sup>178</sup> | Huaneng Keyouqian Qi Debosi Power Plant                                       | Huaneng                         | 1,200         | Planning |
| Inner Mongolia <sup>179</sup> | Huaneng Beifang Tongliao Zhalute Power Plant                                  | Huaneng                         | 1,200         | Planning |
| Inner Mongolia <sup>180</sup> | Huaneng Beifang Wuhai Thermal Power Plant                                     | Huaneng                         | 1,200         | Planning |
| Inner Mongolia <sup>181</sup> | Beifang Wuhai Haibowan Power Plant  | Huaneng                         | 1,200         | Planning |
| Inner Mongolia <sup>182</sup> | Huaneng Beifang Xilinguole Wulagai Power Plant Phase I & II                   | Huaneng                         | 5,200         | Planning |
| Inner Mongolia <sup>183</sup> | Huaneng Beifang Xilinhaote-3 Thermal Power Plant                              | Huaneng                         | 600           | Planning |
| Inner Mongolia <sup>184</sup> | Huaneng Beifang Chifeng Keshiketeng Power Plant                               | Huaneng                         | 1,200         | Planning |
| Inner Mongolia <sup>185</sup> | Huaneng Neimenghuadian Xilinguole Shangdu Power Plant Phase Iv                | Huaneng                         | 1,320         | Planning |
| Inner Mongolia <sup>186</sup> | Huaneng Beifang Bayanbaolige Power Plant Phase I & II                         | Huaneng                         | 2,640         | Planning |
| Inner Mongolia <sup>187</sup> | Huaneng Beifang Inner Mongolia Huadian Zhunger Weijiamao Power Plant Phase II | Huaneng and Huadian             | 2,000         | Planning |
| Inner Mongolia <sup>188</sup> | Huaneng Beifang Zhunger Heidaigou Coal Mine Power Plant Phase I               | Huaneng                         | 2,000         | Planning |
| Inner Mongolia <sup>189</sup> | Huaneng Beifang Zhunxing Coal Mine Power Plant Phase I                        | Huaneng                         | 1,200         | Planning |
| Inner Mongolia <sup>190</sup> | Huaneng Hailar Power Plant Unit 4&5   | Huaneng                         | 400           | Planning |
| Inner Mongolia <sup>191</sup> | Huaneng Beifang East Hailar Power Plant                                       | Huaneng                         | 1,200         | Planning |
| Inner Mongolia <sup>192</sup> | Huolinhe Zhanute Power Plant Unit 1–4   | Inner Mongolia Huolinhe Coal    | 800           | Planning |
| Inner Mongolia <sup>193</sup> | Hengwang Power Plant  | Inner Mongolia Wulahot Hengwang | 400           | Planning |
| Inner Mongolia <sup>194</sup> | Jingmei Wuhai Jinghai Waste Coal Power Plant Phase II                         | Jingmei Group                   | 600           | Planning |
| Inner Mongolia <sup>195</sup> | Wulate Middle Qi Jinqian Power Plant  | Jingneng                        | 2,400         | Planning |
| Inner Mongolia <sup>196</sup> | Jingneng Tongliao Naiman Power Plant Phase I                                  | Jingneng                        | 1,200         | Planning |

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Table A.1 | Proposed Coal-Fired Power Plants in China (continued)

| PROVINCE                      | PLANT   | DEVELOPER   | CAPACITY (MW) | STATUS                |
|-------------------------------|---|---|---------------|-----------------------|
| Inner Mongolia <sup>197</sup> | Luneng Dayan Power Plant  | Luneng  | 1,200         | Planning              |
| Inner Mongolia <sup>198</sup> | Luneng Chen Qi Wanshan Hushan Coal Mine Power Plant                           | Luneng  | 3,600         | Planning              |
| Inner Mongolia <sup>199</sup> | Luneng Hailar Xiertala Power Plant  | Luneng  | 1,200         | Planning              |
| Inner Mongolia <sup>200</sup> | Luneng Ewenke Power Plant Phase II  | Luneng  | 2,000         | Planning              |
| Inner Mongolia <sup>201</sup> | Luneng Yannan Power Plant Phase I   | Luneng  | 600           | Planning              |
| Inner Mongolia <sup>202</sup> | Luneng Fengfeng Zhaganzhuoer Power Plant Phase I                              | Luneng and Jinzhong Energy Fengfeng Co.                                 | 1,320         | Planning              |
| Inner Mongolia <sup>203</sup> | Luneng Duolun Power Plant Phase I   | Luneng  | 2,000         | Planning              |
| Inner Mongolia <sup>204</sup> | Shenhua Shendong Wulate Middle Qi Jinquan Industrial Park Power Plant Phase I | Shenhua   | 1,320         | Planning              |
| Inner Mongolia <sup>205</sup> | Shenhua Guohua Shenbarhu Qi Baorixile Hulunber Power Plant Phase II           | Shenhua   | 1,200         | Planning              |
| Inner Mongolia <sup>206</sup> | Shenhua Guohua Xilaifeng Power Plant (Wuhai Waste Coal Power Plant) Phase II  | Shenhua   | 400           | Planning              |
| Inner Mongolia <sup>207</sup> | Shenhua Shengli Power Plant Phase I   | Shenhua   | 1,200         | Planning              |
| Inner Mongolia <sup>208</sup> | Shenhua Zhunneng Waste Coal Power Plant Phase II                              | Shenhua   | 600           | Planning              |
| Inner Mongolia <sup>209</sup> | Beineng Wulanchabu Fengzhen Power Plant Phase Iv                              | Sichuan Beineng   | 1,320         | Planning              |
| Inner Mongolia <sup>210</sup> | Beineng Wulanchabu Chahar Youyihou Qi Pingdiquan Power Plant                  | Sichuan Beineng   | 600           | Planning              |
| Inner Mongolia <sup>211</sup> | Beineng Yuquan Thermal Power Plant Phase I                                    | Sichuan Beineng   | 600           | Planning              |
| Inner Mongolia <sup>212</sup> | Beineng Wulanchabu Liangcheng County Daihai Power Plant Phase III             | Sichuan Beineng   | 1,200         | Planning              |
| Inner Mongolia <sup>213</sup> | Beineng Shenyang Construction Inv. Xinbarhuzuo Qi Argong Hulunber Power Plant | Sichuan Beineng and Shenyang Construction Investment Co.                | 2,400         | Planning              |
| Inner Mongolia <sup>214</sup> | Beineng Chifeng Wengniute Qi Hongshan Power Plant Phase I                     | Sichuan Beineng   | 1,200         | Planning              |
| Inner Mongolia <sup>215</sup> | Beineng Zhunger Suanlagou Power Plant Phase II & III                          | Sichuan Beineng   | 5,200         | Planning              |
| Inner Mongolia <sup>216</sup> | Beineng Zhunger Dalu Power Plant Phase I                                      | Sichuan Beineng   | 600           | Planning              |
| Inner Mongolia <sup>217</sup> | State Grid Baiyanhua Power Plant Phase I                                      | State Grid Energy Development Co.                                       | 2,000         | Planning              |
| Inner Mongolia <sup>218</sup> | Ganqimaodu Processing Industrial Park Power Plant                             | Unknown   | 600           | Planning              |
| Inner Mongolia <sup>219</sup> | Hangjin Rear Qi Menghai Industrial Park                                       | Unknown   | 2,400         | Planning              |
| Jiangsu <sup>220</sup>        | Guoxin Dafeng Power Plant Unit 1–4  | China National Coal Group   | 4,000         | Planning              |
| Jiangsu <sup>221</sup>        | Datang Xutang Power Plant Unit 5&6  | Datang  | 2,000         | Planning              |
| Jiangsu <sup>222</sup>        | Taizhou Power Plant Phase II  | Guodian   | 2,000         | NDRC Permitted        |
| Jiangsu <sup>223</sup>        | Huaneng Nanjing Thermal Power Plant   | Huaneng   | 100           | Permitting            |
| Jiangsu <sup>224</sup>        | Dafeng Port Power Plant   | Jiangsu Guoxin Investment Group   | 2,000         | Planning              |
| Jiangsu <sup>225</sup>        | Jiangsu Sheyanggang Power Plant   | Jiangsu Guoxin Investment Group and Yancheng City Thermal Power Company | 600           | NDRC Permitted        |
| Jiangxi <sup>226</sup>        | Datang Fuzhou Power Plant   | Datang  | 2,000         | Permitting, Tendering |

continued next page

Table A.1 | **Proposed Coal-Fired Power Plants in China (continued)**

| PROVINCE                | PLANT   | DEVELOPER   | CAPACITY (MW) | STATUS         |
|-------------------------|---|---|---------------|----------------|
| Jiangxi <sup>227</sup>  | Guodian Jiujiang Power Plant  | Guodian   | 600           | NDRC Permitted |
| Jiangxi <sup>228</sup>  | Anyuan Power Plant  | Huaneng   | 1,200         | NDRC Permitted |
| Jiangxi <sup>229</sup>  | Shenhua Guohua Jiujiang Coal Reserve (Transport) Power Integrated Project Phase I | Shenhua   | 2,000         | Permitting     |
| Jilin <sup>230</sup>    | CPI Baicheng Power Plant Unit 3–6   | China Power Investment                                  | 4,000         | Planning       |
| Jilin <sup>231</sup>    | Datang Changshan Power Plant Unit 11  | Datang  | 660           | Planning       |
| Jilin <sup>232</sup>    | Huaneng Jiutai Power Plant Phase II   | Huaneng   | 1,200         | Permitting     |
| Jilin <sup>233</sup>    | Dunhua Power Plant Unit 1&2   | Huaneng   | 700           | Planning       |
| Liaoning <sup>234</sup> | Fengcheng Shouguang Power Plant Unit 1&2  | Datang  | 700           | Planning       |
| Liaoning <sup>235</sup> | Anshan North Power Plant Unit 1–4   | Guodian   | 1,200         | Planning       |
| Liaoning <sup>236</sup> | Anshan South Power Plant Unit 1–4   | Guodian   | 1,200         | Planning       |
| Ningxia <sup>237</sup>  | CPI Ningxia “West-To-East” Power Plant  | China Power Investment                                  | 6,000         | Planning       |
| Ningxia <sup>238</sup>  | CPI Ningxia Power Generation Zaoquan Power Plant Phase I                          | China Power Investment and Ningxia Power Generation Co. | 1,200         | Planning       |
| Ningxia <sup>239</sup>  | CPI Guodian Qingtongxia Al. Industry Self-Supply Power Plant Phase II             | China Power Investment and Guodian                      | 600           | Planning       |
| Ningxia <sup>240</sup>  | Cpi Zhongwei Thermal Power Plant Phase I  | China Power Investment                                  | 660           | Planning       |
| Ningxia <sup>241</sup>  | CPI Linhe Power Station Unit 3  | China Power Investment                                  | 330           | Planning       |
| Ningxia <sup>242</sup>  | Guodian Shizuishan Power Plant  | Guodian   | 1,200         | Planning       |
| Ningxia <sup>243</sup>  | Guodian Yinglite East Ningxia Thermal Power Plant                                 | Guodian   | 660           | Planning       |
| Ningxia <sup>244</sup>  | Guodian Wuzhong Thermal Power Plant   | Guodian   | 700           | Planning       |
| Ningxia <sup>245</sup>  | Guodian Shizuishan Dawukou Waste Coal Power Plant                                 | Guodian   | 600           | Planning       |
| Ningxia <sup>246</sup>  | Guodian Fangjiazhuang Power Plant Phase I   | Guodian   | 2,000         | Planning       |
| Ningxia <sup>247</sup>  | Huadian Ningxia Power Generation Zhongning Power Plant Phase II                   | Huadian and Ningxia Power Generation Co.                | 2,000         | Planning       |
| Ningxia <sup>248</sup>  | Huadian Lingwu Power Plant Phase III  | Huadian   | 2,000         | Planning       |
| Ningxia <sup>249</sup>  | Huadian Yongli Power Plant Phase I  | Huadian   | 2,000         | Planning       |
| Ningxia <sup>250</sup>  | Huaneng Ningxia Power Generation Weizhou Waste Coal Power Plant                   | Huaneng and Ningxia Power Generation Co.                | 600           | Planning       |
| Ningxia <sup>251</sup>  | Huaneng Luoshan Power Plant Phase I   | Huaneng   | 1,200         | Planning       |
| Ningxia <sup>252</sup>  | Huaneng Wuzhong Taiyangshan Waste Coal Power Plant                                | Huaneng   | 700           | Planning       |
| Ningxia <sup>253</sup>  | Huaneng Qingtongxia Daba Power Plant Phase Iv                                     | Huaneng   | 2,000         | Planning       |
| Ningxia <sup>254</sup>  | Luneng Majiatan Power Plant   | Luneng  | 3,600         | Planning       |
| Ningxia <sup>255</sup>  | Luneng Yuanyanghu Power Plant Phase II  | Luneng  | 2,000         | Planning       |
| Ningxia <sup>256</sup>  | Ningxia Power Generation Maliantai Power Plant Phase II & III                     | Ningxia Power Generation Co.                            | 3,200         | Planning       |
| Ningxia <sup>257</sup>  | Ningxia Power Generation Liupanshan Thermal Power Plant Phase II                  | Ningxia Power Generation Co.                            | 660           | Planning       |
| Ningxia <sup>258</sup>  | Shenhua Lingzhou Power Plant  | Shenhua   | 2,400         | Planning       |
| Ningxia <sup>259</sup>  | Shenhua East Ningxia Power Plant Phase II & III                                   | Shenhua   | 4,000         | Planning       |

continued next page

Table A.1 | Proposed Coal-Fired Power Plants in China (continued)

| PROVINCE               | PLANT  | DEVELOPER  | CAPACITY (MW) | STATUS                |
|------------------------|--|--|---------------|-----------------------|
| Qinghai <sup>260</sup> | CPI Xining Power Plant   | China Power Investment   | 1,320         | Tendering, Permitting |
| Qinghai <sup>261</sup> | Huaneng Minhe Power Plant  | Huaneng  | 5,200         | Feasibility Study     |
| Shaanxi <sup>262</sup> | Chinalco Yulin Coal-Power Aluminum Business Chain                  | Aluminum Co. Of China  | 1,200         | Planning              |
| Shaanxi <sup>263</sup> | Binlong Power Plant Unit 1–2                                       | Binlong Mining Co.   | 400           | Planning              |
| Shaanxi <sup>264</sup> | Datang Fugu Coal-Power Integration Project Self-Supply Power Plant | Datang   | 400           | Planning              |
| Shaanxi <sup>265</sup> | Datang Yulin Fugu Xiwangzhai Waste Coal Power Plant                | Datang   | 600           | Planning              |
| Shaanxi <sup>266</sup> | Datang Yan'an Power Plant  | Datang   | 600           | Planning              |
| Shaanxi <sup>267</sup> | Datang Hanzhong Power Plant  | Datang   | 1,200         | Feasibility Study     |
| Shaanxi <sup>268</sup> | Datang Baoji Thermal Power Plant                                   | Datang   | 1,200         | Permitting            |
| Shaanxi <sup>269</sup> | Guodian Xi'an Xijiao Thermal Power Plant                           | Guodian  | 700           | MEP Permitting        |
| Shaanxi <sup>270</sup> | Guodian Yulin Jingbian Power Plant                                 | Guodian  | 6,000         | Planning              |
| Shaanxi <sup>271</sup> | Guodian Hengshan Waste Coal Power Plant                            | Guodian  | 600           | Planning              |
| Shaanxi <sup>272</sup> | Huadian Yuheng Power Plant Phase II & III                          | Huadian  | 6,000         | Planning              |
| Shaanxi <sup>273</sup> | Huadian Yuheng Waste Coal Power Plant Phase I                      | Huadian  | 600           | Planning              |
| Shaanxi <sup>274</sup> | Huadian Shiquan Power Plant Phase I&II                             | Huadian and Shaanxi Coal and Chemistry Industry Group Co. Ltd. | 4,000         | NDRC Permitted        |
| Shaanxi <sup>275</sup> | Huadian Ankang Power Plant   | Huadian  | 2,000         | Permitting            |
| Shaanxi <sup>276</sup> | Huaneng Tongchuan Power Plant Phase II                             | Huaneng  | 2,000         | Planning              |
| Shaanxi <sup>277</sup> | Huaneng Yan'an Power Plant Phase I & II                            | Huaneng  | 3,200         | Planning              |
| Shaanxi <sup>278</sup> | Huaneng Fugu Duanzhai Power Plant                                  | Huaneng  | 8,000         | Planning              |
| Shaanxi <sup>279</sup> | Huaneng Yulin Jingbian Power Plant Phase I                         | Huaneng  | 2,000         | Planning              |
| Shaanxi <sup>280</sup> | Huaneng Duanzhai Power Plant Unit 1&2                              | Huaneng  | 2,000         | Planning              |
| Shaanxi <sup>281</sup> | Huaneng Qinling Power Plant Unit 9&10                              | Huaneng  | 1,200         | Feasibility Study     |
| Shaanxi <sup>282</sup> | Luneng Fugu Power Plant Phase II                                   | Luneng   | 2,000         | Planning              |
| Shaanxi <sup>283</sup> | Huangling-2 Power Plant Unit 3&4                                   | Northwest China Elec Power                                     | 600           | Planning              |
| Shaanxi <sup>284</sup> | Fugu Qingshuichuan Waste Coal Power Plant                          | Shaanxi Coal and Chemical Industry Group Co.                   | 600           | Planning              |
| Shaanxi <sup>285</sup> | Hongliulin Waste Coal Power Plant                                  | Shaanxi Coal and Chemical Industry Group Co.                   | 600           | Planning              |
| Shaanxi <sup>286</sup> | Huangling Waste Coal Power Generation And Utilization Proejct      | Shaanxi Coal and Chemical Industry Group Co.                   | 600           | Planning              |
| Shaanxi <sup>287</sup> | Shaanxi Youser Yulin Al-Mg Alloy Project Phase II                  | Shaanxi Non-Ferrous Metals Holding Group Co.                   | 660           | Planning              |
| Shaanxi <sup>288</sup> | Shaanxi Investment Fugu Qingshuichuan Power Plant II               | Shaanxi Provincial Investment Group Co.                        | 2,000         | Planning              |
| Shaanxi <sup>289</sup> | Shenhua Shendong Power Dianta Waste Coal Power Plant               | Shenhua  | 600           | Planning              |
| Shaanxi <sup>290</sup> | Shenhua Shendong Coal Shenmu Daliuta Thermal Power Plant           | Shenhua  | 600           | Planning              |
| Shaanxi <sup>291</sup> | Shenhua Shendong Coal Daliuta Waste Coal Power Plant               | Shenhua  | 600           | Planning              |

