ONS ANNUAL REPORT

2011

Summary

1. Institutional Information

1.1 – ONS Associate Members

AES SUL Distribuidora Gaúcha de Energia S/A
Companhia de Geração de Energia Elétrica Tietê
AES Uruguaiana Empreendimentos S.A
Amazônia-Eletronorte Transmissora de Energia S.A.
Afluente Transmissão de Energia S.A.
Energética Águas da Pedra
Alumínio Brasileiro S/A
Alumar Consórcio de Alumínio SA
Ampla Energia e Serviços S.A.
Anglo American Brasil Ltda
Anglogold Ashanti Córrego do Sítio Mineração S/A
Anglogold Ashanti Brasil Mineração Ltda.
Araraquara Transmissora de Energia S.A.
Arcelormittal Brasil Sa.
Arcelormittal Inox Brasil S.A.
Arembepe Energia S.A.
Artemis Transmissora de Energia S.A.
ATE Transmissora de Energia S.A.
ATE II Transmissora de Energia S.A.
ATE III Transmissora de Energia S.A.
São Mateus Transmissora de Energia S.A. - ATE IV
Londrina Transmissora de Energia S.A - ATE V
Campos Novos Transmissora de Energia S.A. - ATE VI
ATE VII - Foz do Iguaçu Transmissora de Energia S.A.
Energética Barra Grande S.A.
Baguari I Geração de Energia Elétrica S/A
Barra Bioenergia S/A Filial Ipaussu
Barra do Braúna Energética S.A.
SIDERURGICA BARRA MANSA
ANGLO AMERICAN BARRO ALTO
Berneck S.A. Painéis e Serrados
Bons Ventos Geradora de Energia S.A.
Borborema Energética S.A
Brasken S.A.
BRASKEM UNIB-RS
Brasnorte Transmissora de Energia S.A.
Brentech Energia S.A.
Brilhante Transmissora de Energia Ltda

CAIUÁ - Serviços de Eletricidade S/A
Energética Camaçari Muricy I S.A
Candeias Energia S.A.
Consórcio Candonga
Companhia Brasileira de Alumínio
Canoas Duke
Caramuru Alimentos Ltda.
Carbocloro S/A Industrias Quimicas
Castertech Fundição e Tecnologia Ltda
Catxere Transmissora de Energia S.A
Cauipe Geradora de Energia S.A
Companhia Brasileira de Aluminio
Consórcio Capim Branco Energia
Corumbá Concessões S/A
Centrais Elétricas Cachoeira Dourada S/A
Companhia Energética de Alagoas
CEB Distribuição S.A.
CEB Geração S.A..
Companhia Energética Chapecó
Companhia Estadual de Distribuição de Energia Elétrica
Companhia Estadual de Geração e Transmissão de Energia Elétrica
Centrais Elétricas de Santa Catarina S/A
CELG Distribuidora S.A.
CELG Geração e Transmissão S.A.
Centrais Elétricas do Pará S/A
Companhia Energética de Pernambuco
Companhia de Energia Elétrica do Estado de Tocantins
Companhia Energética do Maranhão
Centrais Elétricas Matogrossense S/A
Companhia Energética de Minas Gerais
Cia. Energética de Minas Gerais
Cia. de Transmissão Centroeste de Minas
Companhia Energética Potiguar S.A.
Companhia Energética do Piauí
Companhia Energética Rio das Antas
Centrais Elétricas de Rondônia S/A
Eolica Cerro Chato I S.A.
Eolica Cerro Chato II S.A.
Eolica Cerro Chato III S.A.
Consórcio Empresarial Salto Pilão
Companhia Energética Santa Clara
Companhia Energética de São Paulo
Companhia Energética São Salvador
Consórcio Estreito Energia

Companhia de Geração Térmica de Energia Elétrica
Central Geradora Termelétrica Fortaleza S.A.
Companhia Hidroelétrica do São Francisco
Cia Energética de Petrolina
Companhia de Interconexão Energética
Companhia Luz e Força Santa Cruz
Cocal Termelétrica S/A
Companhia de Eletricidade do Estado da Bahia
Companhia Energética do Ceará
Consórcio UHE Guilman Amorim
Consórcio CEMIG-CEB
Consórcio Paraibuna
COPEL Distribuição S.A
COPEL Geração S.A
COPEL Transmissão S.A
Coqueiros Transmissora de Energia Ltda.
Companhia Energética do Rio Grande do Norte
Coteminas S.A.
Companhia Paulista de Força e Luz
Companhia Piratininga de Força e Luz Ltda
CPFL - Geração de Energia S/A
Cachoeira Paulista Transmissora de Energia S.A.
Companhia Siderurgica Nacional
Companhia Siderúrgica de Tubarão
Companhia de Transmissão de Energia Elétrica Paulista
Desa Eólicas S.A.
Dona Francisca Energética S/A
DSM Elastômeros Brasil Ltda
Duke Energy International - Geração Paranapanema
Empresa Amazonense de Transmissão de Energia
Energisa Borborema Distribuidora de Energia S.A.
Empresa Brasileira de Transmissão de Energia S.A.
Empresa Catarinense de Transmissão de Energia S/A
Empresa de Eletricidade Vale Paranapanema S.A.
Empresa Bandeirante de Energia S/A
Espírito Santo Centrais Elétricas S/A
Empresa Elétrica Bragantina S/A
Eka Bahia S.A.
Elebrás Projetos S.A.
Centrais Elétricas do Rio Jordan S/A
Elektro - Eletricidade e Serviços S/A
Companhia de Eletricidade do Acre
Centrais Elétricas Brasileiras S.A
Eletrogóes S/A

Centrais Elétricas do Norte do Brasil S/A
Eletrobrás Termonuclear S.A
Eletropaulo Metropolitana - Eletricidade de São Paulo S/A
Eletrosul Centrais Elétricas S/A
Empresa Metropolitana de Águas e Energia S/A
Energisa Minas Gerais Distribuidora de Energia S.A.
Enerbrasil - Energias Renováveis do Brasil Ltda
Campos Novos Energia S.A.
Energest S.A.
Consórcio EnerPeixe
Empresa Energética de Mato Grosso do Sul S/A
Enguia Gen CE LTDA
Enguia Gen PI LTDA.
Empresa Norte de Transmissão de Energia S.A.
Energisa Paraíba
Empresa Produtora de Energia Ltda - Enron América do Sul Ltda.
Centrais Elétricas de Pernambuco S.A. - EPESA
Empresa Regional de Transmissão de Energia S.A.
Energia Sustentável do Brasil S.A
Empresa Santos Dumont de Energia
Energisa Sergipe
Espora Energética Ltda
Empresa de Transmissão do Alto Uruguai S.A.
Empresa de Transmissão de Energia de Mato Grosso S.A.
Empresa de Transmissão de Energia do Oeste Ltda
Empresa Paraense de Transmissão de Energia S.A.
Empresa de Transmissão do Espírito Santo S.A.
Expansion Transmissão Itumbiara Marimbondo S/A
Evrecy Participações Ltda.
Expansion Transmissão de Energia S/A
Petróleo Brasileiro S.A. - Fábrica de Fertilizantes Nitrogenados, FAFEN-SE
Fibraplac Chapas de MDF Ltda
Foz do Chapecó Energia S/A
Foz do Rio Claro Energia S.A.
Consórcio AHE Funil
Furnas Centrais Elétricas S/A
Consórcio Serra do Facão
Geração CIII S.A.
Geradora de Energia do Norte S.A
Gerdau Aços Longos S.A. Caçu
Gerdau Aços Longos S.A. SP
Gerdau Aços Longos S.A.- Barra dos Coqueiros
Goiás Transmissão S.A.
Goiânia Transmissora de Energia S.A.

Interligação Elétrica Pinheiros S.A.
Interligação Elétrica Sul S.A.
Interligação Elétrica de Minas Gerais
Interligação Elétrica Norte e Nordeste S.A.
Interligação Elétrica Serra do Japi S.A.
Consórcio Igarapava
Ijuí Energia S.A.
Innova S/A
Integração Transmissora de Energia S.A.
Investco S/A - Lajeado
Iracema Transmissora de Energia S.A.
Itá Energética S/A
Itapebi Geração de Energia S/A
Linhas de Transmissão do Itatim Ltda.
Itumbiara Transmissora de Energia Ltda.
Itiquira Energética S/A
Consorcio Jauru
Jauru Transmissora de Energia LTDA.
Kinross Brasil Mineração S.A
Lanxess Elastômeros do Brasil S.A.
Light - Serviços de Eletricidade S/A
Light Energia S.A
Linde Gases
Linha Verde Transmissora de Energia S.A.
Linhares Geração S.A.
LT Triângulo S.A.
Lumitrans Companhia Transmissora de Energia Elétrica
Macaúbas Energética S/A
Manaus Transmissora de Energia S.A.
Maracanaú Geradora de Energia S.A
Transmissora Matogrossense de Energia S.A.
UTE MC2 CAMAÇARI 1 S.A.
UTE MC2 CATU S.A
UTE MC2 DIA DAVILA 1 S.A
UTE MC2 DIAS DAVILA 2 S.A
UTE MC2 Feira de Santana AS
UTE MC2 Senhor do Bonfim SA
MGE Transmissão S.A
Mineracao Maraca Industria e Comercio S/A
Mirabela Mineração do Brasil Ltda.
Monel Monjolinho Energética Ltda
Linhas de Transmissão de Montes Claros Ltda.
MPX Energia S.A.
New Energy Options Geração de Energia S.A.

Usina Termelétrica Norte Fluminense S.A.
NOVA ERA SILICON S/A
NovaTrans / Enelpower do Brasil Ltda
Nordeste Transmissora de Energia S.A.
Oxiteno Nordeste S/A Indústria e Comércio
Mineracao Paragominas SA
Transmissora Sudeste Nordeste S.A. - PATESA
Poço de Caldas Transmissora de Energia LTDA.
Pedras Transmissora de Energia Ltda
Petróleo Brasileiro S.A.
PIE-RP Termelétrica S/A
Consórcio Porto Estrela Ltda
Porto Velho Transmissora de Energia S.A.
Porto Primavera Transmissora de Energia ltda
Central Eólica Praia do Morgado S.A.
Retiro Baixo Energética S.A
Refinaria Presidente Getúlio Vargas - Araucária/PR
Rio Grande Energia S/A
Rio Branco Transmissora de Energia S.A.
Rio Claro Agroindustrial S.A.
Rio Verde Energia S.A
Rosal Energia S.A.
Ribeirão Preto Transmissora de Energia LTDA.
Empresa de Transmissão de Energia do Rio Grande do Sul S.A.
Sadia S.A.
Santo Antônio Energia S.A.
Salobo Metais SA
Samarco Mineração S.A.
SE Naramdiba S.A.
Serra da Mesa Transmissora de Energia Ltda.
Companhia Paraibuna de Metais - Sobragi
Serra Paracatu Transmissora de Energia LTDA.
Sistema de Transmissão Catarinense S.A.
Sul Transmissora de Energia Ltda
Sistema de Transmissão Nordeste
Energética Suape II S.A.
Tangará Energia S.A. - Guaporé
Transmissora Delmiro Gouveia S/A
Termo Pernambuco Ltda
Termocabo Ltda
Termo Norte Energia ltda.
Termelétrica Viana S/A
ThyssenKrupp CSA Siderurgica do Atlântico
Transmissora Porto Alegrense de Energia Ltda.

