

1. Record Nr.	UNINA9910139144303321
Autore	Schlabbach J (Jurgen)
Titolo	Power system engineering : planning, design and operation of power systems and equipment // Jurgen Schlabbach, Karl-Heinz Rofalski
Pubbl/distr/stampa	Weinheim, Germany : , : Wiley-VCH, , 2014 ©2014
ISBN	3-527-67904-9 3-527-67906-5 3-527-67905-7
Edizione	[Second, updated and enlarged edition.]
Descrizione fisica	1 online resource (397 p.)
Disciplina	621.31
Soggetti	Electric power systems Electric power systems - Design and construction Electric power production
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Cover; Related Titles; Title page; Copyright page; Contents; Foreword, 2nd Edition; Foreword, 1st Edition; 1: Introduction; 1.1 Reliability, Security, Economy; 1.2 Legal, Political and Social Restrictions; 1.3 Needs for Power System Planning; 1.4 Basic, Development and Project Planning; 1.4.1 Basic Planning; 1.4.2 System Development Planning; 1.4.3 Project Planning; 1.5 Instruments for Power System Planning; 1.6 Further Tasks of Power System Engineering; 2: Power System Load; 2.1 General; 2.2 Load Forecast with Load Increase Factors; 2.3 Load Forecast with Economic Characteristic Data 2.4 Load Forecast with Estimated Values 2.5 Load Forecast with Specific Loads and Degrees of Electrification; 2.6 Load Forecast with Standardized Load Curves; 2.7 Typical Time Course of Power System Load; 3: Planning Principles and Planning Criteria; 3.1 Planning Principles; 3.2 Basics of Planning; 3.3 Planning Criteria; 3.3.1 Voltage Band According to IEC 60038; 3.3.2 Voltage Criteria; 3.3.2.1 Low-Voltage Systems; 3.3.2.2 Medium-Voltage Systems; 3.3.2.3 High- and Extra-High-Voltage Systems; 3.3.3 Loading Criteria; 3.3.4 Stability Criteria; 4: Economic Consideration and Loss Evaluation

4.1 Present Value and Annuity Method 4.2 Evaluation of Losses; 4.2.1 Energy Losses; 4.2.2 Power Losses; 5: Topologies of Electrical Power Systems; 5.1 Development of Power Systems; 5.2 Recommended Voltage Levels; 5.3 Topology of Power Systems; 5.3.1 Radial Systems; 5.3.2 Ring-Main Systems; 5.3.2.1 Ring-Main System - Simple Topology; 5.3.2.2 Ring-Main System with Remote Station (Without Supply); 5.3.2.3 Ring-Main System with Reserve Line; 5.3.2.4 Ring-Main System with Feeding Remote Station; 5.3.2.5 Ring-Main System as Tuple System; 5.3.2.6 Ring-Main System with Cross-Link 5.3.2.7 Ring-Main System with Base Station 5.3.2.8 Special-Spare Cable System; 5.3.2.9 Double-T Connection; 5.3.3 Meshed Systems at HV and MV Levels; 5.3.3.1 HV Transmission Systems; 5.3.3.2 Meshed MV Systems; 5.3.4 Meshed Systems at the LV Level; 5.3.4.1 Meshed System Supplied Station-by-Station; 5.3.4.2 Single-Line Supply; 5.3.4.3 Multiple-Line Supply; 5.4 Special Operating Considerations; 6: Arrangement in Gridstations and Substations; 6.1 Busbar Arrangements; 6.1.1 General; 6.1.2 Single Busbar without Separation; 6.1.3 Single Busbar with Sectionalizer; 6.1.4 Special H-Arrangement 6.1.5 Double Busbar Arrangement 6.1.6 Double Busbar with Reserve Busbar; 6.2 Arrangement in Switchyards; 6.2.1 Breakers and Switches; 6.2.2 Incoming and Outgoing Feeders; 6.2.3 Current Transformers; 6.2.4 Voltage Transformers; 7: Transformers; 7.1 General; 7.2 Utilization and Construction of Transformers; 7.2.1 Utilization of Transformers; 7.2.2 Oil-Immersed Transformers and Dry-Type Transformers; 7.2.3 Characteristic Data of Transformers; 7.3 Operation of Transformers; 7.3.1 Voltage Drop; 7.3.2 Permissible Loading of Transformer Neutral; 7.4 Thermal Permissible Loading 7.4.1 Temperature Models

Sommario/riassunto

With its focus on the requirements and procedures of tendering and project contracting, this book enables the reader to adapt the basics of power systems and equipment design to special tasks and engineering projects, e.g. the integration of renewable energy sources.