continued next page

Table A.1 | **Proposed Coal-Fired Power Plants in China (continued)**

| PROVINCE                | PLANT   | DEVELOPER   | CAPACITY (MW) | STATUS  |
|-------------------------|---|---|---------------|---|
| Shaanxi <sup>292</sup>  | Shenhua Shendong Power Fugu Guojiawan Waste Coal Power Plant Phase II | Shenhua   | 600           | Planning  |
| Shaanxi <sup>293</sup>  | Shenhua Guohua Shenmu Jinjie Power Plant Phase III                    | Shenhua   | 4,000         | Planning  |
| Shaanxi <sup>294</sup>  | Fugu Huangfuchuan Waste Coal Power Plant                              | Unknown   | 600           | Planning  |
| Shaanxi <sup>295</sup>  | Shenfu Economic Development Zone Jinjie Thermal Power Plant           | Unknown   | 600           | Planning  |
| Shaanxi <sup>296</sup>  | Shenmu Thermal Power Plant  | Unknown   | 600           | Planning  |
| Shaanxi <sup>297</sup>  | Wubao Henggou Waste Coal Power Plant                                  | Unknown   | 300           | Planning  |
| Shaanxi <sup>298</sup>  | Zichang Waste Coal Power Plant  | Unknown   | 300           | Planning  |
| Shaanxi <sup>299</sup>  | Yushen Coal Yulin Beijiao Thermal Power Plant Phase I & II            | Yushen Coal   | 1,800         | Planning  |
| Shaanxi <sup>300</sup>  | Yushen Coal Yulin Shanghe Thermal Power Plant                         | Yushen Coal   | 600           | Planning  |
| Shandong <sup>301</sup> | Chiping Haoji Power Plant Unit 1&2                                    | Chiping Haoji   | 1,400         | Planning  |
| Shandong <sup>302</sup> | Datang Dongying Power Plant Phase I                                   | Datang  | 2,000         | Permitting  |
| Shandong <sup>303</sup> | Feixian Power Plant Unit 3–6  | Guodian   | 4,000         | Planning  |
| Shandong <sup>304</sup> | Guodian Binzhou Boxing Power Plant Unit 1&2                           | Guodian   | 2,000         | Planning  |
| Shandong <sup>305</sup> | Huadian Laizhou Power Plant Unit 3&4                                  | Huadian   | 2,078         | Planning  |
| Shandong <sup>306</sup> | Huaneng Laiwu Thermal Power Plant Phase III                           | Huaneng   | 200           | Designing   |
| Shandong <sup>307</sup> | Dongying Shengli Thermal Power Plant Phase III                        | Shengli Petroleum Administration and A Large National Power Company | 600           | NDRC Permitted  |
| Shandong <sup>308</sup> | Heze Huarun Power Plant Unit 3&4                                      | China Resources Holdings  | 1,200         | Planning  |
| Shandong <sup>309</sup> | Huaneng Jiaxiang Power Plant Unit 3&4                                 | Huaneng   | 1,360         | Planning  |
| Shandong <sup>310</sup> | Binzhou Works Power Plant Unit 9–10                                   | Shandong Weiqiao Alum & Power                                       | 1,320         | Planning  |
| Shanghai <sup>311</sup> | Shanghai Shidongkou No.1 Power Plant                                  | Huaneng   | 2,520         | Permitting  |
| Shanxi <sup>312</sup>   | Pingshuo Waste Coal Power Plant                                       | China National Coal Group   | 1,200         | Feasibility Study, Tendering                            |
| Shanxi <sup>313</sup>   | CPI Houma Power Plant   | China Power Investment  | 600           | Permitted, Financing Failure, Construction Discontinued |
| Shanxi <sup>314</sup>   | CPI Shanxi Pianguan Coal Power Integrated Project                     | China Power Investment  | 2,000         | Permitting  |
| Shanxi <sup>315</sup>   | Tashan Waste Coal Power Plant   | Datang and Datong Coal Mine Group                                   | 1,320         | Feasibility Study                                       |
| Shanxi <sup>316</sup>   | Datang Taier Power Plant Unit 1&2                                     | Datang  | 1,320         | Planning  |
| Shanxi <sup>317</sup>   | Yuanping Xuangang Power Plant Phase II                                | Datong Coal Mine Group  | 1,320         | Feasibility Study Permitted                             |
| Shanxi <sup>318</sup>   | Shanxi Guodian Rongda Coal Power Integrated Project                   | Guodian and Huozhou Coal Power Co.                                  | 2,000         | NDRC Permitting   |
| Shanxi <sup>319</sup>   | Datong Hudong Power Plant   | Guodian   | 2,000         | Permitting  |
| Shanxi <sup>320</sup>   | Yuxian Coal Power Integrated Project                                  | Shanxi International Energy   | 2,000         | Permitting  |
| Shanxi <sup>321</sup>   | Gaoping Power Plant   | Shanxi International Energy   | 1,200         | Permitting  |
| Shanxi <sup>322</sup>   | Liulin Liansheng Waste Coal Power Plant Phase I                       | Shanxi International Energy   | 300           | Permitting  |
| Shanxi <sup>323</sup>   | Changzhi Waste Coal Power Plant                                       | Shanxi International Energy   | 1,200         | Announced   |
| Shanxi <sup>324</sup>   | Jincheng Waste Coal Power Plant                                       | Shanxi International Energy   | 1,200         | Announced   |

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Table A.1 | Proposed Coal-Fired Power Plants in China (continued)

| PROVINCE                | PLANT  | DEVELOPER   | CAPACITY (MW) | STATUS                              |
|-------------------------|--|---|---------------|-------------------------------------|
| Shanxi <sup>325</sup>   | Gucheng Power Plant  | Shanxi International Energy                           | 2,000         | Permitting                          |
| Shanxi <sup>326</sup>   | Hepo Power Plant   | Shanxi International Energy                           | 600           | Tendering, Permitting               |
| Shanxi <sup>327</sup>   | Dongshan Mine Power Plant Unit 1&2                                 | Shanxi Intl Elec Group Co.                            | 700           | Planning                            |
| Sichuan <sup>328</sup>  | Guangyuan Power Plant  | Datang  | 4,000         | NDRC Permitting, Tendering          |
| Sichuan <sup>329</sup>  | Chengdu Jintang Power Plant Unit 3&4                               | Guodian   | 2,000         | Permitting                          |
| Sichuan <sup>330</sup>  | Gongcxian Power Plant Unit 3&4                                     | Huadian   | 2,000         | Planning                            |
| Sichuan <sup>331</sup>  | Fukang Yongxiang Power Plant Unit 1–5                              | Sichuan Yongxiang Co.                                 | 1,750         | Planning                            |
| Tianjin <sup>332</sup>  | Tianjin Guodian Beitang Thermal Power Plant Phase I                | Guodian and Jinneng Investment                        | 600           | MEP and NDRC Permitted              |
| Tianjin <sup>333</sup>  | Tianjin Beijiang Power Plant Phase II                              | SDIC and Jinneng Investment                           | 2,000         | MEP Permitted                       |
| Xinjiang <sup>334</sup> | Huawei Hetian City Power Plant Phase II                            | Beijing Huawei Hetian Investment Ltd. and Zhongmu Co. | 600           | Planning                            |
| Xinjiang <sup>335</sup> | Jimusaer County Color Bay Power Plant Phase I                      | China Power Investment                                | 2,000         | Permitting                          |
| Xinjiang <sup>336</sup> | Qitai County Army General Temple Power Plant Phase I               | China Power Investment                                | 2,000         | Permitting                          |
| Xinjiang <sup>337</sup> | Qitai County Jiji Lake Power Plant Phase I                         | China Power Investment                                | 2,000         | Permitting                          |
| Xinjiang <sup>338</sup> | CPI And Lu'an Dananhu Power Plant                                  | China Power Investment and Lu'An                      | 1,320         | Planning                            |
| Xinjiang <sup>339</sup> | CPI Xinjiang Wujiaqu Power Plant Phase I                           | China Power Investment                                | 1,320         | Feasibility Study, Tendering        |
| Xinjiang <sup>340</sup> | CPI Xinjiang Shanshan Power Plant                                  | China Power Investment                                | 700           | Permitting                          |
| Xinjiang <sup>341</sup> | Hami Dananhu Coal Power Project                                    | Datang  | 2,000         | Permitting, Tendering               |
| Xinjiang <sup>342</sup> | Guodianxukuang Dananhu Power Plant                                 | Guodian and Xukuang Co.                               | 2,000         | Preparing Construction              |
| Xinjiang <sup>343</sup> | Beitun Power Plant Unit 3&4  | Guodian   | 700           | Planning                            |
| Xinjiang <sup>344</sup> | Hongyangchi-1 Power Plant Unit 12&13                               | Guodian   | 660           | Planning                            |
| Xinjiang <sup>345</sup> | Guodian Bachu Thermal Power Plant                                  | Guodian   | 700           | Feasibility Study and MEP Permitted |
| Xinjiang <sup>346</sup> | Hongyanchi-2 Power Plant 5&6                                       | Huadian   | 660           | Planning                            |
| Xinjiang <sup>347</sup> | Huadian Changji-1 Power Plant Unit 3&4                             | Huadian   | 250           | Planning                            |
| Xinjiang <sup>348</sup> | Huaneng Heavy Industrial Park Power Plant                          | Huaneng   | 1,320         | Planning                            |
| Xinjiang <sup>349</sup> | Huaneng Fuhai Thermal Power Plant Phase I                          | Huaneng   | 700           | Planning                            |
| Xinjiang <sup>350</sup> | Huaneng Turpan Unit 3&4  | Huaneng   | 1,200         | Planning                            |
| Xinjiang <sup>351</sup> | Xinjiang Bingtuan Nongyishi Alaerxihu Thermal Power Plant Phase II | Nongyishi Power                                       | 700           | MEP Permitting                      |
| Xinjiang <sup>352</sup> | SDIC Dananhu Power Plant   | SDIC  | 1,320         | Planning                            |
| Xinjiang <sup>353</sup> | SDIC Yining County Power Project                                   | SDIC  | 660           | Planning                            |
| Xinjiang <sup>354</sup> | State Grid Energy Dananhu Power Plant                              | State Grid Energy Development Co.                     | 2,000         | Planning                            |
| Xinjiang <sup>355</sup> | Beisantai Ind Park Power Plant Unit 1&2                            | Wintime Energy Co.                                    | 300           | Planning                            |
| Xinjiang <sup>356</sup> | Xinjiang Kuche Ehuobulake Coal Mine Power Plant                    | Xukuang Co.   | 1,320         | Feasibility Study Permitted         |
| Xinjiang <sup>357</sup> | Akesu Power Plant Phase II   | Xuzhou Mining Group Co.                               | 1,320         | Planning                            |
| Yunnan <sup>358</sup>   | Diandong Yuwang Power Plant Phase II Unit 3&4                      | Huaneng   | 1,200         | Planning                            |
| Zhejiang <sup>359</sup> | Huarun Cangnan Power Plant Phase I                                 | China Resources Holdings                              | 2,000         | NDRC Permitted, Tendering           |

continued next page

Table A.1 | Proposed Coal-Fired Power Plants in China (continued)

| PROVINCE                | PLANT                                 | DEVELOPER                     | CAPACITY (MW)  | STATUS                                 |
|-------------------------|---------------------------------------|-------------------------------|----------------|--|
| Zhejiang <sup>360</sup> | Huaneng Changxing Thermal Power Plant | Huaneng                       | 1,320          | Permitting                             |
| Zhejiang <sup>361</sup> | Changxing ZSEP Unit 1&2               | Zhejiang Southeast Elec Power | 600            | Planning                               |
| Zhejiang <sup>362</sup> | Liuheng Power Plant                   | Zheneng                       | 2,000          | NDRC Permitted, Tendering              |
| Zhejiang <sup>363</sup> | Taizhou-2 Power Plant                 | Zheneng                       | 2,000          | NDRC Permitted, Preparing Construction |
| <b>Total</b>            |                                       |                               | <b>557,938</b> |  |

## ENDNOTES FOR TABLE A.1

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Table A.2 | Proposed Coal-Fired Plants in India

| STATE          | PLANT   | DEVELOPER   | CAPACITY (MW) | STATUS               |
|----------------|---|---|---------------|----------------------|
| Andhra Pradesh | Adilabad Power Station Unit 1   | Singareni Collieries                                  | 600           | Construction         |
| Andhra Pradesh | Adilabad Power Station Unit 2   | Singareni Collieries                                  | 600           | Early development    |
| Andhra Pradesh | Adilabad Power Station (Shalivahana Power Corp.)                      | Shalivahana Power Corp.                               | 300           | Uncertain            |
| Andhra Pradesh | Ankulapatur Power Station Phase I                                     | VSF Projects  | 350           | Construction         |
| Andhra Pradesh | Ankulapatur Power Station Phase II                                    | VSF Projects  | 135           | Proposed             |
| Andhra Pradesh | Bander Power Station Phase I  | Thermal Powertech Corporation                         | 660           | Construction         |
| Andhra Pradesh | Bander Power Station Phase II   | Thermal Powertech Corporation                         | 660           | Construction         |
| Andhra Pradesh | Budele Power Station  | Indu Projects Limited                                 | 1,000         | Unconfirmed          |
| Andhra Pradesh | Damodaram Sanjeevaiah Thermal Power Station (Krishnapatnam)           | Andhra Pradesh Power Generation Corporation (APGENCO) | 1,600         | Construction         |
| Andhra Pradesh | Dr. RKP Power Ankulapatur Power Station Phase I                       | Dr. RKP Power   | 130           | Advanced development |
| Andhra Pradesh | Dr. RKP Power Ankulapatur Power Station Phase II                      | Dr. RKP Power   | 300           | Advanced development |
| Andhra Pradesh | Gopuwanipalam Mega Thermal Power Project (Chinnapuram, Machilipatnam) | Nagarjuna Construction Company                        | 1,980         | Unconfirmed          |
| Andhra Pradesh | Gudur Thermal Power Project (Momidi) Phase I                          | Pragdisa Power Private Ltd                            | 1,320         | Proposed             |
| Andhra Pradesh | Gudur Thermal Power Project (Momidi) Phase II                         | Pragdisa Power Private Ltd                            | 1,320         | Proposed             |
| Andhra Pradesh | Gunipudi Power Station (STEAPL proposal)                              | Suryachakra Group                                     | 1,320         | Advanced development |
| Andhra Pradesh | Hindupur Power Station  | Sheshadri Power & Infrastructure                      | 1,320         | Unconfirmed          |
| Andhra Pradesh | Jaipur Power Station  | Singareni Collieries                                  | 600           | Construction         |
| Andhra Pradesh | Jharapudi Power Station   | Suryachakra Group                                     | 140           | Unconfirmed          |
| Andhra Pradesh | Kakatiya Thermal Power Project Stage-II                               | Andhra Pradesh Power Generation Corporation (APGENCO) | 600           | Construction         |
| Andhra Pradesh | Kineta Power Stage I (Krishnapatnam)                                  | Kineta Power Limited                                  | 1,320         | Advanced development |
| Andhra Pradesh | Kineta Power Stage II (Krishnapatnam)                                 | Kineta Power Limited                                  | 660           | Proposed             |
| Andhra Pradesh | Komarada Power Station  | Alfa Infraprop Pvt. Ltd.                              | 2,640         | Proposed             |
| Andhra Pradesh | Kotapally Power Station (SKIL Group)                                  | SKIL Group  | 600           | Unconfirmed          |
| Andhra Pradesh | Kothagudem TPS expansion  | Andhra Pradesh Power Generation Corporation (APGENCO) | 800           | Proposed             |
| Andhra Pradesh | Krishnapatnam Navayuga thermal Station Phase I                        | Navayuga Power  | 1,320         | Advanced development |
| Andhra Pradesh | Krishnapatnam Navayuga thermal Station Phase II                       | Navayuga Power  | 660           | Proposed             |
| Andhra Pradesh | Latchayapeta Power Station  | NCS Sugars Ltd.                                       | 600           | Proposed             |
| Andhra Pradesh | Lovapalem Power Station   | My Home Power Ltd.                                    | 1,000         | Unconfirmed          |
| Andhra Pradesh | Meenakshi Energy Thermal Power Project Phase-II                       | Meenakshi Energy                                      | 1,320         | Proposed             |
| Andhra Pradesh | Muthukur Mandal Power Station (Painampuram)                           | Nelcast Energy Corporation Ltd                        | 1,320         | Early development    |
| Andhra Pradesh | NCC Vamsadhara Mega Power Project                                     | Nagarjuna Construction Company                        | 1,960         | Unconfirmed          |
| Andhra Pradesh | Ontimavadi Power Station  | GMR Energy  | 6,300         | Proposed             |