Tractebel Energia Suez S.A.
Transenergia São Paulo S.A.
Transenergia Renovável S.A.
Companhia Transirapé de Transmissão
Companhia Transleste de Transmissão
Companhia Transudeste de Transmissão
Transmissora Sudeste Nordeste S.A.
U.E.G. Araucária Ltda
Uirapuru Transmissora de Energia
Usinas Siderúrgicas de Minas Gerais S/A
Usina Xavantes S.A.
Usina Termelétrica de Anápolis Ltda.
Agro Energia Santa Luzia Ltda.
Cia. Vale do Rio Doce
Vale Potássio Nordeste S.A.
Vallourec & Sumitomo Tubos do Brasil Ltda.
Vila do Conde Transmissora de Energia Ltda.
Ventos do Sul Energia S.A.
Veracel Celulose
Borracha Vipal S.A
Central Eólica Volta do Rio S.A.
Votorantim Metais Níquel S/A
Votorantim Cimentos Ltda
White Martins

1.2 – Administration Board

Category: Production

⇒ Valter Luiz Cardeal de Souza (ELETROBRAS) as incumbent and Luiz Henrique de Freitas Schnor (CGTEE) as substitute;

⇒ Mozart Bandeira Arnaud (CHESF) as incumbente. The substitute, Antonio Bolognesi (EMAE), was replaced by Alcides Casado de Oliveira Junior (EMAE) on 08/08/2011. Alcides Casado de Oliveira Junior was replaced on 10/25/2011 by Ricardo Daruiz Borsari (EMAE);

⇒ Fernando Henrique Schuffner Neto (CEMIG) as incumbent and Alexandre Magno Firmo Alves (CDSA) as substitute;

⇒ Maurício Stolle Bähr (TRACTEBEL) as incumbent and Armando de Azevedo Henriques (DUKE) as substitute;

⇒ Xisto Vieira Filho (TERMOPERNAMBUCO) as incumbent and Maria das Graças Foster (PETROBRÁS) as substitute;

Category: Transport

⇒ Wady Charone Junior (ELETRONORTE) as incumbent and Luciano Paulino Junqueira (NTE) as substitute;

⇒ Ronaldo dos Santos Custódio (ELETROSUL) as incumbent and Ramon Sade Haddad (PLENA) as substitute;

⇒ Celso Sebastião Cerchiari (CTEEP) as incumbent. The substitute, Moacir Finotti (CELG), was replaced by Humberto Eustáquio Tavares Correa(CELG) on 04/18/2011;

⇒ Elmar de Oliveira Santana (TBE) as incumbent. The substitute, Paulo Mota Henriques (TAESA), was replaced by José Aloise Ragone Filho (TAESA) on 08/02/2011.

Category: Consumption

⇒ Delson Martini (CEEE), as incumbent, was replaced on 01/13/2011 by Sérgio Souza Dias (CEEE). The substitute, Eduardo Carvalho Sitonio (CELESC), was replaced by Cleverson Siewert (CELESC) on 04/15/2011;

⇒ Wilson Pinto Ferreira Junior (CPFL) as incumbent. The substitute, Michel Nunes Itkes (ESCELSA), was replaced by Donato da Silva Filho (ESCELSA) on 03/11/2011;

⇒ Britaldo Pedrosa Soares (ELETROPAULO) as incumbent. The substitute, Luis Fernando Guimarães (LIGHT), was replaced by Jerson Kelman (LIGHT) on 08/18/2011;

⇒ Marcelo Maia de Azevedo Correa (NEOENERGIA) as incumbent. The substitute, José Antonio Sorge (REDE**),** was replaced by Lucas Leandro Muller (REDE) on 12/19/2011;

⇒ Erico Teodoro Sommer (GERDAU) as incumbent. The substitute, Vania Lucia Somavilla (VALE), was replaced by Ricardo Batista Mendes (VALE) on 04/14/2011;

⇒ Ministry of Mines and Energy - Francisco Romário Wojcicki as incumbent and Ricardo Spanier Homrich as substitute.

1.3 – Fiscal Board

⇒ Vilson Daniel Christofari (CESP) as incumbent, replaced on 02/11/2011 by Mauro Guilherme Arce (CESP), and Pedro José Diniz de Figueiredo (ELETRONUCLEAR), as substitute, representing the Category Production;

⇒ Cesar Ribeiro Zani (FURNAS) as incumbent and Domingos Sávio Castro Horta (TAESA) as substitute, representing the Category Transport;

⇒ Lindolfo Zimmer (COPEL) as incumbent since 01/24/2011, replaced Ronald Thadeu Ravedutti (COPEL), who died on 11/24/2010, and Sérgio Fontana (CEB), as substitute, representing the Category Consumption.

1.4 – ONS Board of Directors

Hermes J. Chipp – General Director

Darico Pedro Livi

István Gárdos

Ronaldo Schuck

Roberto José Ribeiro Gomes da Silva

1.5 – Administration Board's Message

Ready for the future

One of the main features of the Brazilian Interconnected Power System Operator – ONS is the focus on the present, due to its permanent coordination of the energy produced by generation plants, which passes through the transmission grid to be delivered to distributors and free consumers within security and economy appropriate technical standards.

For this work can be done effectively it is necessary to anticipate the future, taking care not to lack the resources aiming at performing the operation the best way possible. The term *resource*, in this case, must be seen in its most comprehensive form, because it includes: generation and transmission assets infrastructure resources; offices and control rooms physical resources; IT resources to support its activities; supervision and control systems; computational models resources and methodologies for their use; and, finally, human resources with the knowledge necessary to perform their roles.

When I dwell upon the report of the activities developed by ONS in 2011, i feel the organization is getting prepared for the future and highlight the following activities:

- The work of analyzing the supply conditions to the World Cup 2014 Host Cities.
- Assessment of compliance of the basic projects of Madeira River Complex transmission system in relation to the operational requirements set in the bidding documents for the integration into the BIPS (Brazilian Interconnected Power System).
- Continuity of the design and implementation of REGER (Power Management Network), with the completion of tests and installation of systems and equipment in Operation Centers.
- Continuity of implementation of the new facilities of the Operator in Recife, Florianopolis and in Rio de Janeiro.
- The focus of personnel management in renewal and empowerment of teams and the preservation of strategic knowledge to carry out the target attributions.

I am sure that the evolution of such activities, conducted by the technical team responsible for the efficient management of ONS' Board of Directors, implementation of an appropriate remuneration policy, which aims at the appreciation of professional recognition and preservation of knowledge of its staff, as well as the strategic guidelines of its Administration and Fiscal Boards, will contribute positively to the sustainability of the organization.

Maurício Stolle Bähr

ONS Administration Board's President

1.6 – General Director's Message

Keep working

Analyzing the results achieved in 2011, I notice that *continuity* is perhaps the word that most sums up everything we did in this period. I do not mean continuity of inaction, but the continuity of production, to move on, to win stages, adding results.

Regarding the target activities, we continue to fulfill our institutional mission, efficiently coordinating the operation of the BIPS and ensuring energy supply with security, at the lowest cost. Large projects of the Operator were continued in 2011, preparing the system so that our mission can be performed more effectively in the future. Among these projects, I highlight the analysis of the supply conditions to the World Cup 2014 Host Cities; the assessment of compliance of the basic projects of Madeira River to the operational requirements set in the bidding documents, essential for the integration into the BIPS; the implementation activities of ONS Power Management Network (REGER); the adoption of a regular cycle of review of all Grid Procedures with the participation of Agents; and the work of technical groups responsible for studying the actions and measures for the implementation of projects already defined and operational measures necessary to ensure the supply to various states. In particular, there was given a different treatment to facilities that are considered strategic, in order to minimize the effects of multiple contingencies on the transmission system. All are long-term projects that extend beyond the borders of the calendar year.

From a corporate perspective, the projects continue to be developed to allow, in the short term, the Operator moving to the new facilities in Florianopolis, Recife and in Rio de Janeiro. Regarding personnel management, we continue to invest in improving technical capacity and human development, always creating opportunities for people to participate in the definition of initiatives that have direct impact on their lives, aiming at the sustainability of the organization.

For the good results presented in this Annual Report, we had the necessary and valuable collaboration of all institutions responsible for managing the electricity sector: the Ministry of Mines and Energy, the Brazilian Electricity Regulatory Agency and other regulatory agencies, the Energy Research Company, the Electric Power Commercialization Chamber, the State Departments of Energy, each of the 282 associate members and associations that represent them.

In addition to the constant improvement of external integration, it is in internal integration that we find justification for the long journey of success that has marked the history of ONS. Dedication and commitment with the results of all that are part of the Operator, along with the daily practice of our values, are the fuel that moves us forward

To all these institutions that represent the main pillars of the Brazilian electric sector, to people that are part of them and to our workforce, our thanks, on behalf of ONS Board of Directors.

Hermes Chipp, General Director

1.7 – Highlights of 2011

The energy service in the BIPS and the operation of the grid are conducted according to the criteria of safety and economy of the Grid Procedures and, in specific situations, based on proposals made by ONS, in accordance with the guidelines of CMSE and ANEEL.

The task forces that deal with energy supply to the host cities of World Cup 2014 set out an Action Plan coordinated by the working group within the Ministry of Mines and Energy, with the participation of ANEEL, the State Departments, ONS, EPE and the generation, transmission and distribution companies involved, so that the works covering the basic grid, the installations located in the border basic grid, other transmission facilities, distribution grid and the works of the Systemic Interest Facilities Modernization Plan can be completed on time.

The ten working groups that examine the conditions of supply to the states define the operational mitigation measures, as well as the actions and measures to accelerate the implementation of environmental licensing and the implementation schedule of the structural works required.

It is approved the compliance of the transmission basic designs associated with *back to back* converter stations and the first DC bipole, part of the transmission system of Madeira River Complex , in relation to the operational requirements established in the bidding documents, aimed at their integration into the BIPS.

It is performed for the first time the integration of preparation processes of studies regarding PAR and PEL, through rationalization of ONS technical team efforts and improvement of the interaction with agents, in order to obtain more concise products and more robust results and recommendations.

It is performed the export of 2,547 GWh of energy to the electrical systems of Uruguay and Argentina, employing thermal generation resources that are not used to meet the requirements of the BIPS.

It begins the implementation of policies and procedures of the Management Plan for Communication in Crisis, which are aimed at leveling and standardization of information disclosed to society in the event of interruptions of power supply. The Operator's internal procedures are considered, as well as the articulation with other stakeholders, such as MME, ANEEL, the agents and the media.

It is implemented a regular and periodic review systematic of all Grid Procedures, aiming at ensuring their permanent consistency with existing regulations and incorporating improvements proposed by ONS and by all Agents.

It is completed the basic structure of the Career Trajectories Program, that will provide great visibility to employees about the prospects for professional development at ONS in accordance with their training and experience. A preliminary suitability of the employees into the careers track and the integration of Organizational Values to the Competencies are two relevant results achieved in the year.

With the participation of employees, the Board of Directors and a committee of counselors and Labor Unions, it is prepared a proposal for a structural review of the Jobs and Wages Management Plan – PGCR. It comprises the review of the remuneration policy and the jobs and wages structures, in order to provide greater adhesion of PGCR to market practices and achieve greater competitiveness for attracting and retaining professionals with high level of qualification.

The General Director of ONS is elected President of Cier - Comisión de Integración Energética Regional, between November/2011 and November/2013, with the mission to strengthen the alliance towards the promotion of regional electric integration, in particular within Mercosul countries.

2 – TECHNICAL RESULTS IN 2011

2.1 – Articulation Actions with Agents

The difficulties in the implementation of works necessary to ensure the supply of power to the states of the federation within the timeframes established in the concession contracts are a constant concern of the entire electricity sector. In this context, ONS has created and led working groups to develop specific evaluation studies of the conditions of supply and propose solutions to the identified problems, as well as monitor the implementation of these works in the BIPS. These groups also count on the participation of MME, ANEEL, EPE, the State Departments of Energy and Environment and the transmission and distribution companies involved.