continued next page

Table A.2 | **Proposed Coal-Fired Plants in India (continued)**

| STATE          | PLANT   | DEVELOPER   | CAPACITY (MW) | STATUS               |
|----------------|---|---|---------------|----------------------|
| Andhra Pradesh | Paloncha Power Station expansion #1                             | Nava Bharat Ventures Ltd                              | 150           | Construction         |
| Andhra Pradesh | Paloncha Power Station expansion #2                             | Nava Bharat Ventures Ltd                              | 150           | Proposed             |
| Andhra Pradesh | Pegadapalli (Jaipur Mandal) Power Station                       | Singareni Collieries                                  | 600           | Construction         |
| Andhra Pradesh | Pentakota Power Station (Srinivasam Energy)                     | Srinivasam Energy Limited                             | 1,320         | Unconfirmed          |
| Andhra Pradesh | Pudimadaka Ultra Mega Power Project                             | NTPC  | 4,000         | Advanced development |
| Andhra Pradesh | Ramagundam Stage-IV   | NTPC  | 1,000         | Early development    |
| Andhra Pradesh | Rayalaseema Thermal Power Project Stage-IV (Unit 6)             | Andhra Pradesh Power Generation Corporation (APGENCO) | 600           | Advanced development |
| Andhra Pradesh | Saggonda power station  | Andhra Sugars   | 120           | Proposed             |
| Andhra Pradesh | Sattupally Thermal Power Station                                | Andhra Pradesh Power Generation Corporation (APGENCO) | 600           | Early development    |
| Andhra Pradesh | Sigma Infrarop Power Station (Khamman)                          | Sigma Infrarop Ltd                                    | 2,640         | Unconfirmed          |
| Andhra Pradesh | Simhadri Power Station Unit 4                                   | NTPC  | 500           | Proposed             |
| Andhra Pradesh | Sompeta Power Station (Suryachakra)                             | Suryachakra Group                                     | 1,200         | Unconfirmed          |
| Andhra Pradesh | Sri Damodaram Sanjeevaiah (Krishnapatnam) Thermal Power Station | Andhra Pradesh Power Generation Corporation (APGENCO) | 1,600         | Construction         |
| Andhra Pradesh | Srikakulam Thermal Power Station                                | Andhra Pradesh Power Generation Corporation (APGENCO) | 2,400         | Early development    |
| Andhra Pradesh | Thamminapatnam Power Station (Simhapuri) Phase-I                | Simhapuri Energy                                      | 300           | Construction         |
| Andhra Pradesh | Thamminapatnam Power Station (Simhapuri) Phase-II               | Simhapuri Energy                                      | 300           | Construction         |
| Andhra Pradesh | Thamminapatnam Power Station (Simhapuri) Phase-III              | Simhapuri Energy                                      | 1,320         | Construction         |
| Andhra Pradesh | Vadarevu Ultra Mega Power Project Stages II-III                 | Andhra Pradesh Power Generation Corporation (APGENCO) | 2,400         | Proposed             |
| Andhra Pradesh | Varadevu Ultra Mega Power Project Stage I                       | Andhra Pradesh Power Generation Corporation (APGENCO) | 1,600         | Early development    |
| Andhra Pradesh | VBF Ferro Alloys Bodepalli plant                                | VBC Ferro Alloys                                      | 120           | Proposed             |
| Andhra Pradesh | Vijayawada Thermal Power Station (IGCC)                         | Andhra Pradesh Power Generation Corporation (APGENCO) | 182           | Early development    |
| Andhra Pradesh | Vijayawada Thermal Power Station expansion                      | Andhra Pradesh Power Generation Corporation (APGENCO) | 800           | Proposed             |
| Andhra Pradesh | Vikas Power Thermal Plant                                       | Vikas Power   | 540           | Proposed             |
| Andhra Pradesh | Welspun Andhra Pradesh project                                  | Welspun Energy  | 1,320         | Early development    |
| Assam          | Bongaigaon Power Station Stage I                                | NTPC  | 750           | Construction         |
| Assam          | Bongaigaon Power Station Stage II                               | NTPC  | 250           | Proposed             |
| Assam          | Borgolai Power Station  | Assam Power Projects Development Company Ltd          | 250           | Proposed             |
| Assam          | Margherita Power Station  | NEEPCO and APGCL                                      | 480           | Proposed             |
| Assam          | Naitor Power Station  | Globe Power & Steel                                   | 1,320         | Proposed             |
| Bihar          | Banka Power Project   | Abhijeet Group  | 3,960         | Uncertain            |

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Table A.2 | Proposed Coal-Fired Plants in India (continued)

| STATE        | PLANT  | DEVELOPER  | CAPACITY (MW) | STATUS               |
|--------------|--|--|---------------|----------------------|
| Bihar        | Barauni Power Station expansion                            | Bihar State Electricity Board                                    | 500           | Early development    |
| Bihar        | Barh I Power Station                                       | NTPC   | 1,980         | Construction         |
| Bihar        | Barh II Power Station                                      | NTPC   | 1,320         | Construction         |
| Bihar        | Bhagalpur Power Project                                    | Ganga Power & Natural Resources                                  | 2,640         | Early development    |
| Bihar        | Buxar Thermal Power Station (Chausa)                       | Buxar Bijlee Company   | 1,320         | Early development    |
| Bihar        | Indragacchi Power Station                                  | India Power Corporation  | 1,320         | Early development    |
| Bihar        | Jagdishpur Power Station Stage 1                           | AES India  | 1,320         | Early development    |
| Bihar        | Jagdishpur Power Station Stage 2                           | AES India  | 1,320         | Proposed             |
| Bihar        | Kahalgaon Super Thermal Power Plant St-III Extension       | NTPC   | 500           | Proposed             |
| Bihar        | Kiul Thermal Power Project (Lakhisarai)                    | Mirach Power Pvt. Ltd  | 1,320         | Proposed             |
| Bihar        | Kochar power Power Station                                 | Triton Energy Ltd.   | 1,320         | Proposed             |
| Bihar        | Lakhisarai Power Station (SPML)                            | SPML   | 1,200         | Proposed             |
| Bihar        | Lakhisarai Thermal Power Station (Kajara)                  | Lakhisarai Bijlee  | 1,320         | Advanced development |
| Bihar        | Meherpur Power Station                                     | Usha Martin  | 1,200         | Uncertain            |
| Bihar        | Muzaffarpur Power Station extension                        | Bihar State Electricity Board                                    | 390           | Construction         |
| Bihar        | Nabinagar (Majhiyan) Super Thermal Power Project           | Nabinagar Power Generating Company                               | 1,980         | Advanced development |
| Bihar        | Nabinagar Thermal Power Project                            | NTPC and Ministry of Railways                                    | 1,000         | Construction         |
| Bihar        | Pirpainti Power Station (CESC)                             | CESC   | 2,000         | Early development    |
| Bihar        | Pirpainti Thermal Power Station                            | Pirpainti Bijlee Company   | 1,320         | Early development    |
| Bihar        | Prabhawati Nagar Power Station                             | Arrissan Power Limited   | 1,320         | Early development    |
| Bihar        | Sirdala power station                                      | Global Powmin  | 2,640         | Early development    |
| Chhattisgarh | Amarkantak Thermal Power Project Phase II (Pathadi) Unit 3 | Lanco  | 660           | Construction         |
| Chhattisgarh | Amarkantak Thermal Power Project Phase II (Pathadi) Unit 4 | Lanco  | 660           | Construction         |
| Chhattisgarh | Amoda Power Station  | DCM Shriram Consolidated   | 600           | Early development    |
| Chhattisgarh | Athena Chhattisgarh Power Station                          | Athena Chhattisgarh Power Limited                                | 1,200         | Advanced development |
| Chhattisgarh | Avantha Bhandar Power Station                              | Avantha Power and Infrastructure                                 | 1,200         | Early development    |
| Chhattisgarh | BALCO Korba Power Station expansion                        | Bharat Aluminium Company   | 1,200         | Construction         |
| Chhattisgarh | Balpur Power Station                                       | Jain Energy  | 1,200         | Early development    |
| Chhattisgarh | Baradarha Power Station                                    | DB Power   | 1,200         | Advanced development |
| Chhattisgarh | Bhaiso Power Station (Janjgir-Champa) Phase 1              | KVK Power & Infrastructure Pvt. Ltd.                             | 600           | Early development    |
| Chhattisgarh | Bhaiso Power Station (Janjgir-Champa) Phase 2              | KVK Power & Infrastructure Pvt. Ltd.                             | 600           | Proposed             |
| Chhattisgarh | Bhaiyathan Thermal Power Project                           | Indiabulls Power and Chhattisgarh State Power Generation Company | 1,320         | Early development    |
| Chhattisgarh | Bhandhakhar Power Station                                  | Maruti Clean Coal and Power                                      | 300           | Advanced development |
| Chhattisgarh | Bhengari Power Station                                     | Mahavir Global Coal Limited (MGCL)                               | 540           | Proposed             |
| Chhattisgarh | Bhushan Steel Chhattisgarh project                         | Bhushan Steel  | 1,000         | Proposed             |

continued next page

Table A.2 | **Proposed Coal-Fired Plants in India (continued)**

| STATE        | PLANT   | DEVELOPER  | CAPACITY (MW) | STATUS               |
|--------------|---|--|---------------|----------------------|
| Chhattisgarh | Birra Thermal Power Project                         | Moser Baer Power & Infrastructures               | 1,320         | Early development    |
| Chhattisgarh | Bunji Bundeli Thermal Power Project                 | Chhattisgarh State Power Generation Company      | 500           | Early development    |
| Chhattisgarh | Chakabura Power Station expansion Unit 2            | ACB (India)                                      | 135           | Construction         |
| Chhattisgarh | Champa Adhunik Power Station                        | Adhunik Power and Natural Resources              | 1,320         | Proposed             |
| Chhattisgarh | Champa Power Project                                | ACB (India)                                      | 1,200         | Early development    |
| Chhattisgarh | Chandan Nagar Power Station                         | IFFCO Chhattisgarh Power                         | 1,000         | Proposed             |
| Chhattisgarh | Chhattisgarh GMR Power Station Phase I              | GMR Energy                                       | 1,370         | Advanced development |
| Chhattisgarh | Chhattisgarh GMR Power Station Phase II             | GMR Energy                                       | 685           | Early development    |
| Chhattisgarh | Dhardai Power Station                               | JSW ISPAT Steel                                  | 1,200         | Unconfirmed          |
| Chhattisgarh | Facor Power Chhattisgarh Power Project              | Facor Power                                      | 600           | Early development    |
| Chhattisgarh | Godhna Power Station                                | Karnataka Power Corporation                      | 1,600         | Proposed             |
| Chhattisgarh | Gorra Thermal Power Plant                           | Patni Power Projects                             | 540           | Proposed             |
| Chhattisgarh | IFFCO-CSPGCL Thermal Power Project                  | Chhattisgarh State Power Generation Company      | 1,320         | Early development    |
| Chhattisgarh | Janjgir power station                               | Karnataka Power Corporation                      | 1,200         | Proposed             |
| Chhattisgarh | Kasaipalli power station                            | Aryan Coal Benefications                         | 270           | Proposed             |
| Chhattisgarh | Khamhar power station                               | AES Chhattisgarh Energy                          | 1,440         | Proposed             |
| Chhattisgarh | Korba South Thermal Power Project Unit 1            | Chhattisgarh State Power Generation Company      | 500           | Early development    |
| Chhattisgarh | Korba South Thermal Power Project Unit 2            | Chhattisgarh State Power Generation Company      | 500           | Early development    |
| Chhattisgarh | Korba West (Hasdeo Thermal Power Station) Extension | Chhattisgarh State Power Generation Company      | 500           | Construction         |
| Chhattisgarh | KSK Mahanadi Power Project                          | KSK Energy Ventures                              | 3,600         | Construction         |
| Chhattisgarh | KSK Narmada Power Project                           | KSK Energy Ventures                              | 1,800         | Early development    |
| Chhattisgarh | Kukurda Power Station                               | JSW Energy                                       | 1,320         | Early development    |
| Chhattisgarh | Kukurda Power Station                               | JSW Energy                                       | 1,320         | Advanced development |
| Chhattisgarh | Lanco Chhattisgarh Thermal Power Project            | Lanco  | 2,000         | Proposed             |
| Chhattisgarh | Lara Integrated Thermal Power Project 1-2           | NTPC   | 1,600         | Advanced development |
| Chhattisgarh | Lara Integrated Thermal Power Project 3-4           | NTPC   | 1,600         | Proposed             |
| Chhattisgarh | Lara Integrated Thermal Power Project 5             | NTPC   | 800           | Proposed             |
| Chhattisgarh | Marwa Power Station                                 | Chhattisgarh State Power Generation Company      | 1,000         | Construction         |
| Chhattisgarh | Moser Baer Captive Power Project                    | Moser Baer Power & Infrastructures and PTC India | 150           | Early development    |
| Chhattisgarh | Pathadi Power Station                               | Lanco and KVK                                    | 1,320         | Construction         |
| Chhattisgarh | Raigarh Power Project (TRN/ACB)                     | ACB (India)                                      | 600           | Advanced development |
| Chhattisgarh | Raigarh Power Station (SKS Ispat)                   | SKS Ispat and Power                              | 1,200         | Early development    |
| Chhattisgarh | Raigarh Project (Jindal)                            | Jindal Power                                     | 1,320         | Advanced development |

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Table A.2 | Proposed Coal-Fired Plants in India (continued)

| STATE        | PLANT  | DEVELOPER                                   | CAPACITY (MW) | STATUS               |
|--------------|--|---|---------------|----------------------|
| Chhattisgarh | Raigarh Project (VISA Power)                           | VISA Power                                  | 1,200         | Advanced development |
| Chhattisgarh | Raikheda Power Station                                 | GMR Energy                                  | 1,370         | Construction         |
| Chhattisgarh | Ratija Power Project Phase I                           | ACB (India)                                 | 50            | Construction         |
| Chhattisgarh | Ratija Power Project Phase II                          | ACB (India)                                 | 50            | Early development    |
| Chhattisgarh | Sapnai Power Station                                   | Topworth Energy                             | 1,260         | Early development    |
| Chhattisgarh | Sapos Power Station (BEC Power)                        | BEC Power                                   | 500           | Early development    |
| Chhattisgarh | Sapos Power Station (Suryachakra)                      | Suryachakra Group                           | 1,320         | Advanced development |
| Chhattisgarh | Sipat I Power Station expansion, Unit 2                | NTPC  | 660           | Construction         |
| Chhattisgarh | Sipat I Power Station expansion, Unit 3                | NTPC  | 660           | Construction         |
| Chhattisgarh | Surguja Ultra Mega Power Project                       | not selected                                | 4,000         | Uncertain            |
| Chhattisgarh | SV Power project (Renki) Phase II                      | KVK   | 300           | Early development    |
| Chhattisgarh | Tamnar II Project                                      | Jindal Power                                | 2,400         | Advanced development |
| Gujarat      | Akrimota Power Project expansion                       | Gujarat Mineral Development Corporation     | 250           | Unconfirmed          |
| Gujarat      | Amreli Power Station                                   | Avantha Power and Infrastructure            | 1,320         | Proposed             |
| Gujarat      | Bhadreshwar Thermal Power Project (Adani)              | Adani Power                                 | 3,300         | Proposed             |
| Gujarat      | Bhavnagar Power Station                                | Gujarat Power Corporation                   | 375           | Advanced development |
| Gujarat      | Bherai Power Station                                   | VISA Power                                  | 1,320         | Early development    |
| Gujarat      | Dahej Power Station (JSW Energy)                       | JSW Energy                                  | 2,400         | Proposed             |
| Gujarat      | Dholera Power Plant                                    | Gujarat State Electricity Corp              | 1,600         | Proposed             |
| Gujarat      | Dhuvaran Super Thermal Power Project                   | NTPC  | 1,320         | Proposed             |
| Gujarat      | Gujarat Power Project (Valia)                          | Neyveli Lignite Corporation                 | 500           | Proposed             |
| Gujarat      | Hazira II Power Plant                                  | Essar Energy                                | 270           | Construction         |
| Gujarat      | Jamnagar Complex Power Station                         | Reliance Industries                         | 1,000         | Proposed             |
| Gujarat      | Mundra Thermal Power Project (Adani) Phase III Unit 6  | Adani Power                                 | 660           | Construction         |
| Gujarat      | Mundra Thermal Power Project (Adani) Phase IV Unit 7   | Adani Power                                 | 660           | Construction         |
| Gujarat      | Mundra Thermal Power Project (Adani) Phase IV Unit 8-9 | Adani Power                                 | 660           | Construction         |
| Gujarat      | Okha Power Station                                     | SPR Infrastructure India                    | 2,640         | Early development    |
| Gujarat      | Pipavav Power Station                                  | Torrent Power and Gujarat Power Corporation | 2,000         | Early development    |
| Gujarat      | Salaya I Power Plant                                   | Essar Energy                                | 1,200         | Construction         |
| Gujarat      | Salaya II Power Plant                                  | Essar Energy                                | 1,320         | Construction         |
| Gujarat      | Salaya III Power Plant                                 | Essar Energy                                | 600           | Construction         |
| Gujarat      | Sikka Thermal Power Station Units 3-4                  | Gujarat State Electricity Corp              | 500           | Construction         |
| Gujarat      | Suryachakra Captive Power Plant                        | Suryachakra Group                           | 200           | Early development    |
| Gujarat      | Tata Mundra Ultra Mega Power Project 2-3               | Tata Power                                  | 1,600         | Construction         |
| Gujarat      | Tata Mundra Ultra Mega Power Project 4-5               | Tata Power                                  | 1,600         | Advanced development |

continued next page

Table A.2 | Proposed Coal-Fired Plants in India (continued)

| STATE     | PLANT   | DEVELOPER                                 | CAPACITY (MW) | STATUS               |
|-----------|---|---|---------------|----------------------|
| Gujarat   | Ukai Thermal Power Station Unit 6                   | Gujarat State Electricity Corp            | 500           | Construction         |
| Gujarat   | Wanakbori Thermal Power Station Unit 8              | Gujarat State Electricity Corp            | 800           | Early development    |
| Haryana   | Deenbandhu Chhotu Ram Thermal Power Plant expansion | Haryana Power Generation Company          | 660           | Proposed             |
| Haryana   | Indira Gandhi Super Thermal Power Project Unit 3    | NTPC                                      | 500           | Construction         |
| Haryana   | Jhajjar Power Station                               | CLP India                                 | 1,320         | Construction         |
| Haryana   | Mahatma Gandhi Thermal Power Project Unit 2         | Haryana Power Generation Company          | 660           | Proposed             |
| Jharkhand | Baranda Power Station                               | JSW Energy                                | 1,620         | Early development    |
| Jharkhand | Bhagalpur Power Station                             | Gagan Power & Natural Resources           | 1,320         | Early development    |
| Jharkhand | Bokaro A Thermal Power Station                      | Damodar Valley Corporation                | 600           | Proposed             |
| Jharkhand | Bokaro Steel City Thermal Power Station expansion   | Damodar Valley Corporation                | 500           | Proposed             |
| Jharkhand | Chandil Singh Power Station                         | HDIL Energy                               | 1,320         | Unconfirmed          |
| Jharkhand | Chandwa Power Project Phase I                       | Abhijeet Group                            | 1,080         | Construction         |
| Jharkhand | Chandwa Power Project Phase II                      | Abhijeet Group                            | 675           | Early development    |
| Jharkhand | Chandwa Power Project Phase III                     | Abhijeet Group                            | 660           | Early development    |
| Jharkhand | Dumka Power Station (CESC) Phase I                  | CESC                                      | 600           | Early development    |
| Jharkhand | Dumka Power Station (CESC) Phase I                  | CESC                                      | 660           | Proposed             |
| Jharkhand | Dumka Project                                       | Jindal Power                              | 1,300         | Early development    |
| Jharkhand | Godda Project                                       | Jindal Power                              | 660           | Advanced development |
| Jharkhand | Gumla Power Station (Kamdara)                       | Jharkhand State Electricity Board         | 1,320         | Early development    |
| Jharkhand | Jamshedpur Kandra Power Station Stage III           | Adhunik Power and Natural Resources       | 540           | Proposed             |
| Jharkhand | Jamshedpur Kandra Power Station Stages I and II     | Adhunik Power and Natural Resources       | 540           | Construction         |
| Jharkhand | Jharkhand Aluminium Power Station                   | Hindalco Industries                       | 900           | Early development    |
| Jharkhand | Jharkhand project                                   | Jindal Power                              | 2,640         | Proposed             |
| Jharkhand | Kamdara Power Station                               | Jharkhand State Electricity Board         | 1,320         | Construction         |
| Jharkhand | Koderma Thermal Power Station Unit 2                | Damodar Valley Corporation                | 500           | Construction         |
| Jharkhand | KVK Jharkhand Project                               | KVK Nilachal Power Pvt. Ltd.              | 1,000         | Early development    |
| Jharkhand | Maithon Right Bank Thermal Power Station Phase II   | Damodar Valley Corporation and Tata Power | 1,600         | Early development    |
| Jharkhand | Malaxmi Mega Thermal Power Project (Thakurbari)     | Malaxmi                                   | 2,640         | Unconfirmed          |
| Jharkhand | Patratu Power Station (Jinbhuvish Energy)           | Jinbhuvish Energy (East)                  | 1,320         | Proposed             |
| Jharkhand | Rahem Power Station                                 | Gupta Energy                              | 1,000         | Unconfirmed          |
| Jharkhand | Sahibganj Power Station                             | Madhucon Projects                         | 1,320         | Early development    |
| Jharkhand | Saraikela Power Station                             | Kohinoor Power                            | 215           | Construction         |
| Jharkhand | Tilaiya Ultra Mega Power Project 1-5                | Reliance Power                            | 3,300         | Early development    |
| Jharkhand | Tilaiya Ultra Mega Power Project 6                  | Reliance Power                            | 660           | Early development    |

continued next page



Table A.2 | Proposed Coal-Fired Plants in India (continued)

| STATE          | PLANT                                       | DEVELOPER                                 | CAPACITY (MW) | STATUS               |
|----------------|---|---|---------------|----------------------|
| Jharkhand      | Tiruldih Power Project                      | Tata Power                                | 1,980         | Early development    |
| Jharkhand      | Tori I Power Plant                          | Essar Energy                              | 1,200         | Construction         |
| Jharkhand      | Tori II Power Plant                         | Essar Energy                              | 600           | Construction         |
| Jharkhand      | Visa Power Jharkhand project                | VISA Power                                | 2,640         | Early development    |
| Jharkhand      | Welspun Energy Parbahal Thermal Power Plant | Welspun Energy                            | 1,980         | Early development    |
| Karnataka      | Bellary Thermal Power Station 3             | Karnataka Power Corporation               | 700           | Proposed             |
| Karnataka      | Edlapura Power Station                      | Karnataka Power Corporation               | 800           | Proposed             |
| Karnataka      | Ghataprabha Power Station                   | Power Company of Karnataka (PCKL)         | 1,320         | Early development    |
| Karnataka      | Gulbarga Power Station                      | Power Company of Karnataka (PCKL)         | 1,320         | Early development    |
| Karnataka      | Hassan Power Station                        | Hassan Thermal Power (P) Ltd              | 1,000         | Early development    |
| Karnataka      | Jewargi Power Station                       | Jewargi Power Pvt Ltd.                    | 1,320         | Proposed             |
| Karnataka      | JSW Vijayanagar Power Station expansion     | JSW Energy                                | 660           | Advanced development |
| Karnataka      | Kadechur Power Station                      | Atlas Power India                         | 1,320         | Early development    |
| Karnataka      | Karnataka Gupta Power Station               | Gupta Power                               | 1,320         | Unconfirmed          |
| Karnataka      | Kudgi Super Thermal Power Project Stage I   | NTPC                                      | 2,400         | Advanced development |
| Karnataka      | Kudgi Super Thermal Power Project Stage II  | NTPC                                      | 1,600         | Early development    |
| Karnataka      | Mangoli Power Station                       | Flamingo Energy Ventures                  | 1,320         | Early development    |
| Karnataka      | Mulwad Power Station                        | Luxor Energy                              | 1,320         | Early development    |
| Karnataka      | Udupi Power Units 3 & 4                     | Lanco                                     | 1,320         | Early development    |
| Karnataka      | Vadlur Power Station                        | Surana Power Ltd                          | 420           | Advanced development |
| Karnataka      | Vantamuri Power Station                     | Shree Renuka Energy                       | 1,050         | Early development    |
| Karnataka      | Yedlapur Thermal Station                    | Karnataka Power Corporation               | 850           | Advanced development |
| Karnataka      | Yeramarus Thermal sStation                  | Karnataka Power Corporation               | 850           | Advanced development |
| Kerala         | Kasargod Power Station                      | Kerala State Industrial Development Corp. | 2,400         | Early development    |
| Madhya Pradesh | Anuppur Power Station (Newzone)             | New Zone India                            | 1,320         | Early development    |
| Madhya Pradesh | Anuppur Thermal Power Project Phase 1       | Moser Baer Power & Infrastructures        | 1,200         | Construction         |
| Madhya Pradesh | Anuppur Thermal Power Project Phase 2       | Moser Baer Power & Infrastructures        | 1,320         | Early development    |
| Madhya Pradesh | Banas Thermal Power project (Anuppur)       | KVK Power & Infrastructure Pvt. Ltd.      | 1,320         | Proposed             |
| Madhya Pradesh | Bansagar Power Station                      | MPTradco                                  | 1,600         | Early development    |
| Madhya Pradesh | Barethi Super Thermal Power Project         | NTPC                                      | 3,960         | Early development    |
| Madhya Pradesh | Bina Refinery Power Station                 | Bharat Oman Refinery                      | 99            | Construction         |
| Madhya Pradesh | Bina Thermal Power Project                  | Jaiprakash Power Ventures                 | 1,250         | Construction         |
| Madhya Pradesh | Chitrangi Power Project                     | Reliance Power                            | 3,960         | Advanced development |
| Madhya Pradesh | Dada Dhuniwale Thermal Power Project        | M.P. Power Generating Company             | 1,600         | Early development    |
| Madhya Pradesh | Gadarwara Power Station (BLA)               | BLA Power                                 | 140           | Advanced development |
| Madhya Pradesh | Gadarwara Super Thermal Power Project       | NTPC                                      | 1,320         | Early development    |
| Madhya Pradesh | Jabalpur Thermal Power Project              | VISA Power                                | 1,320         | Early development    |
| Madhya Pradesh | Jaypee Nigrie Super Thermal Power Project   | Jaiprakash Power Ventures                 | 1,320         | Advanced development |

continued next page

Table A.2 | **Proposed Coal-Fired Plants in India (continued)**

| STATE          | PLANT   | DEVELOPER                                      | CAPACITY (MW) | STATUS               |
|----------------|---|--|---------------|----------------------|
| Madhya Pradesh | Jhabua Power Seoni Power Station Phase 1            | Avantha Power and Infrastructure               | 600           | Construction         |
| Madhya Pradesh | Jhabua Power Seoni Power Station Phase 2            | Avantha Power and Infrastructure               | 600           | Advanced development |
| Madhya Pradesh | Katni Power Station                                 | Welspun Energy                                 | 1,980         | Advanced development |
| Madhya Pradesh | Khargaone Power Station                             | NTPC   | Unknown       | Proposed             |
| Madhya Pradesh | Madhya Pradesh Jain Energy Power Station (Birhulee) | Jain Energy                                    | 1,320         | Early development    |
| Madhya Pradesh | Mahan Aluminium Power Station                       | Hindalco Industries                            | 900           | Construction         |
| Madhya Pradesh | Mahan I Power Plant                                 | Essar Energy                                   | 1,200         | Construction         |
| Madhya Pradesh | Mahan II Power Plant                                | Essar Energy                                   | 600           | Proposed             |
| Madhya Pradesh | Maharjapur Power Station                            | Sudama Mahavir Power                           | 1,320         | Early development    |
| Madhya Pradesh | Sasan Ultra Mega Power Project 1-2                  | Reliance Power                                 | 1,320         | Construction         |
| Madhya Pradesh | Sasan Ultra Mega Power Project 3                    | Reliance Power                                 | 660           | Construction         |
| Madhya Pradesh | Sasan Ultra Mega Power Project 4-5                  | Reliance Power                                 | 1,320         | Construction         |
| Madhya Pradesh | Sasan Ultra Mega Power Project 6                    | Reliance Power                                 | 660           | Construction         |
| Madhya Pradesh | Satpura Thermal Power Station Units 10-11           | M.P. Power Generating Company                  | 500           | Construction         |
| Madhya Pradesh | Shahdol Power Station (Formerly SJK Powergen)       | GMR Energy                                     | 1,370         | Early development    |
| Madhya Pradesh | Shahpura Power Station                              | MP Power Trading Company Limited               | 1,500         | Early development    |
| Madhya Pradesh | Shree Singaji Thermal Power Project Stage I Unit 1  | M.P. Power Generating Company                  | 600           | Construction         |
| Madhya Pradesh | Shree Singaji Thermal Power Project Stage I Unit 2  | M.P. Power Generating Company                  | 600           | Construction         |
| Madhya Pradesh | Shree Singaji Thermal Power Project Stage II        | M.P. Power Generating Company                  | 1,320         | Proposed             |
| Madhya Pradesh | Sidhi Power Project                                 | ACB (India)                                    | 1,200         | Advanced development |
| Madhya Pradesh | Vindhyachal-IV Power Station Unit 11                | NTPC   | 500           | Construction         |
| Madhya Pradesh | Vindhyachal-IV Power Station Unit 12                | NTPC   | 500           | Construction         |
| Madhya Pradesh | Vindhyachal-V Power Station                         | NTPC   | 500           | Proposed             |
| Madhya Pradesh | Welspun Amla Power Station                          | Welspun Energy                                 | 1,320         | Early development    |
| Madhya Pradesh | Welspun Energy Anuppur Thermal Power Plant          | Welspun Energy                                 | 1,980         | Early development    |
| Madhya Pradesh | Welspun Mega Industrial & Energy Park               | Welspun Energy Park Pvt. Ltd.                  | 5,280         | Early development    |
| Maharashtra    | Amravati Thermal Power Project Phase I              | Indiabulls Power                               | 1,350         | Construction         |
| Maharashtra    | Amravati Thermal Power Project Phase II             | Indiabulls Power                               | 1,320         | Proposed             |
| Maharashtra    | Bela Power Station                                  | Ideal Energy Projects                          | 270           | Construction         |
| Maharashtra    | Bela Power Station (Mantri Power)                   | Mantri Power                                   | 540           | Unconfirmed          |
| Maharashtra    | Bhadravati Power Station (Ispat)                    | JSW ISPAT Steel                                | 2,000         | Proposed             |
| Maharashtra    | Bhadravati Power Station (MIDC)                     | Maharashtra Industrial Development Corporation | 1,320         | Early development    |
| Maharashtra    | Bhusawal Thermal Power Station Unit 6               | Maharashtra State Power Generation Company     | 660           | Advanced development |
| Maharashtra    | Bijora Power Station                                | Jinbhuvish Power Generations                   | 1,260         | Advanced development |

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Table A.2 | Proposed Coal-Fired Plants in India (continued)

| STATE       | PLANT   | DEVELOPER                                  | CAPACITY (MW) | STATUS                       |
|-------------|---|--|---------------|------------------------------|
| Maharashtra | Butibori Power Station                                  | Reliance Power                             | 600           | Construction                 |
| Maharashtra | Chandrapur CESC Power Station (Tadali)                  | CESC                                       | 600           | Construction                 |
| Maharashtra | Chandrapur Gupta Power Station Stage 2                  | Gupta Energy                               | 540           | Advanced development         |
| Maharashtra | Chandrapur Gupta Power Station Stage I                  | Gupta Energy                               | 120           | Construction                 |
| Maharashtra | Chandrapur Thermal Power Station Unit 8                 | Maharashtra State Power Generation Company | 500           | Construction                 |
| Maharashtra | Chandrapur Thermal Power Station Unit 9                 | Maharashtra State Power Generation Company | 500           | Construction                 |
| Maharashtra | Coastal Maharashtra Project Phase I                     | Tata Power                                 | 1,600         | Advanced development ON HOLD |
| Maharashtra | Coastal Maharashtra Project Phase II                    | Tata Power                                 | 800           | Proposed ON HOLD             |
| Maharashtra | Dahanu Power Station Upgrade                            | Reliance Infrastructure Limited            | 1,200         | Uncertain                    |
| Maharashtra | Devgad UMPP   | NTPC                                       | 4,000         | Uncertain                    |
| Maharashtra | Dhakore Power Station                                   | Ind-Barath Power                           | 1,050         | Unconfirmed                  |
| Maharashtra | Dhariwal Power Station                                  | Haldia Energy                              | 600           | Advanced development         |
| Maharashtra | Dhopave Coal Plant (NTPC)                               | NTPC                                       | 1,600         | Proposed                     |
| Maharashtra | Dhopave Thermal Power Station (Mahagenco) Unit 1-3      | Maharashtra State Power Generation Company | 1,980         | Advanced development         |
| Maharashtra | Dondaicha Thermal Power Station Stage I (Units 1 and 2) | Maharashtra State Power Generation Company | 1,320         | Advanced development         |
| Maharashtra | Dondaicha Thermal Power Station Stage II (Unit 3-5)     | Maharashtra State Power Generation Company | 1,980         | Proposed                     |
| Maharashtra | EMCO Energy Warora Power Project                        | EMCO Energy                                | 600           | Construction                 |
| Maharashtra | Ghugus Power Station Phase I                            | Gupta Coalfields & Washeries               | 120           | Advanced development         |
| Maharashtra | Ghugus Power Station Phase II                           | Gupta Coalfields & Washeries               | 540           | Proposed                     |
| Maharashtra | GMR Energy Coal Plant                                   | GMR Energy                                 | 1,800         | Unconfirmed                  |
| Maharashtra | Hari Hareshwar Power Station (Vesavi and Bankot)        | Hari Hareshwar Power Company               | 1,600         | Proposed                     |
| Maharashtra | Khursapar Power Station                                 | Lenexis Energy                             | 1,320         | Early development            |
| Maharashtra | Khutafali (Kolura) Power Station                        | Jinbhuvish Power Generations               | 1,320         | Early development            |
| Maharashtra | Kinebodi Power Station                                  | Nandal Enterprises                         | 750           | Early development            |
| Maharashtra | Koradi Thermal Power Station 10                         | Maharashtra State Power Generation Company | 660           | Construction                 |
| Maharashtra | Koradi Thermal Power Station 8                          | Maharashtra State Power Generation Company | 660           | Construction                 |
| Maharashtra | Koradi Thermal Power Station 9                          | Maharashtra State Power Generation Company | 660           | Construction                 |
| Maharashtra | Lanco Vidarbha Thermal Power                            | Lanco                                      | 1,320         | Advanced development         |
| Maharashtra | Latur Power Station                                     | Maharashtra State Power Generation Company | 1,320         | Proposed                     |
| Maharashtra | Madhekar Power Station                                  | Patni Energy                               | 405           | Unconfirmed                  |
| Maharashtra | Mauda-I STPP (Nagpur)                                   | NTPC                                       | 1,000         | Construction                 |