The expansion of the discussions with the participation of all public and private institutions involved has allowed the best solution of the problems that hamper or prevent compliance with the schedules of the projects. The ten working groups that worked in 2011 beheld the states of Rio Grande do Sul, São Paulo, Rio de Janeiro, Espírito Santo Goiás / Brasília, Bahia / Sergipe, Alagoas / Pernambuco / Paraíba / Rio Grande do Norte, Ceará / Piaui and Pará / Maranhão / Tocantins. Through their work, actions and steps to accelerate the environmental licensing and enforcement of the implementation schedule of the works already defined were established. Operational mitigation measures were also defined until the structural works are completed. Such actions represent significant advances for solving the supply to these states, demonstrating the effectiveness of this initiative.

2.2 – Madeira Complex Operating Studies

Madeira River Complex consists of the hydroelectric plants of Santo Antonio and Jirau, which have a total installed capacity of about 6,500 MW in their final phase. For the disposal of the energy produced by these plants, a transmission system composed of two DC dipoles at ± 600 kV were designed, covering a distance of 2,375 km from São Paulo, and two converters *back to back*, 2 x 400 MW, located in Porto Velho to the local supply.

The project incorporated new technologies, both in generating, using bulb type turbines, as in converter stations for direct current transmissions. As in any large project, the entry into operation of its components takes place in stages, being necessary to evaluate each one in detail, to ensure the electrical security of the BIPS, as well as the integrity of the equipment involved - the new and the existing ones.

The work begins with an analysis of the compliance of basic projects to the operational requirements set in the bidding documents, involving approximately 550

documents, including reports, studies, project drawings, equipment characteristics, definition of protection, command and control systems, supervision and telecommunication system. In 2011, it was approved the compliance of the basic projects A (back to back) and C (dipole 1).

The operational studies were initially conducted for the previous configuration to the entry into operation of the DC transmission. In this context, the anticipation of the entry into operation of the first generating units at the plant in San Antonio brought a great challenge for the system operation, since these units come up with an incomplete transmission system, with only one of three circuits of 230 kV planned between the substations Vilhena and Samuel. This incomplete setting limits the power exchange limits between the área Acre-Rondônia and the rest of the BIPS, becoming a major challenge to ensure the integration of Santo Antonio plant, with its maximum generation, without reducing the reliability of power supply to the states of the area.

The operational studies carried out for this initial stage were aimed at defining bands of operational security, considering the combination of several variables involved: exchanges with the rest of the BIPS; load levels, local plants generation, implementation of new Special Protection Systems; restoration procedures, and the settings of the controllers of the generating units connected in Acre-Rondônia area.

The implementation of operational measures identified in the studies provide benefits for the area supply, allowing explore with security the energy generated in Santo Antonio plant and thus reduce dependence on local thermal generation, increase operational flexibility, and provide better supply conditions in normal operation and in emergency conditions.

The operating studies will continue with the analysis of the next steps until the full deployment of plants and the associated transmission system. In this sense, since the studies are in progress to the next step, which includes commissioning and the entry into operation of Porto Velho *back to back* converters, scheduled for the first half of 2012.

In 2011, ONS staff continued to be trained on DC transmission technology, involving about 150 professionals and with the participation of experts from ANEEL, MME and EPE. It was also given continuity to the installation of the real time digital simulator, discussed in section 2.7.

2.3 – World Cup 2014

The realization of the World Cup 2014 in Brazil involves various sectors of the economy and public and private management, requiring the planning of its infrastructure and coordination of its logistics in order to ensure its successful performance.

Based on resolution of the Power Sector Monitoring Committee (CMSE), MME coordinates a working group created in 2010, consisting of eight task forces. Coordinated by EPE and ONS, these task forces are responsible for drawing up na Action Plan with measures necessary to ensure the energy supply to the cities where events will take place during World Cup 2014.

In 2011, the task forces conducted an assessment of the performance of supply systems for the host cities, considering the works already covered by 2014 planning and the conventional expansion criteria used by the power sector.

A specific workshop for load forecasting was held, as long as this is essential information for evaluating the electric performance of the system. On that occasion, the experience of other countries that had hosted the World Cup with respect to the impact of the event in power demand was analyzed. Different demand scenarios were also evaluated, considering the expected increase in socioeconomic activities due to higher occupancy of the hotel network in the cities during the period of the games.

Due to the worldwide impact of World Cup, analyzes and evaluations were performed with different criteria to ensure greater security for energy supply to the cities involved, including supporting multiple contingencies. In order to assist this situation, some operational measures were prioritized, including thermal dispatch. Taking into account an economic evaluation, it was decided that only the cities of São Paulo, Belo Horizonte, Rio de Janeiro and Curitiba will have reinforcements on their grids. It should be noted that it was considered an extended analysis horizon in order to ensure that the solutions suggested were consistent with medium and long term evolution of the system

To achieve this level of differentiated security, it was proposed a set of operational measures, focusing on power operation programming, which must be consolidated until 2013 in order to provide the most suitable operating conditions to the system during the World Cup.

In July 2011 it was prepared a Summary Report of the activities of the task forces, containing the set of works considered strategic to ensure the conditions of service desirable for each host city, whose implementation will be monitored in a special way by MME.

As a result the work of the task forces, an Action Plan sets out measures to be adopted by MME, ANEEL, State Departments, ONS and the generation, transmission and distribution companies, so that the works that comprise the basic

grid, installations located in the border grid, other transmission facilities, the distribution grid and the works of the Systemic Interest Modernization Plan can be completed within the deadlines.

2.4 – Operation Planning and Scheduling

The operation planning is updated on an annual cycle of planning, with the participation of associated agents. It consists of the energy planning of the operation, which evaluates the conditions of energy supply of the BIPS for the next five years, from January of the current year to December of the fifth year ahead, and planning of electric operation, which assesses the operating conditions to the horizon of sixteen months, from January of the current year to April of the second year ahead.

2.4.1 – Power Operation

Medium Term Horizon

The process of energy operation planning, in the context of the annual cycle of the operation planning, results in two basic products. The Power Operation Annual Plan (PEN), whose horizon covers the period from May of the current year (end of rainy season) to December of the fifth year ahead, was issued by ONS in July/2011 in a report entitled PEN 2011. The second product is the monthly calculation of the future cost functions, using Newave medium term optimization model. This work enables the coupling of medium-term operating strategies with Decomp short-term model, which produces the energy policies of the operation of each week of the current month in the Monthly Operation Program.

PEN 2011 indicates a very favorable situation of energy supply to the market for the next five years, as had already been detected in the previous annual planning cycle.

The analysis of the conditions of the load services based on probabilistic risk assessment of energy deficit indicates the adequacy to the supply criteria established by the National Council for Energy Policies (CNPE), as the deficit risks are far below 5 % for all subsystems on the horizon 2011-2015, with null values in the Northeast.

This result is mainly because of growth of new energy offer aggregate by the auctions of generation and transmission lines. From May 2011 to December 2015, it is planned the entry into operation of 243 new plants, of which 19 hydroelectric, 69 thermoelectric, 141 wind farms and 14 small hydroelectric plants, as well as remaining PROINFA plants and other small plants authorized by ANEEL.

Regarding the participation of different energy sources, the Brazilian power matrix will pass for a significant transformation in the next five years. The thermoelectric power

will increase from the current 16,897 MW (15.6%) to 27,305 MW (19.8%). Wind power will have increased by 535%, increasing from the current 826 MW (0.8%) to 5248 MW (3.8%). The energy from biomass will increase 59% from 4577 MW (4.2%) to 7272 MW (5.3%).

The evolution of this matrix, maintaining the current trend of expansion of hydropower with little or no multi-year adjustment, makes flexible or low flexibility thermoelectric with moderate operating costs and low degree of uncertainty in fuel supply – natural gas, liquefied natural gas and coal - start to play a key role in the selection of projects to be offered in the next new energy auctions. Similarly, small plants and alternative sources of complementary generation during the dry period, such as wind and biomass, also come to play an important role in the operational security of the BIPS, as they act as "virtual containers", complementing the hydraulic generation during dry periods every year.

Also worth mentioning the analysis of the treatment of maximum demand, in which the peak capacity x demand balance indicates that the grid capacity available under PEN 2011 horizon is always higher than the estimated demand. However, the tendency is that it is increasingly necessary to the dispatch of thermal generation at peak hours above the inflexibility declared by the owner agents, depending on the severity of the peak loss for depletion of the reservoirs and / or internal restrictions on the transmission grid.

The need for additional thermal dispatch may be reduced if there is availability of wind generation higher than the one considered conservative in the peak balance (30% capacity factor), as well as greater availability of hydroelectric generation, associated with higher storage in reservoirs of the BIPS, which reduces losses due to depletion. These higher storage levels may result from more favorable inflows or operational security policies through the implementation of Short Term Operation Procedures (POCP). In addition to these resources, hydro peak capacity can also be enhanced by the deployment of new generating units in existing wells provisioned in some hydroelectric power plants in operation (about 5 GW, according to ABRAGE).

PEN 2011 main recommendations are listed below:

- Power evaluation results indicate the need to develop economic feasibility studies to expand the capacity of North-South and South-Southeast/Midwest interconnections;
- The studies for planning the supply expansion should take into account the needs to meet the maximum demand of the BIPS, so that the scale of the installed capacity for this service can be as economic as possible;
- In this sense, the MME and ANEEL should evaluate the establishment of regulatory mechanisms that encourage the installation of hydraulic power in the BIPS, either by motorization of the existing wells in operating plants, repowering of existing plants, or by the possibility of contracting power and / or capacity charges;
- The feasibility of energy auctions by source and region must be evaluated by MME.

Short Term Horizon

In 2011, the period from January to April was characterized by high inflows in the Southeast / Midwest, reaching 128% of historical average of the month (MLT), North, with 113% of MLT, and South, with 203% of the MLT. In the Northeast, inflows were below average, reaching 86% of MLT. This favorable hydrological scenario allowed at the end of April, the storage level in Southeast / Midwest reached 88% of its maximum stored energy, and even with below-average inflows, it was possible in the Northeast region to reach approximately 90% of the maximum, depending on the transfer of energy surplus of the BIPS for this region.

The favorable hydrometeorological situation in Southeast / Midwest has required the integrated operation of flood control in the basins of the rivers – Grande, Paranaíba, Tietê and Paraná - reservoirs. Coordinated by ONS, this operation allowed softening the natural flood peak of about 24,500 m^3 / s, reducing it to values close to 16,000 m^3 / s near Jupiá plant.

In the remaining months of the year, regions Southeast / Midwest, North and South remained in a favorable hydrological framework, with inflows above average, representing 112%, 114% and 145% of their historical averages. In the Northeast, were observed inflows below average, reaching 82% of MLT.

Due to the scenario of high inflows, the implementation of Short Term Operating Procedures in 2011 did not identify the need for complementary thermal dispatch to ensure that the BIPS' target levels established for the regions Southeast / Midwest and Northeast in late November, corresponding to 42% and 25% of their maximum storage capacity, were achieved. The optimal operation of the hydrothermal system during the

year allowed reaching the end of the dry season in November with 57% of the stored energy in the Southeast / Midwest and 46% in the Northeast.

In 2011, the Operator began issuing weekly PMO Executive Report, which publishes short term power guidelines as well as a future vision of the service, with an annual horizon. This document provides agents full access to key data and PMO results, enabling them to make their own sensitivity analyzes to define their actions strategies in the BIPS.

The power integration with the electrical systems of Uruguay and Argentina was performed with the export of 2547 GWh of energy to these countries, employing thermal generation not used to meet the requirements of the BIPS.

2.4.2 – Electric Operation

Medium Term Horizon

The process of electric operation planning, in the context of the annual cycle of the operation planning, resulted in two basic products. The Medium Term Electrical Operation Planning, PEL 2012/2013, presents the evaluations of the electrical performance of the BIPS for the period between the months of January 2012 and April 2013. The second product is composed of the Quarterly Electrical Studies (QEL), which detail - every quarter of the current year - the operational measures so that the operation meets the standards and criteria established in the Grid Procedures, in order to reconcile the electrical constraints and services to the load with energy policies, aiming at the lowest cost of operation and maximum operational security of the BIPS.

Load forecasts informed by agents and consolidated by ONS, as well as the program of works presented in the 2011-2013 Basic Grid Expansions and Reinforcements Plan (PAR) and in the 2011-2013 Basic Grid Works Consolidation, which considers the dates updated by the Power Sector Monitoring Department (DMSE/MME) for the schedules of transmission and generation works authorized by ANEEL are basic information for the evaluations carried out by ONS.

The studies of PEL 2012/2013 were developed primarily to assess the performance of regional interconnections, the need for thermal generation due to transmission constraints and the service to electric areas of the BIPS.

From these evaluations, stand out as main results of the studies of PEL 2012/2013: proposals to adapt the schedule of the planned works to the needs of the BIPS; operational solutions, such as the deployment of Special Protection Systems (EPS) and the change of the grid topology, as well as operational strategies that will be used in the power operation of the BIPS in this horizon.

In 2011, in parallel with the studies of PEL and QEL, ONS conducted analyzes with particular focus on supply to some states through specific working groups, whose results were discussed in section 2.1.2.

The highlight of this annual cycle of power operation planning was the integration of the studies elaboration processes of PAR and PEL, which first occurred in 2011. This process integration has brought a new approach to ONS studies horizons, through which it was possible to rationalize the efforts of the technical teams and get a better adjustment of the time horizons for deployment of the resulting recommendations from each study. In addition, to the agents there was an improvement of their interaction with ONS, since the task of providing data for the studies of PAR and PEL is now performed only once. The integration of these processes resulted in elimination of shadow areas, more concise products and more robust results and recommendations.

In addition to subsidizing short-term electrical studies with monthly horizon in the scope of Operation Scheduling, quarterly studies evaluate the performance of Special Protection Systems in operation, indicating the need for revision or deactivation of the existing ones and the installation of new SEPs; define need for thermal generation for electrical constraints as well as transmission limits in the regional interconnections and to geoelectric areas. QEL also subsidizes the development of the operating instructions used by ONS to fulfill its duties of coordinating the operation of the BIPS in real time.

The results of 2011 Power Operation Annual Planning also supported ONS participation on working groups and task forces dealing with the power supply to the host cities during the World Cup 2014, which results were discussed in section 2.1.4.

Regarding the aspects related to operation power security, ONS has coordinated several actions, together with transmission, generation and distribution agents, in order to diagnose the main weaknesses of the BIPS and indicate the measures to be taken in order to revitalize existing facilities, adapting them to the security standards set in the Grid Procedures.

Through the Normative Resolution No. 443 of 07.26.2011, ANEEL established a new systematic to be adopted by ONS and the agents for the development of the Facilities Modernization Plan (PMI), which shall be submitted annually to the regulatory agency. This Plan indicates the revitalization works and improvements necessary to maintain adequate service provision for the transmission utilities. In addition to the set of works of improvements in facilities under the responsibility of the transmission utilities, PMI also lists the improvements and reinforcement interventions to be implemented by distribution utilities or permit holders, and utilities or authorized generators. In this new form of work, the reinforcement of the transmission companies were consolidated in the Expansions and Reinforcements Plan (PAR).

PMI developed in 2011 covers the period between 2011 and 2014 and recommends the deployment of 232 revitalizations, with some smaller installations, being 202 for the transmission companies, 25 for the distribution companies and five for generation companies.

Short Term Horizon

Throughout 2011, ONS developed studies and implemented conjunctural measures that allowed operating the grid in compliance with the criteria of continuity, reliability and quality of supply set out in the Grid Procedures, as outlined below.

The entry into operation of 525 kV525 kV Foz do Iguaçu-Cascavel Oeste transmission line in December increased the power transfer capacity between Southeast and South subsystems, and allowed to expand the use of Itaipu power plant generation in 60 Hz to attend the demand of the BIPS.

Among the studies carried out, following stand out:

- Implementation and performance monitoring of automatic restart schemes of the BIPS' transmission lines in order to ensure the continuity of services with increased reliability.
- Optimization of generators control systems to ensure adequate damping of electromechanical oscillations and to avoid loss of synchronization in the event of disturbances.
- Calibration of Special Protection Systems, to ensure operational security of the BIPS, even in the event of multiple contingencies.
- Definition of new corridors for system fluent restoration and upgrading of existing ones in order to accelerate the normalization of supply after disturbances.

Among the results obtained stands out the feasibility of serving priority loads in the city center of Sao Paulo in the process of restoration of the system, depending on the revision of the fluent corridor of Luiz Carlos Barreto hydroelectric power plant.

The operative conjunctural measures adopted were intended to prevent unacceptable conditions in normal operation as well as reduce the impacts of the occurrence of emergencies.

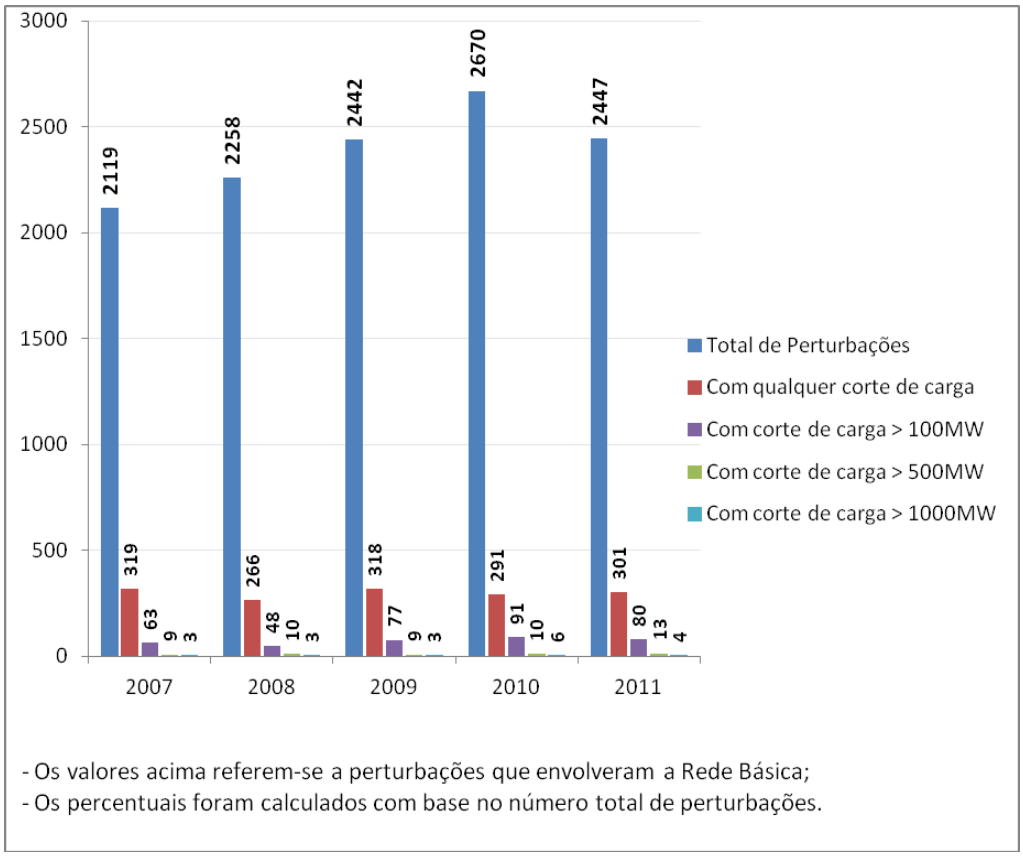
For example, the opening of a 230 kV busbar at Aimorés substation allowed reducing overloads on the equipment of the transmission grid at 138 kV of Escelsa and minimizing the spillage at Aimorés hydroelectric plant, avoiding the flooding of areas downstream, which would cause risk to the local population.

Another example of these measures occurred in the state of Goiás. The load increase due to high temperatures simultaneously to the unavailability of one of the transformers of Bandeirantes substation – which serves most of the state load – resulted in the transformation overload, being necessary high cost thermal dispatch for its control. In this situation, ONS decided to open the 230 kV of Cachoeira Dourada substation, directing much of Cachoeira Dourad generation to serve Goiás loads, easing the transformation of Bandeirantes and minimizing or eliminating thermal dispatch.

2.5 – BIPS Performance Indicators in 2011

Of the total 2447 disturbances recorded in 2011, is worth mentioning that in only four (0.2%) the load cuts were above 1,000 MW. In the graph below, it can be noted that there are thirteen events (0.5%) with cutting load exceeding 500 MW, and also a total of eighty (3.3%) with loss of load higher than 100 MW.

Number of disturbances and their impact on the BIPS



Robustness Indicator of the BIPS

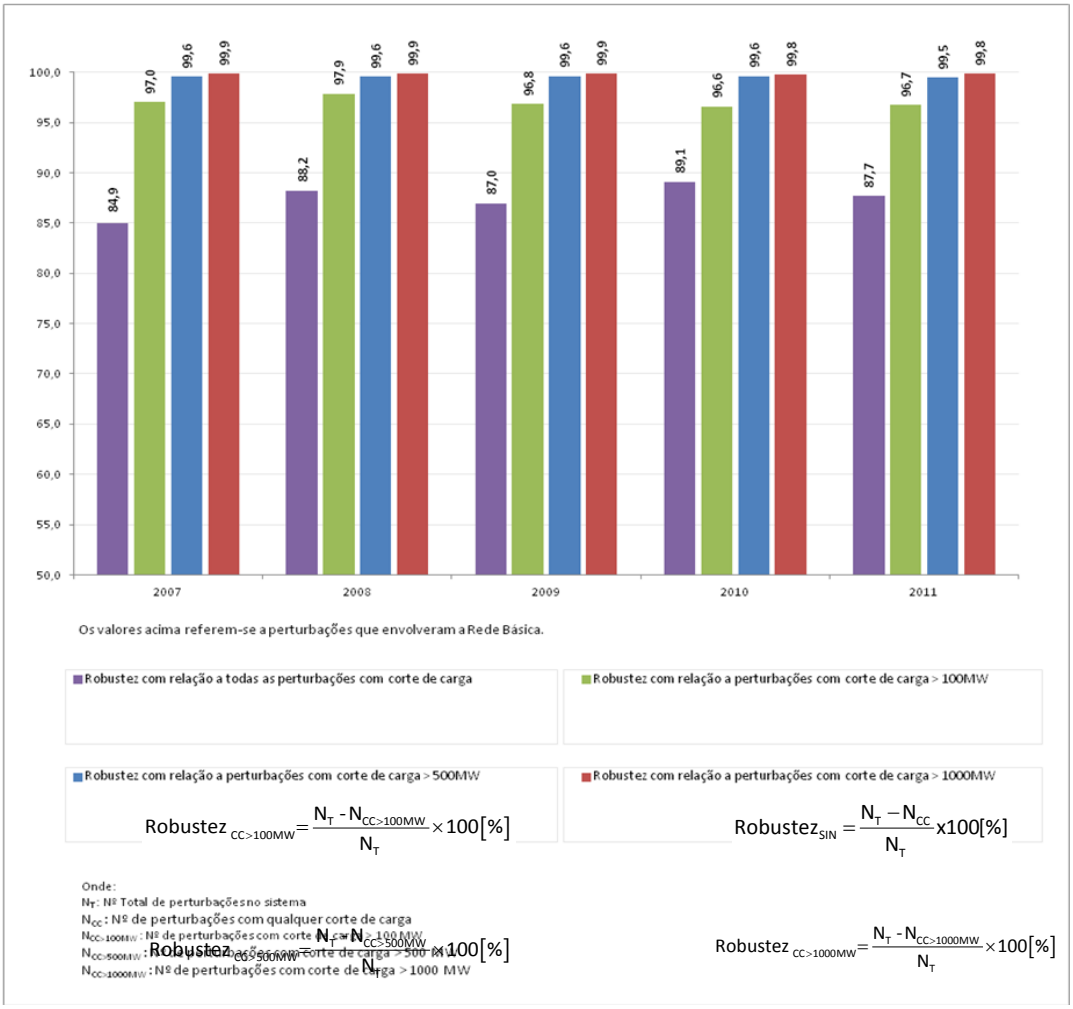
The security in power service achieved in 2011 can be represented by the performance indicators of the BIPS. Robustness is a fairly representative indicator, because it indicates the disturbances in the BIPS with the supply to the loads. The value of this indicator is given by the relation between the number of disturbances and at a certain level of load shedding and the total number of disturbances.