continued next page

Table A.2 | **Proposed Coal-Fired Plants in India (continued)**

| STATE       | PLANT  | DEVELOPER                                  | CAPACITY (MW) | STATUS               |
|-------------|--|--|---------------|----------------------|
| Maharashtra | Mauda-II STPP (Nagpur)                         | NTPC                                       | 1,320         | Early development    |
| Maharashtra | Mendki Thermal Power Project                   | Maharashtra State Power Generation Company | 1,320         | Proposed             |
| Maharashtra | Nardana Power Station (Vaghode)                | Shirpur Power                              | 300           | Advanced development |
| Maharashtra | Nasik Thermal Power Project (Indiabulls)       | Indiabulls Power                           | 1,350         | Early development    |
| Maharashtra | Nasik Thermal Power Station (Sinnar) Expansion | Maharashtra State Power Generation Company | 1,320         | Early development    |
| Maharashtra | Paras Power Station extension                  | Maharashtra State Power Generation Company | 660           | Proposed             |
| Maharashtra | Parli Thermal Power Station Unit 8             | Maharashtra State Power Generation Company | 350           | Construction         |
| Maharashtra | Rampur Coal Plant                              | Finolex                                    | 1,000         | Proposed             |
| Maharashtra | Solapur Power Station                          | NTPC                                       | 1,320         | Advanced development |
| Maharashtra | Tiroda Thermal Power Project Phase I and II    | Adani Power                                | 1,980         | Construction         |
| Maharashtra | Tiroda Thermal Power Project Phase III         | Adani Power                                | 1,320         | Early development    |
| Maharashtra | Welspun Maxsteel Power Station                 | Welspun Energy                             | 330           | Early development    |
| Meghalaya   | Garo Hills Power Station                       | NEEPCO                                     | 500           | Early development    |
| Meghalaya   | West Khasi Hills Power Station                 | NEEPCO                                     | 240           | Proposed             |
| Orissa      | Aditya Aluminium Power Station                 | Hindalco Industries                        | 900           | Construction         |
| Orissa      | Angul I Power Station (Derang) Unit 1          | Jindal India Thermal Power                 | 600           | Construction         |
| Orissa      | Angul I Power Station (Derang) Unit 2          | Jindal India Thermal Power                 | 600           | Construction         |
| Orissa      | Angul I Power Station (Derang) Unit 3          | Jindal India Thermal Power                 | 600           | Construction         |
| Orissa      | Angul II Power Station (Derang)                | Jindal India Thermal Power                 | 1,320         | Construction         |
| Orissa      | Angul Steel Power Station                      | Jindal Steel & Power                       | 810           | Construction         |
| Orissa      | Babandh Power Station                          | Lanco                                      | 1,320         | Construction         |
| Orissa      | Balangir Power Station                         | Sahara India Power Corporation             | 1,320         | Early development    |
| Orissa      | Baragaon Power Station                         | Jinbhuvish Power Generations               | 1,320         | Early development    |
| Orissa      | Basundhara Power Station                       | Mahanadi Coalfields Limited                | 1,600         | Early development    |
| Orissa      | Bhubaneshwar Jasper power station              | Bhubaneshwar Power                         | 135           | Proposed             |
| Orissa      | Brahmani power project                         | NTPC & Coal India                          | 2,000         | Proposed             |
| Orissa      | Choudwar power station                         | Indian Metals & Ferro                      | 120           | Advanced development |
| Orissa      | Cuttack power station (KVK Nilachal) Phase I   | KVK  | 350           | Construction         |
| Orissa      | Cuttack power station (KVK Nilachal) Phase II  | KVK  | 700           | Proposed             |
| Orissa      | Cuttack power station (VISA Power)             | VISA Power                                 | 1,320         | Proposed             |
| Orissa      | Darlipali Super Thermal Power Station          | NTPC                                       | 1,600         | Advanced development |
| Orissa      | Dhenkanal Power Station                        | CESC                                       | 1,000         | Proposed             |
| Orissa      | Gajmara Super Thermal Power Station            | NTPC                                       | 1,600         | Advanced development |
| Orissa      | Ganjam Power Station                           | SPR Infrastructure India                   | 2,640         | Early development    |
| Orissa      | Ghogarpalli Ultra Mega Power Project           | Power Finance Corporation                  | 4,000         | Proposed             |
| Orissa      | IB Thermal Power Station Expansion             | Orissa Power Generation Corporation        | 1,320         | Advanced development |

continued next page

Table A.2 | Proposed Coal-Fired Plants in India (continued)

| STATE     | PLANT   | DEVELOPER                           | CAPACITY (MW) | STATUS               |
|-----------|---|-------------------------------------|---------------|----------------------|
| Orissa    | Jharsuguda Ind-Barath Power Station Phase I             | Ind-Barath Power                    | 700           | Advanced development |
| Orissa    | Jharsuguda Ind-Barath Power Station Phase II            | Ind-Barath Power                    | 660           | Proposed             |
| Orissa    | Jharsuguda Sterlite Power Station Unit 4                | Sterlite Energy                     | 600           | Construction         |
| Orissa    | Jr Power Project  | KSK Energy Ventures                 | 1,980         | Early development    |
| Orissa    | Kamalanga Power Station Phase I                         | GMR Energy                          | 1,050         | Construction         |
| Orissa    | Kamalanga Power Station Phase II                        | GMR Energy                          | 350           | Advanced development |
| Orissa    | Kishore Nagar Coal-to-Liquids Project                   | Jindal Steel & Power                | 1,350         | Proposed             |
| Orissa    | Malibrahmani Power Station                              | Monnet Power Company                | 1,005         | Advanced development |
| Orissa    | Naraj Marthapur Power Project                           | Tata Power                          | 660           | Proposed             |
| Orissa    | Navabharat II Power Station                             | Essar Energy                        | 1,200         | Proposed             |
| Orissa    | Navabharat Power Station                                | Essar Energy                        | 1,050         | Construction         |
| Orissa    | Neulapoi Power Station (Dhenkanal)                      | CESC                                | 1,200         | Early development    |
| Orissa    | Paradip Power Plant                                     | Essar Energy                        | 120           | Construction         |
| Orissa    | Pitamohul Power Station                                 | Ind-Barath Power                    | 1,320         | Proposed             |
| Orissa    | Randia Power Station                                    | Facor Power                         | 100           | Construction         |
| Orissa    | Rengali Power Station                                   | Neyveli Lignite Corporation         | 2,000         | Proposed             |
| Orissa    | Sakhigopal Ultra Mega Power Project                     | Power Finance Corporation           | 4,000         | Proposed             |
| Orissa    | Sri Ramchandrapur Power Project                         | Dr. RKP Power                       | 120           | Proposed             |
| Orissa    | Srirampur Coal-to-Liquids Project                       | Strategic Energy Technology Systems | Unknown       | Proposed             |
| Orissa    | Sundargarh Ultra Mega Power Project (Lankahuda)         | NTPC                                | 4,000         | Proposed             |
| Orissa    | Talcher Super Thermal Power Station second expansion    | NTPC                                | 1,320         | Proposed             |
| Orissa    | Talcher Thermal Power Station first expansion           | NTPC                                | 500           | Proposed             |
| Orissa    | Wardha Naini Power Project                              | KSK Energy Ventures                 | 1,800         | Early development    |
| Punjab    | Gidderbaha Power Station                                | Punjab State Electric Board         | 2,640         | Uncertain            |
| Punjab    | GNDTP Bathinda extension Stage II                       | Punjab State Electric Board         | 500           | Proposed             |
| Punjab    | Gobindpura Power Station                                | Indiabulls Power                    | 1,320         | Proposed             |
| Punjab    | Goindwal Sahib Thermal Power Plant                      | GVK                                 | 600           | Construction         |
| Punjab    | Goindwal Sahib Thermal Power Plant expansion            | GVK                                 | 1,320         | Proposed             |
| Punjab    | Mukerian Power Station                                  | Punjab State Power Corporation      | 1,320         | Early development    |
| Punjab    | Rajpura Thermal Power Project (Nalash)                  | Punjab State Power Corporation      | 1,320         | Construction         |
| Punjab    | Rajpura Thermal Power Project (Nalash) phase II         | Punjab State Power Corporation      | 700           | Proposed             |
| Punjab    | Ropar Thermal Plant expansion                           | Punjab State Electric Board         | 1,320         | Proposed             |
| Punjab    | Talwandi Sabo Power Project Units 1-3                   | Sterlite Energy                     | 1,980         | Construction         |
| Punjab    | Guru Hargobind (Lehra Mohabbat) Power Station Stage III | Punjab State Electric Board         | 500           | Proposed             |
| Rajasthan | Banswara Thermal Power Station                          | Rajasthan RV Utpadan Nigam          | 1,320         | Early development    |
| Rajasthan | Bikaner Power Station                                   | OM Metals Infraprojects and SPML    | 70            | Early development    |
| Rajasthan | Bithnok Thermal Power Project                           | Neyveli Lignite Corporation         | 250           | Advanced development |

continued next page

Table A.2 | **Proposed Coal-Fired Plants in India (continued)**

| STATE      | PLANT   | DEVELOPER  | CAPACITY (MW) | STATUS               |
|------------|---|--|---------------|----------------------|
| Rajasthan  | Chhabra Power Station Unit 3-4 expansion                    | Rajasthan RV Utpadan Nigam                         | 1,320         | Advanced development |
| Rajasthan  | Chhabra Power Station Unit 5-6 expansion                    | Rajasthan RV Utpadan Nigam                         | 1,320         | Early development    |
| Rajasthan  | JSW Barmer (Jalipa Kapurdi) Power Station Units 5-8         | JSW Energy   | 540           | Construction         |
| Rajasthan  | JSW Barmer (Jalipa Kapurdi) Power Station Units 9-10        | JSW Energy   | 270           | Construction         |
| Rajasthan  | Kalisindh Thermal Power Station                             | Rajasthan RV Utpadan Nigam                         | 1,200         | Construction         |
| Rajasthan  | Kalisindh Thermal Power Station Stage II                    | Rajasthan RV Utpadan Nigam                         | 1,320         | Proposed             |
| Rajasthan  | Kawai Thermal Power Project                                 | Adani Power  | 1,320         | Advanced development |
| Rajasthan  | Suratgarh Super Thermal Power Station Unit 7-8              | Rajasthan RV Utpadan Nigam                         | 1,320         | Early development    |
| Rajasthan  | Suratgarh Super Thermal Power Station Unit 9-10             | Rajasthan RV Utpadan Nigam                         | 1,320         | Early development    |
| Tamil Nadu | Chennai Power Station II                                    | OPG Power Ventures                                 | 77            | Construction         |
| Tamil Nadu | Chennai Power Station III                                   | OPG Power Ventures                                 | 160           | Advanced development |
| Tamil Nadu | Chennai Power Station III additional expansion              | OPG Power Ventures                                 | 80            | Proposed             |
| Tamil Nadu | Cheyur Ultra Mega Power Project                             | Coastal Tamil Nadu Power                           | 4,000         | Proposed             |
| Tamil Nadu | Cuddalore SRM Power Station                                 | SRM Energy   | 1,980         | Proposed             |
| Tamil Nadu | Ennore SEZ Super Critical Thermal Power Project (Vayalur)   | Tamil Nadu Generation and Distribution Corporation | 1,600         | Proposed             |
| Tamil Nadu | Ennore Thermal Power Station expansion                      | Tamil Nadu Generation and Distribution Corporation | 1,200         | Proposed             |
| Tamil Nadu | Jayamkondam Power Station                                   | Neyveli Lignite Corporation                        | 1,600         | Proposed             |
| Tamil Nadu | Marakkanam Super Thermal Power Project                      | NTPC   | 4,000         | Proposed             |
| Tamil Nadu | Mettur Thermal Power Station Stage III                      | TANGEDCO   | 600           | Construction         |
| Tamil Nadu | Nagai Power Project (Nagapattinam)                          | KVK Energy   | 300           | Proposed             |
| Tamil Nadu | New Neyveli Thermal Power Station                           | Neyveli Lignite Corporation                        | 1,000         | Proposed             |
| Tamil Nadu | Neyveli TPS-II Expansion Unit 2                             | Neyveli Lignite Corporation                        | 250           | Construction         |
| Tamil Nadu | North Chennai Thermal Power Station - Stage-II Unit 1       | Tamil Nadu Generation and Distribution Corporation | 600           | Construction         |
| Tamil Nadu | North Chennai Thermal Power Station - Stage-II Unit 2       | Tamil Nadu Generation and Distribution Corporation | 600           | Construction         |
| Tamil Nadu | Savarimangalam Power Station                                | SPR Infrastructure India                           | 2,640         | Early development    |
| Tamil Nadu | Thoothukudi Power Station (IBPGL) expansion                 | Ind-Barath Power                                   | 63            | Proposed             |
| Tamil Nadu | Thoothukudi Power Station (IBTPL Hanakon replacement)       | Ind-Barath Power                                   | 300           | Early development    |
| Tamil Nadu | Tirunelveli Power Station                                   | India Cements                                      | 50            | Proposed             |
| Tamil Nadu | Tuticorin Power Station (Coastal Energen)                   | Coastal Energen                                    | 1,200         | Construction         |
| Tamil Nadu | Tuticorin Power Station (Coastal Energen) Phases II and III | Coastal Energen                                    | 1,600         | Proposed             |
| Tamil Nadu | Tuticorin Power Station (Ind-Barath) Phase I                | Ind-Barath Power                                   | 660           | Advanced development |
| Tamil Nadu | Tuticorin Power Station (Ind-Barath) Phase II               | Ind-Barath Power                                   | 660           | Proposed             |

*continued next page*



Table A.2 | Proposed Coal-Fired Plants in India (continued)

| STATE         | PLANT   | DEVELOPER   | CAPACITY (MW) | STATUS               |
|---------------|---|---|---------------|----------------------|
| Tamil Nadu    | Tuticorin Thermal Power Project                 | Tamil Nadu Generation and Distribution Corporation and Neyveli Lignite Corp             | 1,000         | Construction         |
| Tamil Nadu    | Udangudi Power Station                          | Tamil Nadu Generation and Distribution Corporation and Bharat Heavy Electricals Limited | 1,600         | Advanced development |
| Tamil Nadu    | Uppur Power Station (Thiruvadana)               | Tamil Nadu Generation and Distribution Corporation                                      | 1,600         | Early development    |
| Tamil Nadu    | Vallur I Phase II                               | NTPC and Tamil Nadu Generation and Distribution Corporation                             | 500           | Construction         |
| Tamil Nadu    | Vallur I Power Station                          | NTPC and Tamil Nadu Generation and Distribution Corporation                             | 1,000         | Construction         |
| Uttar Pradesh | Amauli Fatehpur Power Station                   | Uttar Pradesh Power Corporation and Neyveli Lignite Corporation                         | 2,000         | Proposed             |
| Uttar Pradesh | Anpara-D Power Station Unit II                  | UP Rajya Vidyut Nigam Ltd   | 500           | Construction         |
| Uttar Pradesh | Anpara-E Power Station                          | UP Rajya Vidyut Nigam Ltd   | 1,320         | Proposed             |
| Uttar Pradesh | Auraiya Unitech Power Station                   | Unitech Machines  | 250           | Proposed             |
| Uttar Pradesh | Bara Thermal Power Project Phase I              | Jaiprakash Power Ventures   | 1,980         | Construction         |
| Uttar Pradesh | Bara Thermal Power Project Phase II             | Jaiprakash Power Ventures   | 1,320         | Proposed             |
| Uttar Pradesh | Bargarh Power Station                           | Bajaj Hindusthan  | 1,980         | Early development    |
| Uttar Pradesh | Barkera Mill Power Station                      | Bajaj Hindusthan  | 80            | Proposed             |
| Uttar Pradesh | Bhogipur Power Station                          | Lanco   | 2,640         | Early development    |
| Uttar Pradesh | Bilhour Super Thermal Power Plant               | NTPC  | 1,320         | Early development    |
| Uttar Pradesh | Chola Power Station                             | Tata Power  | 1,320         | Proposed             |
| Uttar Pradesh | Dopaha Thermal Power Plant                      | Uttar Pradesh Power Corporation   | 1,980         | Early development    |
| Uttar Pradesh | Fatehpur Power Station                          | Uttar Pradesh Power Corporation   | 1,320         | Proposed             |
| Uttar Pradesh | Feroz Gandhi Unchahar Power Project Stage IV    | NTPC  | 500           | Proposed             |
| Uttar Pradesh | Harduaganj TPS Extn - Stage III (Kasimpur)      | Uttar Pradesh Rajya Vidyut  | 660           | Proposed             |
| Uttar Pradesh | Jawaharpur Thermal Project                      | Jawaharpur Vidyut Utpadan Nigam   | 1,320         | Proposed             |
| Uttar Pradesh | Karchana Thermal Power Project                  | Jaypee Group  | 1,980         | Proposed             |
| Uttar Pradesh | Lalitpur Power Project (Mirchawar)              | Bajaj Hindusthan  | 1,980         | Early development    |
| Uttar Pradesh | Meja Thermal Power Project                      | NTPC and Uttar Pradesh Rajya Vidyut   | 1,320         | Construction         |
| Uttar Pradesh | NCTPP IGCC demonstration (Dadri)                | NTPC  | 100           | Proposed             |
| Uttar Pradesh | Obra Thermal Station extension                  | UP Rajya Vidyut Nigam Ltd   | 1,600         | Proposed             |
| Uttar Pradesh | Panki Thermal Power Station extension           | UP Rajya Vidyut Nigam Ltd   | 250           | Proposed             |
| Uttar Pradesh | Parichha Power Station                          | Uttar Pradesh Rajya Vidyut  | 500           | Construction         |
| Uttar Pradesh | Rihand III Power Station Unit 5                 | NTPC  | 500           | Construction         |
| Uttar Pradesh | Rihand III Power Station Unit 6                 | NTPC  | 500           | Construction         |
| Uttar Pradesh | Rosa Phase II Power Station (Unit 4)            | Reliance Power  | 300           | Construction         |
| Uttar Pradesh | Singrauli Super Thermal Power Station Stage III | NTPC  | 500           | Proposed             |

continued next page

Table A.2 | **Proposed Coal-Fired Plants in India (continued)**

| STATE         | PLANT  | DEVELOPER                           | CAPACITY (MW)  | STATUS               |
|---------------|--|-------------------------------------|----------------|----------------------|
| Uttar Pradesh | Tanda Power Station Expansion                        | NTPC                                | 1,320          | Proposed             |
| Uttar Pradesh | Welspun Energy Mirzapur Power Station                | Welspun Energy                      | 1,320          | Early development    |
| Uttar Pradesh | Welspun Ghazipur Project                             | Welspun Energy                      | 1,320          | Proposed             |
| West Bengal   | Bakreswar Thermal Power Station Unit 6               | West Bengal Power Development Corp. | 660            | Proposed             |
| West Bengal   | Balagarh Power Station                               | CESC                                | 1,320          | Proposed             |
| West Bengal   | Durgapur Projects Limited Power Station 7A Extension | Durgapur Projects Limited           | 300            | Proposed             |
| West Bengal   | Durgapur Steel City Power Station Unit 2             | Damodar Valley Corporation          | 500            | Construction         |
| West Bengal   | Haldia Energy Power Station Phase II                 | CESC                                | 600            | Construction         |
| West Bengal   | Haldia Energy Power Station Phase II                 | CESC                                | 1,400          | Proposed             |
| West Bengal   | Larsen & Tubro Power Station                         | Larsen & Tubro                      | 3,200          | Proposed             |
| West Bengal   | Raghunathpur Thermal Power Station Phase I           | Damodar Valley Corporation          | 1,200          | Construction         |
| West Bengal   | Raghunathpur Thermal Power Station phase II          | Damodar Valley Corporation          | 1,320          | Proposed             |
| West Bengal   | Sagardighi Thermal Power Station Phase II            | West Bengal Power Development Corp. | 1,000          | Advanced development |
| West Bengal   | Salboni 1 (CPP-IV)                                   | JSW Bengal Steel                    | 300            | Construction         |
| West Bengal   | Salboni 2  | JSW Energy                          | 660            | Advanced development |
| West Bengal   | Salboni 3  | JSW Energy                          | 660            | Advanced development |
| <b>Total</b>  |  |                                     | <b>519,396</b> |                      |

Source: [www.sourcewatch.org/index.php?title=Category:Proposed\\_coal\\_plants\\_in\\_India](http://www.sourcewatch.org/index.php?title=Category:Proposed_coal_plants_in_India).