Considering that the total of disturbances in 2011 was 2,447, the following values for the index of robustness can be observed:

- for any load shedding – robustness was 87.7%;
- for load shedding above 100 MW – robustness was 96.7%.
- for load shedding above 500 MW – robustness was 99.5%.

- for load shedding above 1,000 MW – robustness was 99.8%.

It is worth mentioning that the indicators of robustness established in 2011 remained the same level of previous years, from 2007 to 2010.



2.6 – Real Time Operation

In accordance with ONS Master Plan for Supervision and Control, the activities for the project and implementation of ONS Power Management Network (REGER) continued. Throughout 2011, the installation of the Test Factory Platform was completed, equipment was transported and installed in the Operation Centers and subsystems hardware and network tests were started. It was also given continuity to the activities of data and screens preparation, integration with ONS technical database and team training.

In June it was celebrated a contract with Embratel for deployment of REGER Operation Network (ROP-REGER), which will be activated in time to support the functional tests. That same month, it was celebrated a contract with Siemens Enterprise for voice communication modernization in the scope of operation, which will use IP technology.

The Project of the Brazilian System for Observability and Controllability – SINOCON reached, in 2011, the implementation mark of 101 of 116 remote terminal units (UTRs) foreseen in its Emergency Phase. By the end of the year, there were 97 transfers of UTRs for their agents. Lots 1, 2 and 3 are completed. In lot 4, two facilities were completed in 2011 and 15 facilities are in progress. The results achieved with the approval of projects, factory acceptance testing, equipment delivery and field acceptance testing of power plants and substations indicate that in the end of 2011, Project SINOCON fulfilled 89% of its physical realization goal.

In 2011, five simulated exercises were conducted for restoration of the BIPS, with the participation of five ONS Operation Centers and 10 invited agents, involving a total of 50 professionals working in the areas of transmission, generation and distribution. This year, the exercises were evolving with improved access of the agents to ONS simulators as well as in-company training for the participating agents. Performed systematically since 2006, aiming to simulate a possible scenario of occurrence in the operation of the BIPS, these exercises allow evaluating the performance of teams, processes, procedures and adequacy of resources. They serve as a development tool for professionals, who use similar environments to control rooms of the Operation Centers, with all infrastructure resources in order to give more realism to the simulated process.

In the post-operation, stood out the following activities::

- Beginning of calculation of values observed for use of the transmission system - MUST, to meet ANEEL Resolution No. 399 of 04.13.2010.
- Participation in the revision of the Grid Procedures, especially the submodules 15.6 and 15.7.
- Consolidation of generation data audit forwarded by CNOS to CCEE.
- Completion of the development phase of the new Hydrology Data Calculation System - WEB SADHI and the beginning of approval.
- Completion of the development and approval of the Operation Results Dissemination System - SDRO.

- Beginning of contracting activities for the Generation Calculation System - SAGER.

- Development of Disturbance Analysis Report for Purpose of Civil Liability – RAR for various events at the border between transmission and distribution companies.

In the field Of Standardization, it was carried out the review of module 10 of the Grid Procedures, covering various improvements such as: more objective text, elimination of redundancies, standardization and inclusion of technical requirements aimed at expanding the operational security of the BIPS.

In 2011, the field of of Operation Standardization surpassed one thousand normative documents drawn up and in force since the beginning of the activities of ONS, having been performed more than 1,500 reviews on these documents only this year.

In March, it was performed a customer satisfaction survey on the processes and products of the Operation Centers, with an overall result of 98.5% satisfaction, considering a sample of 100 agents (generation, transmission, distribution and free consumers).

2.7 – Evolution of processes and methodological improvements

In 2011, ONS made significant advances in improving the computer modeling used in the planning and scheduling of energy operation, with partnerships established through agreements with several national and foreign universities.

In this context, it stands out the realization of a workshop in May on multiple criteria analysis for the decision support and its applications in the Brazilian electric sector with the participation of the University of Coimbra.

Under the agreement with the University of Georgia, United States, which aims to investigate and propose improvements in the use of stochastic dual dynamic programming algorithm (SDDP) used to solve the problem of operation planning, the strategy analysis of numerical solution resulted in the proposal of improvements that can bring a reduction of up to 1/7 of the time in computational effort required to solve the problem of energy optimization, without loss of accuracy.

Still in this Agreement, in the methodological field, it was developed a proposal for a more robust approach to the representation of risk aversion, by minimizing a linear combination of the expected cost of operation, as current assumption of the model, with the representative cost of critical scenarios consisting of alternative to the approaches already used in planning and scheduling of the operation for energy security, which are the curve of risk aversion and the Short-Term Operating Procedures.

ONS also monitored the five lines of research developed by universities to improve the modeling used in the planning of energy operation, in response to a public call from

ANEEL to guide the use of the resources for R & D that are collected from electricity consumers .

The Hydroexpert system was incorporated into the programming process of the hydraulic operation for flood control, whose application to the reservoirs of Paraná river basin was coordinated by ONS in supporting the definition of the hydraulic operation during the flood that occurred in this basin in the month of March. It was also initiated the project of improvement of the Hydroexpert for its application to Iguaçu River basin.

In the field of flood control, it was developed an improvement of the model OPCHEN, with the implementation of the alternative recovery of the stores at the end of the wet season, based on hydrometeorological forecasting, without loss to the protection against floods and with gains for the energy supply.

In the field of hydrometeorological forecasting, studies of application and testing with rainfall-runoff modeling in the basins of the rivers Grande and San Francisco were concluded. In the Basin of Sao Francisco River - in the incremental stretch between Tres Marias and Sobradinho plants- the model employed was NEUROSF, which was submitted to ANEEL at the end of the year to permit its use in the PMO. In the basin of Rio Grande, in the incremental stretches of Marimbondo and Água Vermelha plants, SMAP model application was expanded, already implemented for streamflow forecasting in plants located in the upstream stretch of the river basin. It was also initiated the study of SMAP model application for Paranaíba River basin, upstream of Itumbiara plant.

It also stands out the beginning of a project evaluating new alternatives for the weather forecast, which comprise a new parameterization of ETA model, currently in use in the process of streamflow forecasting for the PMO, and the new model BRAMS, which has characterization of the type and use of the soil adapted to the conditions in Brazil.

As part of the actions necessary for the provision of resources for management security power, ONS has continued the implementation of strategic action of Organon as a tool for assessing BIPS operation security. In 2011, models were revised and added improvements to this program, with special focus on the use of Special Protection Systems in electromechanical simulations to evaluate the use of Organon in monitoring the energy imports limits of the Southeastern region using the Itaipu 60 Hz transmission trunk.

The User's Guide of Organon Program has been revised, as well as its database models for electromechanical components simulation, which resulted in outcomes consistent with other simulation tools used in operation planning and scheduling. It was shown that the current version of the program already allows the correct representation of Special Protection Systems in electromechanical simulations.

The use of Organon in the planning process for the calculation of limits involving Itaipu 60 Hz generation and the Southeastern region energy imports proved to be very advantageous, reducing the analysis time and allowing the exploitation of a greater number of energy scenario including even those with lower probability of occurrence. The results indicate that the area of security developed for calculating the Southeastern imports was consistent with the results obtained in the operation planning processes,

proving the adequacy of the representation of the supervision network for studies involving South-Southeast interconnection.

The feasibility of providing a security region monitoring feature in portable devices with Internet access resources was demonstrated by the prototype.

As a complementary action to the implementation of the program Organon it was developed a comprehensive internal training program which is expected to continue in 2012, including agents potentially interested in using the program.

Throughout 2011, programmed activities were carried on implementation of RTDS simulator (Real Time Digital Simulator) to support the operation of the transmission system of Madeira River plants. It was defined a team of two engineers responsible for implementation and operation of the simulator in real time, and adjustment and improvement of the software infrastructure to support the activities of the simulator and off-line studies.

Technical visits to the manufacturer – ABB, in Ludvika, Sweden – were made for training and testing of replica cubicles used in the *back to back* converters of the Madeira Project. The monitoring of RTDS simulations for adjusting the parameters of such controllers was also covered in this visit. Technical visits were also made to the leading suppliers of real time power system simulators and offline simulator applied to electrical studies of DC links in Canada.

2.8 – Transmission Administration

2.8.1 – Expansions and reinforcements

In 2011, the Basic Grid Expansions and Reinforcements Plan - PAR and the Annual Plan of Expansions and Reinforcements of Transmission Facilities not Members of the Basic Grid - PAR / DIT were issued, presenting the vision of ONS on expansions and reinforcements of the Basic Grid and in Other Transmission Facilities - DIT needed to maintain the proper performance of the grid, ensuring the full functioning of electricity market and allow free access to people interested in working in this market, within the horizon 2012-2014.

In order to allow the processing of the peculiarities of the BIPS, studies that give rise to PAR and PAR-DIT are conducted by Special Groups, with the participation of all agents, including the South, Southeast / Midwest and North / Northeast, the Energy Research Company - EPE, in order to provide transparency to the process and allow the participation of all interested parties.

PAR and PAR-DIT are sent to MME so that they come to be made consistent to the planning of the expansion elaborated by EPE. The proposed expansions and reinforcements in the basic grid and in Other Transmission Facilities, after compatibilization and validation by MME, are consolidated in specific documents and submitted to ANEEL, which will lead the process of granting or authorization for development of transmission projects.

For the implementation of expansions and reinforcements in the basic grid set out in PAR for the triennium 2012-2014 it is estimated an investment of approximately R $ 10 billion, considering the costs provided by ANEEL.

In the period 2012-2014, the expansions and reinforcements correspond to an approximate total of new additions - works without concession grant defined - of transmission lines in the order of 8700 km and 23,000 MVA of transformation capacity, listed in the tables below. These values are the result of adding 29 lines and 97 new transformer units:

TRANSMISSION LINES	
Voltage kV	TOTAL km
500/525	7,462
440	----
345	----

TRANSFORMERS	
Voltage kV (*)	TOTAL MVA
500/525	12,819
440	----
345	1,325

230	1,316		230	9,101
Total	8,778		Total	23,245

(*)Refers to the transformer high side voltage

Among the major works proposed in this PAR to the basic grid, stand out:

South Region and Mato Grosso do Sul

TL 525 kV Salto Santiago – Itá C2 (PR/SC)

TL 525 kV Itá – Nova Santa Rita C2 (RS/SC)

TL 525 kV Curitiba – Curitiba Leste (PR)

SS Nova Santa Rita 525/230 kV: 4º AT 672 MVA (RS)

SS Abdon Batista 525/230 kV – 672 MVA (SC)

TL 230 kV Umbará – Uberaba C2 (PR)

SS Cascavel Norte 230/138 kV – 2x150 MVA (PR)

TL 230 kV Umuarama – Guaíra (PR)

TL 230 kV Cascavel Oeste – Cascavel Norte (PR)

TL 230 kV Lajeado 2 – Garibaldi (RS)

TL 230 kV Nova Santa Rita – Camaquã 3 (RS)

TL 230 kV Camaquã 3 – Quinta (RS)

TL 230 kV Candiota – Bagé 2 (RS)

Southeast/Midwest Regions

TL 500 kV Taubaté – Nova Iguaçu C1 (SP/RJ),

TL 500 kV Araraquara 2 – Campinas (SP)

TL 500 kV Itabirito 2 – Vespasiano (MG)

SS Zona Oeste 500/138 kV – 900 MVA, novo pátio de 138 kV (RJ)

TL 230 kV Barro Alto – Itapaci C2 (GO)

SS Luziânia 500/138 kV – 225 MVA (GO)

SS Nobres 230/138 kV- 2x100 MVA, novo pátio de 138 kV (MT)

North/Northeast Regions

TL 500 kV São João do Piauí – Milagres C2 (PI/PE/CE)

TL 500 kV Gilbués – São João do Piauí (PI)

SS Gilbués 500 kV (Nova) (PI)

TL 500 kV Gilbués – Barreiras (Pi/BA)

TL 500 kV Miracema – Gilbués C1 e C2 (TO/PI)

SS Barreiras 500 kV (Nova) (BA)

TL 500 kV Barreiras – Bom Jesus da Lapa II (BA)

TL 500 kV Bom Jesus Da Lapa II – Ibicoara C2 (BA)

TL 500 kV Ibicoara – Sapeçu C2 (BA)

TL 500 kV Luiz Gonzaga – Milagres C2 (PE/CE)

TL 500 kV Milagres – Açu III (CE/RN)

TL 500 kV Presidente Dutra – Teresina II C3 (MA/PI)

TL 500 kV Teresina II– Sobral III C3 (PI/CE)

TL 230 kV Pituaçu – Pirajá (BA)

TL 230 kV Camaçari IV – Pirajá (BA)

SS Pirajá 230/69 kV – 2x180 MVA (BA)

The Expansions and Reinforcements in Other Transmission Facilities - DIT without concession defined or without prior authorization - proposals in this Par-DIT, for the triennium 2012-2014, are detailed in the following tables:

New transmission lines	
Voltage - kV	km
138	316
88	1
Total	317

New substations and transformers		
Substations	Transformers	MVA
3	4	200

Summary of Proposed Works	Total
Construction of new transmission lines	4
Retrofit/rebuilding/installation of new cables/sectioning of existing lines	26
Busbar/*bays* adequacy	16
Installation of *bays* (*)	117

Installation / improvement of substation yard	7
Installation of capacitive reactive compensation (Mvar)	320
Installation of inductive reactive compensation (Mvar)	11
Installation / replacement of transformers (MVA)	333
Individualization of transformers	8
Installation of other equipment (**)	31

(*) Includes new TLs' bays

(**) Power disconnect switch, protection, limiting reactors, among other

2.8.2 - Access to the Grid

In 2011 92 Access Opinions were issued and 68 Opinions were reviewed. These numbers were respectively 27% and 33% higher than those achieved in 2010. The 92 Access Opinions issued in 2011 were, respectively, for connection of:

- 4 hydraulic power plants;
- 2 thermal plants;
- 5 wind farms;
- 5 free consumers;
- 55 distributors and
- 2 international interconnections.

Also stands out the development of 469 Access Documents to enable the technical capability of enterprises to participate in Auction LER and A-3 of 2011 and, until December 31st 2011, issue 452 documents to enable participation in the Auction A -3, 2012.

2.8.3 - Compliance Analysis of Basic Projects with the Operational Requirements established in the Bidding Documents

The Ministry of Mines and Energy, based on the set of projects indicated by the consolidation of works held by EPE and ONS, defines the new transmission facilities that will be auctioned or authorized by ANEEL.

Responsible for the bidding process for new transmission enterprises, ANEEL shall prepare the documentation that comprises the bidding document, which includes the "Technical Annex". This annex is of great importance to the Operator, because it

defines the technical features of the new facilities of the Basic Grid, whose operation is under ONS responsibility. Thus, the regulation in force provides that ONS defines technical requirements for new plants, aiming at the adequacy of the existing network and ensuring its systemic performance.

Still in the process of integration of new works to the BIPS, ONS is also responsible for verifying the compliance of the basic project of new facilities auctioned or authorized with the Grid Procedures and Technical Annexes of the respective documents.

These assignments correspond to two ONS processes provided in submodule 2.2 of the Grid Procedures:

- Definition of minimum performance requirements for the new transmission facilities, which, from the perspective of system operation, should be included in the technical instruments of grant of the new facilities;
- Ensuring that new transmission facilities meet the minimum technical requirements set out in the technical instrument of grant (technical annex) and in the Grid Procedures.

These processes are of great importance for the integration of new facilities to the BIPS and in 2011 corresponded to propositions of technical requirements for 25 lots of auctioned enterprises, as well as a total of 42 compliance analysis of new transmission facilities basic projects.

2.8.4 - Transmission Contracts

Stand out in 2011 changes in the regulation associated with international interconnection facilities promoted by MME Ordinances No. 210 and 211, the Order of ANEEL General Director No. 1871 and by ANEEL Normative Resolution No. 420. Such regulations equated, technically and commercially, transmission utilities and the facilities of Garabi 1 and 2 Transmission System, required for international exchanges of electricity. Also changed the rules of contracting services and use of transmission and introduced the additional tariffs for the use of international interconnection facilities for export and import of electricity - ADTUE, aiming at low tariffs for users of the transmission system.

Also in 2011, continuity was given to the operationalization of ANEEL Normative Resolution No. 399/2010, which improved the regulation of contracting transmission use, stating that the Contracts for Use of Transmission System - CUST of all generating plants would be suited until April 30th 2011, which was completed in the regulatory deadline for all 127 contracts.

In April and May 2011, was allowed the adequacy of Contracts for the Use of Transmission System - CUST of distribution utilities and permit holders and of the consumer units connected to the basic grid due to the publication of ANEEL Normative Resolution No. 429/2011, which modified ANEEL Normative Resolution No. 399/2010,

creating a transition period for the application of tariffs for the use of the transmission system during off-peak periods.

With respect to conclusion of contracts, 18 new contracts were signed for the Provision of Transmission Services - CPST, 57 new Contracts for Use of Transmission Systems - CUST, 95 new Connection Contracts for Transmission Systems - CCT and Facilities Sharing Contracts - CCI in addition to five new contracts and two additive terms to the Contracts for Provision of Ancillary Services - CPSA.

2.8.5 - Monthly Calculation of Services and Charges

The Monthly Calculation of Transmission Charges and Services - AMSE basically involves calculation of revenue to be paid to the transmission service providers (transmission utilities and ONS) and Charges for Use of Transmission System - EUST and the Sectors to be charged for each user of the Basic Grid and the Border Grid.

The process of AMSE considers all parameters needed for the calculations of revenue (Allowed Annual Revenue, Share of Adjustment of Previous Cycles, among others), charges (tariffs, contracted demands and generation) and as well as all the variables involved (Variable Share due to unavailability of facilities, Financial Additional due to Exceeding Demand, New Agents, ONS Modulated Budget, Revenue of New Works).

AMSE ended the year with 90 transmission utilities and 234 users, being 228 permanent and six temporary. The total of charges and revenue paid during the year amounted to R$ 11.622 billion.

The calculation of additional financial costs associated to the exceeding of contracted values by distribution agents was initiated in 2011, according to ANEEL Normative Resolution No. 399/2010, which improved the regulation of transmission contracts regulation. Another relevant fact in 2011 was the beginning of the calculation of transmission charges associated to off-peak tariffs for distribution agents and free consumers.

2.8.6 - Measurement System for Billing - SMF

In 2011 about 2,400 technical opinions were issued related to basic projects and commissioning reports of measurement installations for billing, which corresponds to a monthly average during the year over 200 documents.

3 – 2011 MANAGEMENT RESULTS

3.1 – ONS Institutional Relationship

In 2011 ONS continued its institutional relationship with the society, concentrating its focus on the electricity sector.

Developed to systematize the relationship with the associate agents, went into operation at the end of the year the Registry of Data for External Relations (CDRE), a web portal that unifies and focuses the information about associate agents and their representatives in the technical processes developed by ONS. CDRE allows the disclosure of meetings and events, the query to the products issued and the automation of information exchange between agents and the staffs from ONS. Throughout the second semester, was made the inclusion and consolidation of existing information in several areas of the organization, beyond the training of teams in different locations. In the first half of 2012, the entire network of agents will have access to CDRE.

The sector associations have also been the focus of relationship actions from ONS. Lectures were held by the direction of the Operator in the leading industry associations - ABDIB, ABRACE, ABRACEEL, ABRAGET, APINE AND COGEN - to present the results of studies conducted as well as to discuss other matters of mutual interest. One of the main forums for the relationship with the associations was the 8th National Meeting of Power Sector Agents, important event of the electricity sector in which ONS was present.

Was also treated very carefully the relationship with the universities with the coming into operation at the end of the year, in the environment of CDRE, UNI-ONS Space, specifically dedicated to information exchange with representatives of universities.

In 2011 ONS participated in other events that helped strengthen the relationship with specific segments of the external public:

- 4th Seminar of Consumer Councils;
- 2nd TOPSEP – Taller Latinoamericano de Operación de Sistemas Eléctricos de Potência;
- Workshop IBAMA;
- Seminar in the Chamber of Deputies on Tariff Modicity, Concessions and Quality of Supply;
- Public Hearing in the Chamber of Deputies on supply conditions in the BIPS;
- 2011Energy Summit
- Meeting with the International Olympic Committee on the supply conditions in 2016

There was also an intense relationship with the Court of Audit, in the sense of providing information about the continuity of supply to the electricity market.

It was completed in 2011 Management Plan of Communication in Crisis, which aims to improve communication of the Operator with its stakeholders at critical moments in order to preserve its image and reputation. The Plan establishes policies and procedures to be followed in the event of temporary interruptions in the supply of electricity to consumers. The detailing of the Operator's internal procedures is in progress, as well as external articulation with other stakeholders, such as MME, ANEEL and Agents. Its effective implementation still depends on the approval by those institutions. The Plan was built after a benchmarking work performed with large national companies and the System Operators participating in the VLPGO.

In order to keep society informed about the conditions of power supply and the results of the operation of the BIPS, ONS has maintained close contact with the media, both by means of interviews of its General Director, as with the clarifications provided by the external communication team The percentage of favorable ONS exhibition in print media in 2011 was 94%.

ONS' website received an average of 1,460 external visits per day during the year, confirming its importance as a tool for dissemination of technical activities of the Operator and relationship with the Internet users. The Contact Us section of the site received an average of 94 posts of visitors per month.

ONS' activities of the centralized operation of the BIPS aroused the interest of other segments of the external public, especially students, technicians of the sector and foreign technicians, assisted by the Institutional Visitation Program. Several foreign delegations were received at the Central Office. In the National Center of the System Operation, in Brasilia, there were 25 visits, with 428 visitors. In the Southeast Regional Operation Center, in Rio de Janeiro, there were 20 technical visits, totaling 300 visitors. In Florianopolis, there were six technical visits in the year and in Recife, eight.

In the context of ONS' institutional relations with CCEE and EPE, stands out the growth of integration and cooperation in conducting the activities, studies and projects through the existing Operating Agreements with these organizations, which contribute to increased efficiency of the Brazilian electric sector.