Table A.3 | Proposed Coal-Fired Plants in Russia

| COUNTRY | LOCATION | PLANT   | DEVELOPER | CAPACITY (MW) | STATUS                            |
|---------|----------|---------|-----------|---------------|-----------------------------------|
| Russia  | Unknown  | Unknown | Unknown   | 26,000-48,000 | Total additional capacity by 2030 |

Table A.4 | Proposed Coal-Fired Plants in Turkey

| COUNTRY | PLANT  | DEVELOPER  | CAPACITY (MW) | STATUS               |
|---------|--|--|---------------|----------------------|
| Turkey  | Koyunağılı Milhalıççık Eskişehir/ Yunus Emre Termik Santrali                 | Adalurya Elektrik A.Ş., Czech companies Ferrit, BTG Energy and Vitkovice Power Engineering | 300           | Permitted            |
| Turkey  | Bolu ili, Göynük ilçesi  | Aksa Göynük Enerji Üretim A.Ş.   | 275           | Permitted            |
| Turkey  | Sinop ili, Gerze ilçesi  | Anadolu Termik Santralleri A.Ş.  | 1,020         | Applying for permits |
| Turkey  | Adana ili, Yumurtalık ilçesi   | Atagür Enerji Üretim İnşaat ve Ticaret Anonim Şirketi                                      | 1,480         | Applying for permits |
| Turkey  | Zonguldak ili, Ereğli ilçesi, Kireçli koyu mevkii / Kireçlik Termik Santrali | Batı Karadeniz Elektrik Üretim A.Ş.  | 1,200         | Applying for permits |
| Turkey  | Bartın ili, Amasra ilçesi, Gömü köyü mevkii /Bartın Termik Santrali          | Batı Karadeniz Elektrik Üretim A.Ş.  | 1,200         | Applying for permits |
| Turkey  | Çankırı ili, Orta ilçesi / Orta Anadolu Termik Santrali                      | Bereket Enerji Üretim A.Ş.   | 137           | Applying for permits |
| Turkey  | Mersin ili, Gülnar ilçesi  | Buğra Enerji Üretimi A.Ş.  | 373           | Applying for permits |
| Turkey  | Çankırı  | Çalık NTF Elektrik Üretim  | 170           | Permitted            |
| Turkey  | Çanakkale ili, Biga ilçesi, Karabiga beldesi                                 | Cenal Elektrik Üretim A.Ş.   | 1,380         | Applying for permits |
| Turkey  | Adana ili, Yumurtalık ilçesi   | Diler Elektrik Üretim A.Ş.   | 600           | Applying for permits |
| Turkey  | Kırklareli ili, demirköy ilçesi, begendik köyü                               | Emba Elektrik Üretim A.Ş.  | 1,232         | Applying for permits |
| Turkey  | Adana ili, yumurtalık ilçesi, Sugözü köyü                                    | Emba Elektrik Üretim A.Ş.  | 1,232         | Applying for permits |
| Turkey  | İzmir İli, Aliağa İlçesi   | Enka Enerji Üretim A.Ş.  | 800           | Permitted            |
| Turkey  | Samsun ili, Havza ilçesi, Kalete Tepe mevkii                                 | Enyat Enerji Yatırımları ve Elektrik Üretim Ticaret Ltd. Şti.                              | 150           | Applying for permits |
| Turkey  | AFSIN-ELBISTAN-C   | EÜAŞ   | 1,400         | Announced            |
| Turkey  | AFSIN-ELBISTAN-D   | EÜAŞ   | 1,200         | Announced            |
| Turkey  | Çanakkale ili, Lapseki ilçesi "Kirazlıdere Termik Santrali"                  | Filiz Enerji Madencilik Tarım Sanayi ve Ticaret A.Ş.                                       | 610           | Applying for permits |
| Turkey  | Şİzmir ili, Aliağa ilçesi, Habaş Termik Santrali                             | Habaş Sanai ve Tıbbi Gazlar İstihsal Endüstrisi A.Ş.                                       | 618           | Applying for permits |
| Turkey  | Adana ili, Ceyhan ilçesi   | Hakan Madencilik ve Elektrik Üretim Sanayi Ticaret A.Ş.                                    | 110           | Permitted            |
| Turkey  | Amasra, Bartın   | HEMA Elektrik A.Ş., China's Aviation Industry  | 1,320         | Applying for permits |
| Turkey  | Zonguldak, Kandilli  | HEMA Elektrik A.Ş.   | 1,320         | Applying for permits |
| Turkey  | Kırklareli, İgneada  | HEMA Elektrik A.Ş.   | 1,200         | Permitted            |
| Turkey  | Amasra, Bartın   | HEMA Elektrik A.Ş.   | 1,111         | Permitted            |
| Turkey  | Adana ili, Yumurtalık ilçesi   | İC İctaş Elektrik Üretim A.Ş.  | 600           | Applying for permits |
| Turkey  | İzmir İli, Aliağa İlçesi   | İzdemir Enerji Elektrik Üretim A.Ş.  | 350           | Permitted            |

continued next page

Table A.4 | **Proposed Coal-Fired Plants in Turkey (continued)**

| COUNTRY      | PLANT   | DEVELOPER   | CAPACITY (MW) | STATUS               |
|--------------|---|---|---------------|----------------------|
| Turkey       | Hatay ili, Dört Yol ilçesi, Yeni yurt mevkii                                  | Kamertan Madencilik ve Elektrik Üretim Anonim Şirketi                             | 330           | Applying for permits |
| Turkey       | Balıkesir İli, Bandırma ilçesi  | Karat Elektrik Üretim ve Ticaret A.Ş.   | 1,200         | Applying for permits |
| Turkey       | Konya ili, Ilgın ilçesi   | Konya Ilgın Elektrik Üretim ve Ticaret Ltd Şti                                    | 500           | Applying for permits |
| Turkey       | Tekirdağ İli Malkara İlçesi İbrice Mevkii / Lüminer                           | Lüminer Enerji Elektrik Üretim Anonim Şirketi                                     | 180           | Applying for permits |
| Turkey       | Zonguldak ili, Çatalağzı beldesi  | Modern Enerji Elektrik Üretimi Otoprodüktör Grubu A.Ş.                            | 320           | Applying for permits |
| Turkey       | İzmir İli Kınık İlçesi/eynez termik santrali                                  | Polyak Eyz Enerji Üretim Madencilik Sanayi ve Ticaret Anonim Şirketi              | 660           | Applying for permits |
| Turkey       | Çanakkale ili, Biga ilçesi / Karaburun-2 Termik Santrali                      | Sarıkaya Enerji Madencilik Tarım San. ve Tic. A.Ş.                                | 670           | Applying for permits |
| Turkey       | Çanakkale ili, Biga ilçesi / Karaburun Termik Santrali                        | Sarıkaya Enerji Madencilik Tarım San. ve Tic. A.Ş.                                | 137           | Applying for permits |
| Turkey       | Hatay ili, Erzin ilçesi, Aşağı Burnaz mevkii                                  | Selena Elektrik Üretim Anonim Şirketi   | 936           | Permitted            |
| Turkey       | Şizmir ili, Aliağa mevkii 600 Mw Socar Power Termik Santrali                  | Socar Power Enerji Yatırımları Anonim Şirketi                                     | 610           | Applying for permits |
| Turkey       | Adana ili, Yumurtalık İlçesi, Gölovası, Ada Enerji Santrali                   | Suez Güney Enerji Üretim A.Ş.   | 1,340         | Applying for permits |
| Turkey       | Mersin ili, Silifke ilçesi, Yeşilovacık beldesi / Yeşilovacık Termik Santrali | Tabiat Enerji Üretim A.Ş.   | 1,320         | Applying for permits |
| Turkey       | Sivas ili, Kangal ilçesi, Etyemez Köyü Mevkii                                 | Tam Enerji Üretim A.Ş.  | 100           | Permitted            |
| Turkey       | Tufanbeyli  | Teyo yatırım, Weiqu Energy Investment   | 600           | Applying for permits |
| Turkey       | Balıkesir İli, Gönen İlçesi   | TGR Enerji, Russian Inter Rao Ues   | 300           | Applying for permits |
| Turkey       | Hatay İskenderun  | Tosyalı Elektrik Üretim A.Ş.  | 1,236         | Applying for permits |
| Turkey       | Bursa, Keles  | Unknown   | 450           | Announced            |
| Turkey       | Elazığ ili, Kovancılar ilçesi, Yarımca beldesi                                | Yıldırım Enerji Yatırımları A.Ş.  | 200           | Applying for permits |
| Turkey       | İskenderun  | Yıldırım Enerji Yatırımları A.Ş. Ve SGP (ÇİN), Chinese SHENHUA GUOHUA POWER (SGP) | 2,000         | Applying for permits |
| <b>Total</b> |   |   | <b>36,719</b> |                      |

Table A.5 | Proposed Coal-Fired Plants in Europe (except Russia and Turkey)

| COUNTRY                          | LOCATION             | PLANT                      | DEVELOPER  | CAPACITY (MW) | STATUS               |
|----------------------------------|----------------------|----------------------------|--|---------------|----------------------|
| Germany                          | Unknown              | Datteln                    | E.ON   | 1,070         | Under construction   |
| Germany                          | Nordrhein-Westfalen  | Lünen                      | Trianel Power                                    | 810           | Under construction   |
| Germany                          | Sachsen-Anhalt       | Arneburg                   | RWE  | 1,600         | Announced            |
| Germany                          | Nordrhein-Westfalen  | Niederaußem (Bergheim)     | RWE  | 2,000         | Applying for permits |
| Germany                          | Schleswig-Holstein   | Brunsbüttel                | SWS  | 1,820         | Applying for permits |
| Germany                          | Nordrhein-Westfalen  | Marl                       | Infracor   | 900           | Announced            |
| Germany <sup>1</sup>             | Sachsen-Anhalt       | Profen                     | Mibrag   | 660           | Applying for permits |
| Germany                          | Niedersachsen        | Stade                      | E.ON   | 1,100         | Applying for permits |
| Germany                          | Niedersachsen        | Stade                      | Dow Chemical                                     | 1,000         | Applying for permits |
| Germany                          | Hessen               | Staudinger                 | E.ON   | 1,100         | Applying for permits |
| Poland                           | Unknown              | Opole 5 & 6                | PGE  | 1,800         | Applying for permits |
| Poland <sup>2</sup>              | Unknown              | Turow                      | PGE  | 460           | Announced            |
| Poland <sup>3</sup>              | Unknown              | Kozienice                  | ENEA   | 1,000         | Permitted            |
| Poland                           | Unknown              | Wola (Silesia)             | RWE and Kompania Weglowa                         | 900           | Announced            |
| Poland                           | Unknown              | Rybnik                     | EDF  | 910           | Under construction   |
| Poland                           | Unknown              | Siechnice                  | Kogeneracja S.A.                                 | 120           | Permitted            |
| Poland                           | Unknown              | Gubin                      | PGE  | 2,700         | Applying for permits |
| Poland <sup>4</sup>              | Unknown              | Ostroleka                  | ENERGA   | 1,000         | Permitted            |
| Poland <sup>5</sup>              | Unknown              | Jaworzno 3                 | Tauron   | 910           | Permitted            |
| Poland <sup>6</sup>              | Unknown              | Tychy                      | Tauron   | 120           | Applying for permits |
| Poland <sup>7</sup>              | Unknown              | Łęczna (Stara Wieś-Stasin) | GDF -Suez  | 766           | Applying for permits |
| Poland                           | Unknown              | Zabrze CHP                 | Fortum   | 350           | Announced            |
| Poland <sup>8</sup>              | Unknown              | Polnoc                     | Kulczyk Investments                              | 1,050         | Applying for permits |
| Italy                            | Sardinia             | Fiume Santo                | E.ON   | 410           | Permitted,           |
| Italy <sup>9</sup>               | Veneto               | Porto Tolle                | Enel   | 1,980         | Applying for permit  |
| Italy <sup>10</sup>              | Vallegia di Quillano | Vado Ligure                | Tirreno Power                                    | 460           | Applying for permit  |
| Italy                            | Calabria             | Saline Joniche             | Repower and Hera                                 | 1,320         | Applying for permits |
| Bosnia-Herzegovina               | Republika Srpska     | TPP Stanari                | Dongfang Electric Corp and EFT                   | 410           | Permitted            |
| Bosnia-Herzegovina <sup>11</sup> | Federation BiH       | Bugojno 1                  | Unknown  | 300           | Applying for permits |
| Bosnia-Herzegovina <sup>12</sup> | Federation BiH       | Kongora                    | Unknown  | 550           | Applying for permits |
| Bosnia-Herzegovina <sup>13</sup> | Federation BiH       | Kamengrad G1               | Unknown  | 430           | Announced            |
| Bosnia-Herzegovina <sup>14</sup> | Republika Srpska     | Ugljevik 3                 | Comsar Energy Republika Srpska and RiTE Ugljevik | 660           | Applying for permits |

*continued next page*

Table A.5 | **Proposed Coal-Fired Plants in Europe (except Turkey and Russia) (continued)**

| COUNTRY                          | LOCATION                      | PLANT                        | DEVELOPER   | CAPACITY (MW) | STATUS                                   |
|----------------------------------|-------------------------------|------------------------------|---|---------------|--|
| Bosnia-Herzegovina               | Federation BiH                | Kakanj G8                    | Elektroprivreda BiH (EPBiH) and CNEEC?              | 230           | Applying for permits                     |
| Bosnia-Herzegovina <sup>15</sup> | Federation BiH                | Tuzla G7                     | Elektroprivreda BiH (EPBiH)                         | 450           | Applying for permits                     |
| Bosnia-Herzegovina <sup>16</sup> | Republika Srpska              | TPP Gacko 2                  | CEZ and EPRS  | 660           | Announced                                |
| Romania                          | Galati                        | Galati                       | Enel  | 800           | Applying for permits                     |
| Romania                          | Deva, Hunedoara               | Electrocentrale Deva         | SC Electrocentrale DEVA SA                          | 450           | Announced                                |
| Romania                          | Doicesti, Dambovita           | Doicesti                     | SC Doicesti and China Huadian Engineering Co.       | 500           | Announced                                |
| Romania                          | Braila                        | Braila Power                 | Enel/EON and SE Braila                              | 800           | Announced                                |
| Romania                          | Paroseni, Hunedoara           | Paroseni                     | Electrocentrale SA (Termoelectrica)                 | 200           | Announced                                |
| Romania <sup>17</sup>            | Rovinari, Gorj                | Rovinari                     | SC Complexul Energetic Rovinari                     | 500           | Announced                                |
| Romania                          | 11 km from Craiova (Isalnita) | Craiova II/Isalnita          | CEZ, Edison, AES                                    | 500           | Announced                                |
| Romania                          | Unknown                       | Halanga, Dr. Turnu Severin   | RAAN (Romag-Termo CHPP Romania)                     | 400           | Announced                                |
| Netherlands <sup>18</sup>        | Rotterdam                     | Maasvlakte Port              | E.ON and GDF Suez                                   | 1,100         | Under construction                       |
| Netherlands <sup>19</sup>        | Rotterdam                     | Maasvlakte Port              | GDF Suez  | 800           | Under construction                       |
| Netherlands <sup>20</sup>        | Eemshaven                     | Eemshaven                    | RWE and Essent                                      | 1,600         | Under construction                       |
| Greece <sup>21</sup>             | Ptolemaida                    | Ptolemaida V                 | PPC   | 600           | Permitted                                |
| Greece                           | Unknown                       | Meliti II, Florina           | PPC   | 450           | Applying for permits                     |
| Greece                           | Unknown                       | Agios Dimitrios 6/ Ptolemais | PPC   | 600           | Announced                                |
| Czech Republic                   | Bilina                        | Ledvice                      | CEZ   | 660           | Under construction                       |
| Czech Republic                   | Kadan                         | Prunerov                     | CEZ   | 750           | Permitted                                |
| Czech Republic                   | Unknown                       | Kladno                       | Alpiq   | 175           | Permitted                                |
| Czech Republic                   | Unknown                       | Mostecka                     | CZ Coal   | 1,200         | Announced                                |
| Bulgaria                         | Mendikarovo                   | Maritsa Iztok-4              | RWE and MIM   | 800           | Unclear                                  |
| Bulgaria                         | Unknown                       | Lom                          | Enemona   | 500           | Announced                                |
| Bulgaria                         | Unknown                       | Bobov Dol                    | Energia MK  | 400           | Announced                                |
| Bulgaria <sup>22</sup>           | Unknown                       | Maritsa-Iztok-2              | BEH   | 450           | Applying for permits                     |
| Serbia <sup>23</sup>             | Unknown                       | Kolubara B                   | EDF/Edison and EPS                                  | 750           | Applying for permits                     |
| Serbia                           | Unknown                       | Stavalj                      | Alta AS and EPS                                     | 350           | Announced                                |
| Serbia <sup>24</sup>             | Unknown                       | Nicola Tesla B3 (TENT B3)    | EPS   | 700           | Announced                                |
| Serbia <sup>25</sup>             | Stavalj                       | Coal-fired Plant             | EPS and Alta (Czech)                                | 350           | Planned                                  |
| Hungary <sup>26</sup>            | Unknown                       | Mecsek Hills UCG             | Wildhorse Energy                                    | 400           | Applying for permits                     |
| Ukraine <sup>27</sup>            | Unknown                       | tbd                          | tbd   | 14,000        | Announced                                |
| Montenegro <sup>28</sup>         | Pljevlja                      | Pljevlja II                  | EPCG  | 230           | Unclear                                  |
| Montenegro                       | Unknown                       | Maoce                        | tbd   | 500           | Announced                                |
| Slovenia                         | Sostanj                       | Sostanj-6                    | TES (HSE)   | 600           | Delayed owing to no final loan guarantee |
| Croatia <sup>29</sup>            | Plomin Luka                   | Plomin C                     | HEP   | 500           | Applying for permits                     |
| Kosovo <sup>30</sup>             | Unknown                       | Kosovo C                     | KEK   | 500           | Announced                                |
| Macedonia <sup>31</sup>          | Bitola                        | Bitola TPP 4th Unit          | Unclear, but ECRD is doing some background research | 300           | Planned                                  |
| <b>Total</b>                     |                               |                              |   | <b>65,421</b> |  |