3.2 – Relationship with Agents and Integration of new facilities to the BIPS

In 2011, the total of Agents associated to ONS reached 282 members (number 11% higher than the previous year - 254 agents), demonstrating the growing role of the Operator as manager of the network of institutions and facilities involved in the operation of the BIPS and the increasing complexity of the processes carried out in this activity. To level these Associate Agents about the activities developed, ONS conducted six Technical Meetings between ONS and Agents.

452 Terms of Release for the entry into operation of transmission facilities were issued in 2011, as well as 453 Service Statements to the Requirement of the Grid Procedures for generation facilities. It was also carried out the classification of the Modality of Operation of 156 plants, being 64 classified as Type I, 29 as Type II and 63 as Type III.

During the year were implemented attracting actions aiming mainly at a closer relationship with the agents whose works were included in the horizon of twelve months ahead, thus providing the necessary support for that the process occurs efficiently. Six meetings were held with the participation of new agents who were integrating the power sector, and also agents already integrated, who were deploying new facilities to the BIPS. The meetings were attended by Regional Centers and the technical areas of ONS.

3.3 – ONS International Strategic Relationship

3.3.1 - Very Large Power Grid Operators – VLPGO

Considering that VLPGO is a forum for dealing with matters of interest to the Brazilian electric system operation, in 2011 ONS kept its participation in this group. This year, the presidency was held by the General Director of Red Eléctrica de España, being approved at the annual meeting of VLPGO in November, that the presidency will be held in 2012 by the President of Reseau de Transport Electricité, from France.

ONS participated directly in the works carried out about the issues that were prioritized, taking over the coordination of some of these issues:

- Integration of renewable resources;
- DC systems in extra-high voltage (800 kV);
- Security versus cost in reliability evaluation;
- Best practices for the recovery of large systems;
- Overcoming of short circuit levels in equipment and facilities;

- Specification and evaluation of the implementation Phasor Measurement Units (PMU) and
- Communication.

Given the expected developments in the composition of supply and demand for electricity in the world, ONS also monitors issues that will certainly have important repercussions for the operation of BIPS in the future as:

- Development and penetration of electric vehicles;
- Energy storage systems;
- Evolution of the concept and implementation of Smart Grid, and
- New models for load forecasting.

It is worth mentioning that in 2011, VLPGO remained one of the most important forums in which ONS is keeping up to date on technological developments of interest to the world's largest operators.

3.3.2 - Comisión de Integración Energética Regional - CIER

ONS participated as a lecturer in various international seminars sponsored by CIER, taking these opportunities to strengthen relations with other representatives of Latin America Operators, as well as to integrate the work being prepared under VLPGO with those from CIER.

In this context, stand out the II Seminar of Operation of Power Systems in State of Emergency, held in the Dominican Republic, and the 46th Meeting of Senior Executives at CIER, in Santiago, Chile.

ONS, as the Brazilian representative in the Working Group on Market Operators and Administrators of CIER, has been involved in the development of major projects such as the SIGER / Atlas, which aims at developing a data management system for regional energy integration and a geo referenced regional atlas.

Another highlight in 2011 the election of ONS General Director for the Presidency of CIER, in the period between November/2011 and November/2013, with the mission of strengthening the alliance towards the promotion of regional electric integration, especially in the scope of MERCOSUL countries.

3.4 – Moving to New Facilities

ONS initiated in 2009 the process of changing its facilities in Rio de Janeiro, Recife and Florianópolis, considering projections about its future and growth estimates for 2020. As a starting point, it was made a detailed study of the structure available in the current buildings and carried out several planning meetings for the development and validation of a plan of organization's needs.

The locations of the new facilities were chosen: the neighborhood of Cidade Nova, in Rio de Janeiro, the neighborhood of Santo Amaro, in Recife, and Office Park complex, in Florianopolis. The buildings are under construction according to lease contracts that ONS signed with their owners-entrepreneurs.

The new facility will house research environments in Central Office and Regional Centers, and operating environments, in Regional Operation Centers, which imposes specific requirements for redundancy and reliability to ensure proper operation. The buildings will be constructed with the use of eco-friendly environments, reducing the impact on the environment, being given to the buildings a green building certification in basic category. Energy efficiency practices and reuse of water also contribute to reducing costs of operation and maintenance, in favor of tariff modicity.

The agreements were made in the modality built to suit, a form of contract which clauses involve legal, commercial and technical peculiarities. These transactions are ruled by Atypical Leasing Contracts (CLA) which have as attachment a Descriptive Memorial in which are established the details of the basic supply, appropriate to the needs of the Operator. Complementing the basic supply, ONS requires for its operation that several other requirements are met. In qualitative terms, these items are quite similar for each of the three new buildings.

Taking into account the importance that ONS meets the contractual responsibilities taken, ensures adherence to the contracted provision and has all its requirements met in the supply, some contracts of additional services were made, since this expertise is not available in the Operator’s staff.

To manage the implementation of new facilities in the three locations, it was established an advisory model that included the identification of the support structure for monitoring and control of events and contractual stages for the construction of the buildings, implementation of special infrastructure items, management of the physical moving to the new buildings and devolution of the buildings currently occupied to their owners. This structure comprises three specific functions: Additional Supply Manager, which is the entrepreneur itself in each building to avoid dilution of responsibilities, the Commissioning Manager, which is responsible for the technical and economic analysis of the works and the acceptance of facilities and the Project Manager Officer (PMO), assisting ONS in the global management of the processes.

Functional characteristics of the enterprises

The buildings were designed observing the horizontality of office spaces, emphasizing the integration of work groups and functionality, with the support of infrastructure targeted to energy efficiency and sustainability, combined with the comfort of users.

Energy efficiency is ensured by facade coatings, air conditioning systems with modern chillers, air supply by the raised floor and local control of temperature and humidity, lighting systems dimmer and with high output lamps (LED), automatic elevators with call control. These features are aligned with green building certification, achieved by specialized projects, without increasing investment costs.

The purpose of sustainability will be achieved through systems that result in energy saving and reuse of water.

Once in all locations the facilities include office environments and operating environments, the new facilities will have several common features and dimensions, depending on the number of employees at each location.

These attributes will ensure future costs of O & M far below the current ones. . Also contributes to this reduction in costs the fact that the necessary infrastructure to support the features that will be installed in the buildings, regardless of their implementation dates, is already being considered from the beginning of the project, in order to avoid rework.

The Occupation Plan emphasizes the continued operation of the final activities of ONS, and because of that, the building infrastructure was designed within the discretion of duality and reliability of Uptime international standard, level TIER III, following practices adopted internationally in system operators facilities.

In December 2011 in the building of Rio de Janeiro, 70% of the infrastructure stage had already been deployed. In the buildings of Florianópolis and Recife, at the same time, electrical, plumbing and air conditioning finishing parts were already being installed. The civil works were already being completed as well. The buildings of Recife and Florianópolis should be available for occupancy in late 2012. The building of Rio de Janeiro should have started its occupation in the first half of 2013.

3.5 – 2010-2013 Action Plan

ONS annually prepares its Action Plan over the next three budget cycles, in order to ensure appropriate technical and business conditions to fulfill its responsibilities in coordinating and controlling the operation of power generation and transmission of the BIPS, under the supervision and regulation by ANEEL.

The Action Plan is structured in accordance with the strategic guidelines, as well as programs and related projects, considering the following aspects:

- The strategic goals and its challenges and priority actions;
- The expenditures for their programs and projects to be developed in the period, giving continuity to improvement and constant updating of the Operator in terms of technology, its business processes and technical procedures;
- Guidelines for preparation of work programs for each area of the Operator.

The strategic objectives approved by the Board for the cycle are:

I. Having the necessary resources for the power security management of the BIPS

II. Increasing the capacity for prevention and management of crisis situations

III. Improving performance as manager of agents' networks and their facilities and participant of the institutions network

IV. Improving the management capacity to the full exercise of purposive functions.

V. Getting recognition for the results and benefits achieved.

To achieve the strategic objectives, the Action Plan now includes a portfolio of 55 projects, grouped into nine programs.

Among the results obtained during the year 2011, the following projects must be highlighted:

- Continuity of the implementation of the Project New Facilities in Florianópolis, Recife and Rio de Janeiro.
- Achievement of Project REGER, whose main objective is to provide the power management system for installation in ONS System Operation Centers.
- Development of the Basic Project of the Transmission System of Madeira.
- Development of Career Trajectories Program.

- Development and implementation of priority improvements in the processes of acquisition of goods and services and contract management.

3.6 – Risk Management and Grid Procedures

Risk management and management of Grid Procedures involve activities aimed at continually improving the processes carried out by ONS, in order to make them safer and more efficient while preserving the requirements of transparency and equity.

It was approved by ANEEL, in November 2011, version 2.0 of Modules 2, 6, 9, 12, 13, 23 and 26 of the Grid Procedures, by Normative Resolution 461/2011. This review included the compatibility of the Grid Procedures with the resolutions issued by ANEEL in 2009 and 2010, thus giving more consistency to sectorial normative.

Considering the need for permanent updating of the Grid Procedures to assure the adequacy of current legislation and regulations, to ensure the continued consistency and integration between different modules, and to enable the incorporation of improvements in the processes described by them, a systematic periodic review of these procedures was implemented.

In 2011 started the first cycle of application of this systematic review, which included the completion of 19 external workshops with wide participation of agents. The main focus of this first review was to assess the responsibilities and procedures currently described in the Grid Procedures, in order to allow ONS greater access to information considered relevant for ensuring the security of the BIPS and greater power to obtain such information with the agility needed. The revised modules must be sent in the first half of 2012 for review and approval by ANEEL.

With regard to risk management, from the guidelines of ONS Strategic Planning, analyses of various processes were carried out in 2011. These processes have direct influence on the electrical security of the BIPS, to evaluate the risks and identify opportunities for improvement. The focus of the analysis was directed to the following processes and their controls: Scheduling for Operation Grid Facilities Interventions; Disturbance Analysis, System Restoration Studies, Management of Protection and Control Systems, Monitoring of Equipment Maintenance and Transmission Lines, Development of PAR, Terms of Service and Release Statements to the Grid Procedures Issue. The improvements identified are being object of implementation, according to improvement plans defined for each process.

Continuity was given to the External Audit of the input data of the PMO and its revisions, and of data compiled by CNOS used by CCEE and the power planning processes, having been issued by the auditing company Assurance Reports on all months of the period analyzed, showing the adequacy of the procedures performed. The auditing company also indicated opportunities for improvement that have been or are being implemented by ONS, in order to ensure continuous improvement of procedures performed.

In the corporate area, stands out the survey of vulnerabilities associated with the processes of ONS. These vulnerabilities are related to acquisitions and contracting, verification and retention of taxes and the attendance to fiscal and labor legislation. ONS has been conducting regular and systematic monitoring of its exposure, allowing a more effective preventive action.

3.7 – Personnel Management

The personnel management in ONS seeks permanent alignment to its strategic objectives, aiming at the organization sustainability. The actions undertaken can be grouped into three main areas: attracting, developing and retaining employees.

In 2011, the staff was composed of 721 employees, plus 45 trainees and 37 interns, distributed in the cities of Recife, Florianópolis and Rio de Janeiro.

Attracting

Recruitment and Selection - The internal and external processes of recruitment and selection of personnel allowed filling 53 jobs in the organization in 2011

Construir Program – The Trainee Program, held annually, recruits and selects graduated and technical level trainees that remain in the organization for a period of two years. Participants go through a training program directed to the sector and guided by the interaction with experienced professionals in the organization. After an evaluation process, they have the opportunity to participate in the internal selection processes.

In the cycle of 2011, after a rigorous selection process with more than 2,000 candidates, 34 trainees were admitted, 27 graduated and seven of technical level.