Table A.6 | **Proposed Coal-Fired Plants in the United States**

| STATE        | PLANT   | DEVELOPER  | CAPACITY (MW)        | STATUS      |
|--------------|---|--|----------------------|-------------|
| AK           | Alaska - Cook Inlet Region Inc. Underground Coal Gasification Project | Cook Inlet Region Inc.   | 100                  | Uncertain   |
| AK           | Alaska - Fairbanks Coal-to-Liquids                                    | Fairbanks Economic Development Corp.   | 60-200               | Uncertain   |
| AR           | Arkansas – Hempstead (AEP)  | American Electric Power/Southwestern Electric Power Company                      | 600                  | Active      |
| CA           | California - Hydrogen Energy  | Hydrogen Energy International, LLC (SCS Energy)                                  | 390                  | Active      |
| CO           | Colorado - Tri-State Colorado Power Project                           | Tri-State Generation & Transmission Association                                  | 500                  | Uncertain   |
| GA           | Georgia - Washington County Power Station                             | Power4Georgians LLC  | 850                  | Active      |
| ID           | Idaho - Power County Advanced Energy Center                           | Southeast Idaho Energy (SIE) Power County Advanced Energy Center (PCAEC)         | 520                  | Uncertain   |
| IL           | Illinois - Taylorville Energy Center                                  | Tenaska/Erora Group/ Christian County Generation                                 | 770                  | Active      |
| IN           | Indiana - Duke Energy's Edwardsport plant                             | Duke Energy  | 630                  | Active      |
| IN           | Indiana - Indiana Gasification  | Leucadia/Indiana Gasification, LLC/E3 Gasification                               | 134                  | Upcoming    |
| KS           | Kansas - Holcomb/ Tri-State   | Sunflower Electric Power Corp./Tri-State Generation and Transmission Association | 895                  | Active      |
| KY           | Kentucky-J K Smith  | Kentucky Pioneer Energy, LLC   | 278                  | Active      |
| KY           | Kentucky - Cash Creek IGCC  | Erora Group  | 770                  | Upcoming    |
| KY           | Kentucky-Black Stallion Energy Center                                 | Black Stallion Energy Center   | 660                  | Active      |
| MI           | Michigan - Wolverine Power Plant                                      | Wolverine Power Cooperative  | 600                  | Active      |
| MN           | Minnesota – Mesaba Energy Iron Range Project (IGCC)                   | Excelsior Energy   | 603                  | Active      |
| MO           | Missouri-University of Missouri                                       | University of Missouri   | 108.5                | Active      |
| MS           | Mississippi – Mississippi Power Ratcliffe IGCC Plant - Kemper         | Southern Company/Mississippi Power Company                                       | 582                  | Active      |
| NC           | North Carolina - Cliffside  | Duke Energy  | 800                  | Progressing |
| ND           | North Dakota - South Heart Coal                                       | Great Northern Project Development/South Heart Coal                              | 175                  | Active      |
| ND           | North Dakota - Spiritwood Station                                     | Great River Energy   | 99                   | Progressing |
| ND           | North Dakota – American Lignite Co's Coal-to-Liquids plant            | American Lignite Co. (North American Coal Corp. and Headwaters, Inc.)            | 150                  | Uncertain   |
| NJ           | New Jersey-PureGen One/Linden IGCC                                    | SCS Energy   | 750                  | Active      |
| PA           | Pennsylvania - Greene Energy Resource Recovery Project                | Wellington Development   | 580                  | Active      |
| SD           | South Dakota - Hyperion Energy Center                                 | Hyperion Refining, LLC   | 200                  | Active      |
| TX           | Texas - Summit Power/Texas Clean Energy Project                       | Summit Power Group   | 400                  | Active      |
| TX           | Texas- Coletto Creek Expansion  | South Texas Electric Cooperative/ International Power                            | 650                  | Progressing |
| TX           | Texas – Limestone III   | NRG Energy   | 744                  | Progressing |
| TX           | Texas - Sandy Creek   | LS Power Development/Dynegy/Sandy Creek Energy Associates                        | 800                  | Active      |
| TX           | Texas- Trailblazer Energy Center                                      | Tenaska  | 900                  | Active      |
| TX           | Texas - Las Brisas  | Chase Power/Las Brisas Energy Center, LLC  | 1,320                | Active      |
| TX           | Texas - White Stallion Energy Center                                  | White Stallion Energy Center, LLC  | 1,320                | Active      |
| VA           | Virginia - Cypress Creek Power Station                                | Old Dominican Electric Cooperative   | 1,500                | Active      |
| WA           | Robinson Power Company LLC  | Robinson Power Company LLC   | 132                  |             |
| WY           | Wyoming - Medicine Bow  | DKRW & SNC   | 200                  | Active      |
| WY           | Wyoming - Two Elk   | North American Power Group   | 325                  | Active      |
| <b>Total</b> |   |  | <b>20,096-20,236</b> |             |

Source: EIA, <http://www.eia.gov/electricity/data/eia860/index.html>; Sourcewatch, [http://www.sourcewatch.org/index.php/Category:Proposed\\_coal\\_plants\\_in\\_the\\_United\\_States](http://www.sourcewatch.org/index.php/Category:Proposed_coal_plants_in_the_United_States).

Table A.7 | Proposed Coal-Fired Plants in Australia

| COUNTRY                | LOCATION                     | PLANT   | DEVELOPER  | CAPACITY (MW) | STATUS                         |
|------------------------|------------------------------|---|--|---------------|--------------------------------|
| Australia <sup>1</sup> | Latrobe Valley, Victoria     | HRL   | HRL  | 600           | Active                         |
| Australia <sup>2</sup> | NWS                          | Bayswater                                     | Macquarie Generation                             | 2,000         | Active, but unlikely to happen |
| Australia <sup>3</sup> | Permian Arckaringa Basin, SA | Arckaringa Phase 1&2                          | Altona Resources and CNOOC New Energy Investment | 560           | Active, but unlikely to happen |
| Australia <sup>4</sup> | Permian Arckaringa Basin, SA | Arckaringa Phase 3                            | Altona Resources                                 | 280           | Active, but unlikely to happen |
| Australia <sup>5</sup> | Queensland                   | Galilee Phase 1&2                             | Galilee Power                                    | 900           | Active, but unlikely to happen |
| Australia <sup>6</sup> | Surat Basin, Qld             | Wandoan Power Project                         | Xstrata and GE Energy                            | 400           | Active, but unlikely to happen |
| Australia <sup>7</sup> | Kingston, SA                 | FuturGas Project                              | Hybrid Energy Australia and Strike Oil           | 300           | Active, but unlikely to happen |
| Australia <sup>8</sup> | Collie, WA                   | Bluewaters Power Station Expansion Stages 3&4 | Griffin Energy                                   | 416           | Active, but unlikely to happen |
| Australia <sup>9</sup> | Unknown                      | Walloway Basin power station                  | Linc Energy                                      | Unknown       | Active, but unlikely to happen |
| <b>Total</b>           |                              |   |  | <b>5,456</b>  |                                |

## ENDNOTES FOR TABLE A.7

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Table A.8 | **Proposed Coal-Fired Plants in East Asia (except China)**

| COUNTRY                  | LOCATION   | PLANT   | DEVELOPER               | CAPACITY (MW) | STATUS  |
|--------------------------|--|---|-------------------------|---------------|---|
| Taiwan <sup>1</sup>      | Unknown  | Taichung Power Plant Expansion                | Unknown                 | 1,600         | To be completed by 2016.  |
| Taiwan <sup>2</sup>      | Kaohsiung  | Kaohsiung Dalin Thermal Power Plant Expansion | Taiwan Power Company    | 1,600         | Expansion plan cut from 4 units to 2 units                                |
| Taiwan <sup>3</sup>      | Unknown  | Shen-ao Power Plant Expansion                 | Unknown                 | 1,600         | To be commissioned by 2013  |
| Taiwan <sup>4</sup>      | Mitsubishi Heavy Industries Taiwan                     | Linkou Thermal Power Plant Expansion          | Unknown                 | 2,400         | First estimated to be commissioned in 2015; second in 2016; third in 2020 |
| Taiwan <sup>5</sup>      | Unknown  | Changkung Thermal Power Plant                 | Unknown                 | 1,600         | Unknown   |
| Japan                    | Ibaraki  | Hitachinaka Unit2                             | Tokyo                   | 1,000         | Under construction  |
| Japan                    | Fukushima  | Hirono Unit6                                  | Tokyo                   | 600           | Under construction  |
| Japan                    | Unknown  | Matsuura Unit2                                | Kyusyu                  | 1,000         | Under construction  |
| Japan                    | Hiroshima  | Takehara New Unit 1                           | J-Power                 | 600           | Planning  |
| South Korea <sup>6</sup> | Taeon-gun, Chungcheongnam-do, 100km southwest of Seoul | Taeon TPP unit 9                              | Korea Western Power Co. | 1,000         | To be commissioned in June, 2016  |
| South Korea <sup>7</sup> | Taeon-gun, Chungcheongnam-do, 100km southwest of Seoul | Taeon TPP unit 10                             | Korea Western Power Co. | 1,000         | To be commissioned in Dec. 2016   |
| North Korea <sup>8</sup> | Rason Special Economic Zone                            | Unknown                                       | A Chinese company       | 600           | Feasibility studies completed, plan to start construction in 2013         |
| <b>Total</b>             |  |   |                         | <b>14,600</b> |   |

## ENDNOTES FOR TABLE A.8

- [http://en.wikipedia.org/wiki/Taichung\\_Power\\_Plant](http://en.wikipedia.org/wiki/Taichung_Power_Plant).
- [www.cool3c.com/soso/detail?type=web&k=%E5%A4%A7%E6%9E%97%E7%81%AB%E5%8A%9B%E7%99%BC%E9%](http://www.cool3c.com/soso/detail?type=web&k=%E5%A4%A7%E6%9E%97%E7%81%AB%E5%8A%9B%E7%99%BC%E9%).
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Table A.9 | Proposed Coal-Fired Plants in Southeast Asia and South Asia (except India)

| COUNTRY              | LOCATION                             | PLANT                                     | DEVELOPER   | CAPACITY (MW) | STATUS             |
|----------------------|--------------------------------------|---|---|---------------|--------------------|
| Vietnam              | Nam Dinh Province (North Vietnam)    | Nam Dinh Thermal Power Plant              | Teakwang  | 2,400         | Under construction |
| Vietnam              | Tra Vinh Province (South Vietnam)    | Duyen Hai 1 Thermal Power Plant           | EVN and Dong Phuong Power Group from China  | 1,245         | Under construction |
| Vietnam <sup>1</sup> | Soc Trang Province (South Vietnam)   | Long Phu 1 Coal-fired Power Plant Project | Vietnam National Oil & Gas Group (PVN)  | 1,200         | Under construction |
| Vietnam <sup>2</sup> | Unknown                              | Quyhn Lap 1 Thermal Power Plant           | Vinacomin   | 1,200         | Under construction |
| Vietnam              | Hai Phong City (North Vietnam)       | Hai Phong 2                               | Unknown   | 600           | Under construction |
| Vietnam              | Unknown                              | Vung Ang 1 Thermal Power Plant            | EVN EPC: Lilama   | 1,200         | Under construction |
| Vietnam              | Quang Ninh Province (North Vietnam)  | Mong Duong 1                              | EVN   | 1,080         | Under construction |
| Vietnam              | Quang Ninh Province (North Vietnam)  | Mong Duong 2                              | AES - TKV Mong Duong Co. Ltds, established with members of AES Group (United States) (51%), Posco Power (South Korea) (30%) và CIC Group (China) (19%). EPC with Doosan Heavy Industries Vietnam Co. Ltd and the member companies | 1,200         | Under construction |
| Vietnam              | Quang Ninh Province (North Vietnam)  | Quang Ninh 2 Thermal Power Plant          | Unknown   | 600           | Under construction |
| Vietnam              | Quang Ninh Province (North Vietnam)  | Mao Khe Thermal Power Plant               | Vinacomin   | 440           | Under construction |
| Vietnam              | Unknown                              | Vinh Tan 1 & 2                            | EVN   | 3,600         | Under construction |
| Vietnam              | Thanh Hoa Province (North Vietnam)   | Nghi Son 1                                | EVN EPC: Lilama   | 600           | Under construction |
| Vietnam              | Thai Nguyen Province (North Vietnam) | An Khanh                                  | Business corporation  | 100           | Under construction |
| Vietnam              | Soc Trang Province (South Vietnam)   | Long Phu 2 Coal-fired Power Plant Project | Vietnam National Oil & Gas Group (PVN)  | 1,200         | Approved           |
| Vietnam              | Soc Trang Province (South Vietnam)   | Long Phu 3 Coal-fired Power Plant Project | Vietnam National Oil & Gas Group (PVN)  | 2,000         | Approved           |
| Vietnam              | Hai Duong Province (North Vietnam)   | Hai Duong                                 | Unknown   | 1,200         | Approved           |
| Vietnam              | Unknown                              | Thai Binh 1                               | Unknown   | 600           | Approved           |
| Vietnam              | Unknown                              | Vung Ang 2                                | Unknown   | 1,200         | Approved           |
| Vietnam              | Unknown                              | Quang Trach 1                             | Unknown   | 1,200         | Approved           |
| Vietnam              | Unknown                              | Nghi Son 1, 2                             | Unknown   | 1,200         | Approved           |
| Vietnam              | Unknown                              | Mao Khe                                   | Unknown   | 440           | Approved           |
| Vietnam              | Tra Vinh Province (South Vietnam)    | Duyen Hai 2                               | EVN   | Unknown       | Approved           |
| Vietnam              | Tra Vinh Province (South Vietnam)    | Duyen Hai 3                               | EVN   | 1,200         | Approved           |

continued next page

Table A.9 | **Proposed Coal-Fired Plants in Southeast Asia and South Asia (except India) (continued)**

| COUNTRY                        | LOCATION                           | PLANT                                | DEVELOPER  | CAPACITY (MW) | STATUS                            |
|--------------------------------|------------------------------------|--------------------------------------|--|---------------|-----------------------------------|
| <b>Vietnam</b>                 | Unknown                            | Vinh Tan 2                           | Unknown  | Unknown       | Approved                          |
| <b>Vietnam</b>                 | Unknown                            | Cam Pha 3                            | Unknown  | 500           | Being planned                     |
| <b>Vietnam</b>                 | Unknown                            | Hai Phong 3                          | Unknown  | 2,400         | Being planned                     |
| <b>Vietnam</b>                 | Unknown                            | Quang Tri                            | Unknown  | 1,200         | Being planned                     |
| <b>Vietnam</b>                 | Unknown                            | Vung Ang 3                           | Unknown  | 2,400         | Being planned                     |
| <b>Vietnam</b>                 | Unknown                            | Thai Binh 2                          | Unknown  | 1,200         | Being planned                     |
| <b>Vietnam</b>                 | Unknown                            | Van Phong                            | Unknown  | 1,320         | Being planned                     |
| <b>Philippines<sup>3</sup></b> | Subic Bay                          | Redondo Peninsula Energy power plant | Meralco Power Generation Corporation (MPGC) , Therma Power Inc (TPI) and Taiwan Cogeneration Corporation (TCC) | 600           | Scheduled to start in early 2012. |
| <b>Philippines</b>             | Zamboanga                          | Unknown                              | Alcantara  | 100           | Unknown                           |
| <b>Philippines</b>             | Sarangani                          | Unknown                              | Alcantara  | 200           | Unknown                           |
| <b>Philippines</b>             | Davao                              |                                      |  |               |                                   |
|                                | Unknown                            | Aboitiz                              | 300  | Unknown       |                                   |
| <b>Philippines</b>             | Concepcion                         | Unknown                              | Palm Concepcion Power Corp, a subsidiary of publicly listed A. Brown Co. Inc.                                  | 200           | Unknown                           |
| <b>Philippines</b>             | Subic                              | Unknown                              | Aboitiz  | 300           | Unknown                           |
| <b>Philippines</b>             | Mariveles, Bataan                  | Unknown                              | GN Power   | 600           | Unknown                           |
| <b>Philippines</b>             | Pagbilao, Quezon                   | Unknown                              | Unknown  | 300           | Unknown                           |
| <b>Philippines</b>             | Concepcion, Iloilo                 | Unknown                              | Unknown  | 100           | Unknown                           |
| <b>Philippines</b>             | Iloilo City                        | Unknown                              | Unknown  | 165           | Unknown                           |
| <b>Philippines</b>             | Naga, Cebu                         | Unknown                              | Unknown  | 100           | Unknown                           |
| <b>Philippines</b>             | Toledo, Cebu                       | Unknown                              | Unknown  | 200           | Unknown                           |
| <b>Philippines</b>             | Masinloc, Zambales                 | Unknown                              | Unknown  | 300           | Unknown                           |
| <b>Philippines</b>             | Olongapo, Zambales                 | Unknown                              | Unknown  | 300           | Unknown                           |
| <b>Philippines</b>             | Sultan Kudarat                     | Unknown                              | Unknown  | 150           | Unknown                           |
| <b>Cambodia<sup>4</sup></b>    | Unknown                            | Unknown                              | Leader Universal Holdings, a Malaysian company   | 100           | Unknown                           |
| <b>Cambodia<sup>5</sup></b>    | Coastal province of Preah Sihanouk | Unknown                              | Cambodia International Investment Development Group Co, Ltd  | 700           | To be commissioned in 2015        |
| <b>Cambodia<sup>6</sup></b>    | Coastal province of Preah Sihanouk | Unknown                              | Chinese company Erdos Electrical Power & Metallurgical Co.   | 700           | Unknown                           |
| <b>Cambodia<sup>7</sup></b>    | Koh Kong province                  | Unknown                              | Cambodian and Thai joint venture firm  | 1,800         | Conducting feasibility study      |
| <b>Cambodia<sup>8</sup></b>    | Preah Sihanouk province            | Unknown                              | Cambodia International Investment Development Group Co Ltd and a Chinese Company                               | 270           | Unknown                           |
| <b>Indonesia<sup>9</sup></b>   | West Java                          | PLTU Indramayu                       | PLN (State Owned)  | 1,000         | To be built from 2012–2016        |

*continued next page*



Table A.9 | Proposed Coal-Fired Plants in Southeast Asia and South Asia (except India) (continued)

| COUNTRY                   | LOCATION  | PLANT                          | DEVELOPER   | CAPACITY (MW)                | STATUS                     |
|---------------------------|---|--------------------------------|---|------------------------------|----------------------------|
| <b>Indonesia</b>          | North Sumatera  | PLTU Pangkalan Susu            | PLN (State Owned)   | 400                          | Unknown                    |
| <b>Indonesia</b>          | Central Kalimantan                                    | PLTU Sampit                    | PLN (State Owned)   | 50                           | To be built from 2015      |
| <b>Indonesia</b>          | West Kalimantan                                       | PLTU Parit Baru                | PLN (State Owned)   | 100                          | Unknown                    |
| <b>Indonesia</b>          | South Sulawesi  | PLTU Takalar                   | PLN (State Owned)   | 200                          | Unknown                    |
| <b>Indonesia</b>          | East Kalimantan                                       | PLTU East Kalimantan (Peaking) | PLN (State Owned)   | 100                          | Unknown                    |
| <b>Indonesia</b>          | West Java   | PLTU Muara Tawar Add On 2,3,4  | PLN (State Owned)   | 150                          | Unknown                    |
| <b>Indonesia</b>          | Bali  | PLTU Bali Timur                | Build in cooperation with private   | 200                          | Unknown                    |
| <b>Indonesia</b>          | East Java   | PLTU Madura                    | Build in cooperation with private   | 400                          | Unknown                    |
| <b>Indonesia</b>          | Bangka Belitung                                       | PLTU Bangka                    | Build in cooperation with private   | 60                           | Unknown                    |
| <b>Indonesia</b>          | East Kalimantan                                       | PLTU Kaltim                    | Build in cooperation with private   | 200                          | Unknown                    |
| <b>Indonesia</b>          | South Kalimantan                                      | PLTU Kalsel                    | Build in cooperation with private   | 200                          | Unknown                    |
| <b>Indonesia</b>          | South East Sulawesi                                   | PLTU Kendari                   | Build in cooperation with private   | 50                           | Unknown                    |
| <b>Indonesia</b>          | Central Java  | PLTU Jawa Tengah Baru          | State/PLN   | 2,000                        | To be built from 2013–2019 |
| <b>Indonesia</b>          | West Java   | PLTU Jawa Barat Baru           | State/PLN   | 1,000                        | To be built from 2015–2019 |
| <b>Indonesia</b>          | Banten  | PLTU Bojanegara                | State/PLN   | 1,500                        | To be built from 2012–2015 |
| <b>Indonesia</b>          | Banten  | PLTU Bojonegara                | State/PLN   | 750                          | Be built from 2015–2018    |
| <b>Burma</b>              | Unknown   | Unknown                        | Unknown   | Unknown                      | Unknown                    |
| <b>Burma</b>              | Unknown   | Unknown                        | A Korean Company  | Unknown                      | Unknown                    |
| <b>Burma<sup>10</sup></b> | Unknown   | Kalewa power station           | China Guodian Corporation and Tun Thwin Mining Co., Ltd                               | 600                          | Unknown                    |
| <b>Burma<sup>11</sup></b> | Unknown   | Htantabin power station        | Huaneng Lancangjiang Hydropower Co., Ltd of China and Htoo Trading Co., Ltd. of Burma | 270                          | Unknown                    |
| <b>Burma<sup>12</sup></b> | Unknown   | Rangoon Division power station | Unknown   | 1,080                        | Unknown                    |
| <b>Burma<sup>13</sup></b> | Thagara in Tanintharyi Region                         | Dawei power station            | Thailand company: Italian-Thai Development Plc  | 400                          | Under consideration        |
| <b>Burma<sup>14</sup></b> | 40 kms north of Thailand's Chiang Rai border in Burma | Mai Khot power station         | the Thai company: Italian-Thai Development Plc  | 369                          | Unknown                    |
| <b>Malaysia</b>           | Perak at Manjung                                      | Manjung Power Station          | TNB Janamanjung Sdn Bhd, Tenaga Nasional Bhd  | An additional 1,000 to 2,295 | Unknown                    |
| <b>Malaysia</b>           | Johor at Pontian                                      | Tanjung Bin Power Station      | Tanjong Bin Power Sdn Bhd, a subsidiary of Malakoff                                   | An additional 1,000 to 2,100 | Unknown                    |

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Table A.9 | **Proposed Coal-Fired Plants in Southeast Asia and South Asia (except India) (continued)**

| COUNTRY                       | LOCATION   | PLANT   | DEVELOPER   | CAPACITY (MW) | STATUS  |
|-------------------------------|--|---|---|---------------|---|
| <b>Malaysia<sup>15</sup></b>  | Sarawak  | Balingian Coal-Fired Power Plant                                    |   | 600           | Under Environmental Impact Assessment                 |
| <b>Laos<sup>16</sup></b>      | Unknown  | Laos Hongsa Coal Fired Power Plant                                  | China National Electric Engineering Co., Ltd.   | 1,878         | Under construction, to be completed in 2015           |
| <b>Laos<sup>17</sup></b>      | Unknown  | Unknown   | Far East Holding Group Co., Ltd   | Unknown       | Unknown   |
| <b>Thailand<sup>18</sup></b>  | Unknown  | Unknown   | National Power Supply (NPS)   | 540           | Unknown   |
| <b>Pakistan<sup>19</sup></b>  | Thar Coalfields in Sindh                         | Phase I and Phase II  | Sindh government and Engro Power Gen  | 5,200         | Unknown   |
| <b>Pakistan<sup>20</sup></b>  | Unknown  | Converting Bin Qasim Power Plant into a coal-fired generation plant | The Karachi Electric Supply Company (KESC) and Bright Eagle Enterprises (BEE), a Hong Kong-based investment company sponsored by Chinese and Korean investors | 1,260         | The second phase of the feasibility study is underway |
| <b>Sri Lanka<sup>21</sup></b> | Sampur, Trincomalee district of Eastern Province | Unknown   | National Thermal Power Corporation (NTPC) of India and Ceylon Electricity Board   | 500           | Construction will begin in 2012                       |
| <b>Total</b>                  |  |   |   | <b>65,267</b> |   |

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Table A.10 | Proposed Coal-Fired Plants in Central Asia

| COUNTRY                  | LOCATION   | PLANT  | DEVELOPER  | CAPACITY (MW)    | STATUS   |
|--------------------------|--|--|--|------------------|--|
| Mongolia <sup>1</sup>    | Northwestern Hovsgol Province                              | Mogoin gol power station                     | Yuanda Group, New Asia Mining Group, The Chinese company, CMEC Corporation | 60               | To be commissioned by early 2012   |
| Mongolia <sup>2</sup>    | Unknown  | The Shivee-Ovoo power station                | Unknown  | 4,800            | To be commissioned by 2015   |
| Mongolia <sup>3</sup>    | Unknown  | The Tavan Tolgoi power station               | Unknown  | 300              | Under construction   |
| Mongolia <sup>4</sup>    | On the eastern side of the city                            | The Ulaanbaatar Thermal Power Plant No. 5    | Unknown  | 4,500            | Scheduled to start in 2013 (first section will be completed in 2015, second section in 2020) |
| Kyrgyzstan <sup>5</sup>  | Kavaksky lignite basin                                     | Kara-Keche coal-fired power station          | Unknown  | At least 1,200   | Planning   |
| Kazakhstan <sup>6</sup>  | Unknown  | Ekibastuz GRES-2 Power Plant Expansion       | Unknown  | 1,000 (estimate) | Unknown  |
| Kazakhstan <sup>7</sup>  | Unknown  | Ekibastuz-1 Upgrade                          | Unknown  | 1,000 (estimate) | Unknown  |
| Kazakhstan <sup>8</sup>  | near Lake Balkhash   | A new Coal-fired Power Plant                 | Unknown  | 1,000 (estimate) | Unknown  |
| Kazakhstan <sup>9</sup>  | Unknown  | Small Coal-fired Thermal Power Plants        | Unknown  | 1,000 (estimate) | Unknown  |
| Tajikistan <sup>10</sup> | In the country's far north, not far from the Kyrgyz border | Coal-fired Power Station                     | A Malaysian company: HOS International Trading (PTY) of Malaysia           | 300              | Unknown  |
| Uzbekistan <sup>11</sup> | In southern Surkhandarya Oblast bordering Afghanistan      | Unknown                                      | Uzbek state company Uzbekenergo  | 300              | Unknown  |
| Oman <sup>12</sup>       | Duqm, Al Wusta   | Al-Duqum Independent Water and Power Project | Oman Power and Water Procurement Company                                   | 1,000            | To be completed in Jan 2016  |
| <b>Total</b>             |  |  |  | <b>16,460</b>    |  |

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Table A.11 | **Proposed Coal-Fired Plants in Africa**

| COUNTRY                   | LOCATION   | PLANT  | DEVELOPER   | CAPACITY (MW) | STATUS  |
|---------------------------|--|--|---|---------------|---|
| South Africa              | Witbank  | Khanyisa Coal Fired power Station                | Anglo American                                    | 450           | Final Environmental Impact Assessment underway. Possible part of the Integrated Resource Plan (IRP) for electricity |
| South Africa              | Witbank/Delmas   | FBC  | KiPower and Kuyusa Mining                         | 600           | Just starting Environmental Impact Assessment process. Possible part of IRP   |
| South Africa              | Unknown  | Coal 3   | Eskom   | 4,800         | Not currently in energy planning (IRP). SA 2012 Budget mentioned possibility, indicated ZAR 200bn price tag         |
| South Africa              | Unknown  | IRP Planned Coal Fire                            | Unknown   | 6,250         | To be completed in 2030, starting in 2014   |
| South Africa              | Witbank, Vaal  | IRP RTS Camden, Grootvlei, Komati                | Eskom   | 1,463         | To be completed in 2013, started in 2010  |
| South Africa              | Waterberg  | Medupi   | Eskom   | 4,332         | To be completed in 2017, starting in 2013. New, part of IRP   |
| South Africa              | Delmas   | Kusile   | Eskom   | 4,338         | To be completed in 2020, starting in 2017. New, part of IRP   |
| South Africa <sup>1</sup> | Majuba   | Majuba Power Station UCG demonstration plant     | Eskom   | 100-400       | To be completed in 2015, started in 2011  |
| Mozambique                | Unknown  | Moatize Power Plant                              | Vale  | 600           | To be completed in 2015. Studies under way for 2000MW   |
| Mozambique                | Unknown  | Benga Power Plant                                | Riversdale  | 600           | To be completed in 2015. Studies under way for 2000MW   |
| Mozambique                | Unknown  | Mozambique Backbone                              | Cesul   | 3,100         | To be completed in 2017   |
| Mozambique                | Tete   | Thermal Coal                                     | Jindal Steel & Power                              | 2,640         | Initial studies only  |
| Botswana <sup>2</sup>     | Unknown  | Morupule Power Station Expansion Morupule B      | Botswana Power Corporation (BPC)                  | 300           | Under construction, to be completed in June, 2015   |
| Botswana <sup>3</sup>     | Unknown  | Mmamabula Export Power project                   | CIC Energy and Vitol                              | 1,200         | Not started   |
| Botswana <sup>4</sup>     | Near the Mmamabula coal field  | Mookane Domestic Power Project (MDPP)            | CIC Energy, Golden Concord Holdings Limited (GCL) | 300           | Unknown   |
| Botswana <sup>5</sup>     | May be anywhere  | Unknown  | Unknown   | 300           | Botswana Power Corporation to open up for tenders end of 2012, due by 2018/2019                                     |
| Zimbabwe <sup>6</sup>     | In the Lusulu coal fields at Binga, in the Matabeleland North province of Zimbabwe | Unknown  | Unknown   | 2,000         | To be completed in 2016   |
| Morocco <sup>7</sup>      | Safi   | Safi power station                               | Electricité de France                             | 1,320         | Unknown   |
| Morocco <sup>8</sup>      | Jorf Lasfar  | Jorf Lasfar coal fired power plant unit 5 unit 6 | Jorf Lasfar Energy                                | 1,356         | To be completed in 2013   |
| Tanzania <sup>9</sup>     | Near Mbalawala mine  | Unknown  | Australia's Intra Energy Corporation (IEC)        | 120           | Unknown   |
| Tanzania <sup>10</sup>    | Mbeya  | Unknown  | Australia's Intra Energy Corporation (IEC)        | 400           | Between 2013 to 2018  |

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Table A.11 | Proposed Coal-Fired Plants in Africa (continued)

| COUNTRY                | LOCATION   | PLANT                           | DEVELOPER   | CAPACITY (MW)        | STATUS  |
|------------------------|--|---------------------------------|---|----------------------|---|
| Tanzania <sup>11</sup> | Dar es Salaam  | Unknown                         | Australia's Intra Energy Corporation (IEC)  | 400                  | Between 2013 to 2019  |
| Tanzania <sup>12</sup> | Near the Tancoal Mine in the Ngaka coalfields at Mbinga district, Ruvuma region, in the southwest Tanzania | Unknown                         | Intra Energy Corporation subsidiary in Tanzania, Intra Energy Tanzania (IETL), TANESCO              | 120                  | Unknown   |
| Namibia <sup>13</sup>  | Arandis  | Erongo Coal-fired Power Station | NamPower  | 150-800              | Environmental Impact Assessment underway  |
| Zambia <sup>14</sup>   | Unknown  | Unknown                         | Maamba Collieries, majority owned by Singaporean miner Nava Bharat Pte and the government of Zambia | 300                  | Pushed back to 2015 due to delay on environmental approvals. Newly approved, starting early construction. |
| Senegal <sup>15</sup>  | Sendou   | Unknown                         | SENELEC and Korea Electric Power Corp (KEPCO)   | 250                  | To be completed in 2015   |
| <b>Total</b>           |  |                                 |   | <b>37,789–38,739</b> |   |

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Table A.12 | Proposed Coal-Fired Plants in Latin America

| COUNTRY                         | LOCATION                             | PLANT                                | DEVELOPER  | CAPACITY (MW) | STATUS                                     |
|---------------------------------|--------------------------------------|--------------------------------------|--|---------------|--|
| Dominican Republic <sup>1</sup> | Manzanillo, Montecristi              | Unknown                              | CDEEE  | 1,500         | Unknown                                    |
| Dominican Republic <sup>2</sup> | Unknown                              | Unknown                              | CDEEE  | 600           | Unknown                                    |
| Peru <sup>3</sup>               | Unknown                              | Unknown                              | Fenix Power  | 520           | Due to start operation in 2013             |
| Peru <sup>4</sup>               | Eten, Lambayeque                     | Unknown                              | Cobra and Enersa   | 200           | Unknown                                    |
| Brazil <sup>5</sup>             | Sao Goncalo do Amarante, Ceara state | Porto do Pecem I                     | MPX Energia SA and EDP Energias no Brasil  | 720           | Unknown                                    |
| Colombia <sup>6</sup>           | Norte de Santander                   | Termotasajero II                     | Hyundai Corporation: South Korean engineering, procurement and construction (EPC) contractor Hyundai Engineering Co., Ltd. and Babcock Wilcox & Co. / Babcock & Wilcox Power Generation Group Inc. | 1,616         | Assigned                                   |
| Colombia <sup>7</sup>           | Córdoba (Puerto Libertador)          | Gecelca 32                           | Unknown  | 250           | Assigned                                   |
| Colombia <sup>8</sup>           | Córdoba (Puerto Libertador)          | Gecelca 3                            | Unknown  | 150           | Assigned                                   |
| Colombia <sup>9</sup>           | Magdalena                            | Termonorte                           | Producción de Energía S.A.S E.S.P  | 88            | Assigned                                   |
| Guatemala <sup>10</sup>         | La Democracia, Escuintla             | Unknown                              | Unknown  | 120           | Expected to begin operations in Jan 2013   |
| Guatemala <sup>11</sup>         | Puerto Quetzal.                      | Unknown                              | Jaguar Energy Guatemala  | 300           | Commercial operations due to begin in 2013 |
| Chile <sup>12</sup>             | Octava                               | Bocamina II power station            | Empresa Nacional de Electricidad S.A. ENDESA (Enel)  | 370           | Under qualification                        |
| Chile                           | Tercera                              | Central Termoeléctrica Punta Alcalde | Empresa Nacional de Electricidad S.A. ENDESA (Enel)  | Unknown       | Under qualification                        |
| Chile                           | III región                           | Castilla                             | E.ON & MPX   | 2,100         | Approved but not yet built                 |
| Chile                           | II región                            | Cochrane                             | AES Gener  | 560           | Approved but not yet built                 |
| Chile                           | V región                             | Energía Minera                       | Codelco  | 1,050         | Approved but not yet built                 |
| Chile                           | III región                           | Guacolda V                           | AES Gener  | 152           | Approved but not yet built                 |
| Chile                           | II región                            | Infraestructura Energética           | Suez Energy  | 750           | Approved but not yet built                 |
| Chile                           | II región                            | Kelar                                | BHP Billinton  | 500           | Approved but not yet built                 |
| Chile                           | VII región                           | Los Robles                           | AES Gener  | 750           | Approved but not yet built                 |
| Chile                           | I región                             | Pacífico                             | Río Seco   | 350           | Approved but not yet built                 |
| Chile                           | I región                             | Patache                              | Endesa (Enel)  | 110           | Approved but not yet built                 |
| Chile                           | VIII región                          | Pirquenes                            | S.W. Business  | 50            | Approved but not yet built                 |
| Argentina <sup>13</sup>         | Río Turbio, Santa Cruz               | Río Turbio Thermal Power Plant       | A group of private companies   | 240           | Unknown                                    |
| <b>Total</b>                    |                                      |                                      |  | <b>13,046</b> |  |



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