The program has been enhanced this year to extend the period of integration and the adoption of customized shifts, as needed in each area. In 2011, seven program participants were admitted to the staff of the Operator.

Construir Program also has the purpose of selecting graduation trainees and promoting their development through its inclusion in activities compatible with their training, preparing them for possible future use as graduated trainees. In 2011, 29 graduation trainees were admitted, distributed in the areas of Electrical Engineering, Civil Engineering, Administration, Library, Social Services and Secretariat.

Retaining

Career Trajectories Program – Started in 2009, the Career Trajectories aims to provide greater visibility to employees about the prospects for professional development at ONS, which constitutes an element of internal satisfaction and retention. Formulated by a modeling group, composed of managers from different areas of the organization, in partnership with FIA / USP, the program had improved its contents from suggestions of professionals from different levels and areas of the organization.

In 2011, it was completed the basic structure of the Career Trajectories Program. In accordance with their training and experience, it was carried out a preliminary suitability of employees into the careers track. Another important result was the integration of the Organizational Values to Competencies considered in the program.

Jobs and Wages Management Plan – PGCR – PGCR aims to ensure the competitiveness of the remuneration practiced by ONS according to the market, consolidate the practice of meritocracy and promote recognition and organizational value. It is divided into four pillars: Structure of Jobs and Salaries, which follows the methodology of Hay Group, Market Monitoring, through salary survey; Rules and Criteria for movements, and Pay-for results.

One of the main highlights of the year was the preparation of the proposal for review of structural PGCR, including the review of remuneration policy and structure of jobs and salaries. This work had the participation of a mixed group of managers and employees, with representatives from all directorates and localities, the Board of Directors, a committee of members of the Administration Board, and also received suggestions from trade unions. Its goal was to provide greater adhesion of PGCR to market practices, thereby increasing the competitiveness for attracting and retaining professionals with high level of qualification.

Health Management Program – Implemented in 2010, the program seeks to promote a balanced physical, mental and social health of employees and their families through three pillars: Prevention, Health Information Management and Care Optimization.

In the pillar of Health Prevention, several actions were carried out in 2011 with the aim of encouraging a healthy lifestyle: Stretch yourself; campaign against hepatitis B and C, Weight Watchers, employee participation in local races, lectures on prevention of cancer, nutrition workshops, and campaign against summer diseases.

Development and Retaining

Training on Institutional Aspects of Electricity Sector (CAISE) – Held since 2005 in partnership with IAG / PUC-Rio, the program passed through structural and qualitative reformulation. In July 2011, it was implemented in the new format, divided into three modules: Business Management, Fundamentals of Electricity Sector, Institutional Aspects and Strategic Alignment.

With 26 students participating, the program is currently targeted to the group of expert professionals, seniors, being recognized by the Ministry of Education as a long-term course - MBA (360h - 396h).

Compartilhar Program – Aims to promote the dissemination of knowledge on topics related to ONS business through lectures, which are recorded and made available by the Library, thus expanding the stock of managerial and technical information available. In October 2011, it was held the lecture "REGER System - Integrating ONS Operation Centers".

Operators Certification and Development Program – Evaluates system operators regarding technical, physical and behavioral aspects every three years, and from the results, performs individual or group development actions, promoting the improvement of teams working in control rooms.

In the period from March to June/2011, 90 behavioral assessments were performed with a view to the process of recertification. The results were presented individually to each operator participant and discussed with the managers of real time, in order to formulate training and development actions recommended for each professional.

Secretaries Development Program (PDS) – It has as target audience the administrative assistants of directors and executive management. Its objectives are to promote understanding of the importance of the work of the secretaries to the company's image, enhance skills and business etiquette, oral and written communication, time management and advisory to the manager. In 2011, it was carried out a survey and analysis of the main demands of its audience and planned themes focused on development actions to be implemented in the first half of 2012.

Mais Valor Program – It is an internal development program aimed at training employees through courses on topics of interest to the organization, aligned to its strategic plan, administered by its own employees. Its main objectives are: to provide content not available to employees or for which ONS internal expertise stands in the market, enhancing employees' holders of this expertise, to form a collection of internal knowledge, as well as optimize resources. For this project, it was created a working group to monitor all stages of the process - from the definition of the priority themes to the pedagogical format of the courses, involving the validation of content, methodology development, didactic material and teachers.

From January to December 2011, seven groups of four courses were carried out: Project Management (1 class), Transmission in Direct Current (HVDC) - Module I (4 classes), Power Systems Protection (1 class) and Substations and Extra High Voltage Equipment (1 class), with a total of 161 employees participating. To meet the needs of different localities, two courses occurred in the Central Office, three in Brasilia, one in COSR-SE and one in Florianópolis. The quality of the courses and their teachers is fully recognized by the participants.

Managers Integration Program – Designed to facilitate the setting of new managers, welcome them and reinforce their sense of being part of the Operator, this program facilitates the insertion of the professional in his new role and in the relationship with its key interfaces, as well as providing global vision of the organization. In 2011, a new manager took part in the program.

Integration Program for New Employees – Similarly to the previous one, this program has specific focus and content on employees who occupy different roles in the organization. In July and September 2011, there were two classes of the program, integrating 23 new employees to ONS.

Individual Development Plan (PDI) – The process of development of each employee must be due to an alignment between the organization's goals and their individual training needs. The preparation of Plans is a shared responsibility between the manager and his subordinate, in order to ensure its effectiveness. It is for the manager to support and guide his team, not just in the alignment of short term expectations and needs, but wider issues such as medium and long term career trajectory within the organization. In 2011, all employees had formulated their PDI and 74% of them experienced some kind of training.

Among the training activities undertaken in 2011 should be highlighted:

- Amana-Key, an excellence center focused on developing leadership and management, is a partner of ONS since 2008. During 2011, 12 managers participated in courses offered by the institution..

- ONS developed internally the Basic Course on Power Systems Protection, considering the development needs of engineers and operators of its Operation Centers. In 2011, there were 12 editions of the course, three in each location, totaling 155 participants.

- Shall be considered long-term courses with those working hours equal or greater than 180 hours, such as postgraduate, masters and specialization courses. ONS includes among its actions, training and development to carry out long-term courses in educational institutions of national reputation, such as: COPPE / UFRJ, UNIFEI, IBMEC and UFF. In 2011, eight selected employees started such courses, plus three who were already enrolled.

- ONS established in 2010 a partnership with the Study Group of the Electricity Sector, GESEL / UFRJ, to format a course targeted at young trainees and junior engineers. Its objectives are to expand and consolidate basic knowledge of the electricity sector and contribute to the internal integration and increase productivity and retaining these professionals. Composed of eleven seminars, and totaling 44 hours, the course includes a final individual evaluation. Its first edition ended in March 2011 with the delivery of final works. For its continuity in the cycle 2011/2012, there will be a process of restructuring and retargeting, already in progress.

- Have been completed the training sessions on Software Engineering taught by professors of UFRJ for the corporate IT staff, allowing updating knowledge and improving on the techniques used.

Performance Management (GD) – 2011 cycle of GD showed its effectiveness as a tool for managing people and processes in ONS. The individual goals established for employees by their managers were evaluated and considered as part of the Organizational Performance, contributing to the organization's results. All employees

evaluated their direct managers, recording their feedback. In 2011, was constructed and applied an structured model of feedback, in order to improve this practice, involving 482 employees.

Dismissals Management – Given a scenario full of opportunities, especially in Rio de Janeiro, in 2011 there was a more accelerated movement of employees, and a total of 42 dismissals. The heating of the professional market in the electricity sector and specialized areas in IT, along with the scarcity of skilled labor in these markets, caused difficulties for the replacement of professionals who have left.

Program of Transition and Career Guidance – It aims to prepare the former employees of ONS, with the support of expert advice, to redefine their career trajectories and identify their strengths in order to seek new paths and opportunities for their reintegration into the labor market. In 2011, four former employees participated in the program.

3.8 – Telecommunication and Information Technology

ONS is an organization that makes extensive use of information processing. Its finalistic processes are strongly based on the use of IT. The priorities for this area in 2011 focused on the management of application development at all stages of their life cycle, the monitoring of computing environments, process automation, integration of information with ANEEL and CCEE, and to better attend IT products and services users . It also stands out the participation in the preparation of technological structures of the new facilities in Rio de Janeiro, Recife and Florianópolis.

Among the main results of actions taken by the corporate IT department in 2011, stand out:

- Deployment of SINI application (Integration System of New Facilities), allowing the evaluation of technical requirements and terms of testing, temporary and final to liberation for the entry into operation of new facilities of the BIPS.
- Deployment of the software Team Foundation Server (TFS), for the process of developing and maintaining applications.
- Implementation of Registry of Data for External Relations (CDRE), allowing the centralization and standardization of the registration information of the representatives of agents and ONS contacts.
- Implementation of electronic integration of information between ONS and ANEEL and between ONS and CCEE, aiming to supply inputs of the business processes of these institutions.
- Implementation of process automation tool and a first flow to assist the area of standardization, analysis and statistics of the operation.

- Support for testing REGER in Southeast Regional Operation Center concerning the load of the power registry of the Technical Database (BDT) for real-time environment.
- Deployment of financial analytical environment in order to support various financial studies and budget control and monitoring.
- Implementation of tools for monitoring ONS production environment applications.
- Use of enterprise architecture components to support the automation of the development process, aiming at better management and integration of products and facilitating the knowledge of processes, systems and technology.

3.9 – Economic-Financial Management

The economic and financial management of ONS in 2011 financial year continued the process of improvement of budgetary control, resulting in the optimization of financial resources from the charges for use of transmission and the contribution of its members.

The financial statements have been prepared and are presented in accordance with accounting practices adopted in Brazil, comprising the pronouncements of the Accounting Pronouncements Committee (CPC) and in accordance with the instructions contained in ONS Accounting Manual, established by ANEEL.

Fiscal Year Budget

ONS economic-financial Budget approved by ANEEL through Resolution No. 2459 of June 29th,2010 for the period from July 2010 to June 2011 was R$ 366,883 thousand, of which R$ 178.831 thousand was planned for the period ended on 31st December, 2010 and R$ 188.052 thousand was planned for the period ended on June 30th, 2011.

The budget for the period from July 2011 to June 2012, approved by ANEEL Resolution No. 3033 of August 16, 2011, was R$ 451.489 million, comprising R$ 213.785 million for the period ended December 2011 and R$ 237.704 million for the period ending on June 30th, 2012.

Therefore, the budget for the period from January to December 2011 corresponded to the amount of R$ 401.837 million and the budgetary performance reached R$ 339.395 million, comprising an achievement of 84% for the year.

ONS Funding Sources

Under the terms of the article 34 of the Bylaws, amended by ANEEL Resolution no. 1.888, of April 22nd, 2009, the following are ONS funds sources:

I. Contributions from its associate members, proportional to the number of votes in General Assembly, included in Parcel “A” for purposes of tariff transfer and collected by other associate members and agents who are not subject to tariff transfer.

II. Funds resulting from the budget developed by ONS and approved by ANEEL:

a) Re-passed by members and agents of the electricity sector connected to the Main Transmission Grid, whose values are included in the Tariff for the Use of the Transmission System (TUST) and in the Parcel "A" of the Electric Energy Service Tariffs;

b) Collected by other associate members and agents of the electric sector who are not subject to tariff transfer;

c) Other revenues authorized by ANEEL.

For the viability of its budget, ONS used the resources from charges for the use of transmission and the contribution from associate members collected, having billed R$ 335,502,000 and R$ 13,179,000, respectively, during the year 2011.

Balance Sheet

Among the variations in the balance sheet of 2011, stand out the items of recoverable taxes, intangible and labor obligations, which detailing of the events occurred during the year are shown in sections 9, 11 and 15 of the Financial Statements Explanatory Notes.