University of Colorado Law School

Colorado Law Scholarly Commons

Books, Reports, and Studies

Getches-Wilkinson Center for Natural
Resources, Energy, and the Environment

2011

The Water-Energy Nexus in the American West

Douglas S. Kenney

Robert Wilkinson

Follow this and additional works at: https://scholar.law.colorado.edu/books_reports_studies

Part of the [Energy Policy Commons](#), [Natural Resources Management and Policy Commons](#), [Oil, Gas, and Energy Commons](#), [Public Policy Commons](#), [Water Law Commons](#), and the [Water Resource Management Commons](#)

Citation Information

Kenney, Douglas S. and Wilkinson, Robert, "The Water-Energy Nexus in the American West" (2011). *Books, Reports, and Studies*. 145.

https://scholar.law.colorado.edu/books_reports_studies/145

William A. Wise Law Library
COLORADO **LAW**
UNIVERSITY OF COLORADO **BOULDER**

Getches-Wilkinson Center Collection

THE WATER-ENERGY NEXUS IN THE AMERICAN WEST (Douglas S. Kenney and Robert Wilkinson eds., Edward Elgar Pub. 2011) [abstract and table of contents only].

Reproduced with permission of the Getches-Wilkinson Center for Natural Resources, Energy, and the Environment (formerly the Natural Resources Law Center) at the University of Colorado Law School.

The Water-Energy Nexus in the American West

Kenney, Douglas S. & Wilkinson, Robert, Eds. The Water-Energy Nexus in the American West.
Northampton, MA: Edward Elgar, 2011

This anthology of scholarship examines the various interconnections between water and energy systems, as well as the ramifications of that nexus. Part I outlines the analysis of the basic interactions between water systems and energy systems, including the effects that each system has on the other. A close examination of these interactions reveals inefficiencies that raise important questions of public policy. Part II looks more closely at how water is used in various energy production technologies. Part III examines how energy is used in water systems, such as water pumping and desalination. The final part steps back to look at policy ramifications for the future.

This volume will be enlightening for researchers interested in the science, economics, and law relating to water and energy policy in the Western United States.

EDITED BY
Douglas S. Kenney
AND
Robert Wilkinson

The Water–Energy Nexus in the American West

The Water–Energy Nexus in the American West

Edited by

Douglas S. Kenney

University of Colorado School of Law, USA

and

Robert Wilkinson

University of California, Santa Barbara, USA

Edward Elgar

Cheltenham, UK • Northampton, MA, USA

UNIVERSITY OF
COLORADO

MAR 23 2012

LAW LIBRARY

© Douglas S. Kenney and Robert Wilkinson 2011

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system or transmitted in any form or by any means, electronic, mechanical or photocopying, recording, or otherwise without the prior permission of the publisher.

Published by
Edward Elgar Publishing Limited
The Lypiatts
15 Lansdown Road
Cheltenham
Glos GL50 2JA
UK

Edward Elgar Publishing, Inc.
William Pratt House
9 Dewey Court
Northampton
Massachusetts 01060
USA

A catalogue record for this book
is available from the British Library

Library of Congress Control Number: 2011927321

ISBN 978 1 84980 936 8 (cased)

Typeset by Servis Filmsetting Ltd, Stockport, Cheshire
Printed and bound by MPG Books Group, UK

Contents

<i>List of contributors</i>	vii
<i>Preface</i>	xiv
<i>Acknowledgements</i>	xvi
<i>Units of measure and conversions</i>	xvii

PART I: INTRODUCTION AND OVERVIEW

1. The water–energy nexus: methodologies, challenges and opportunities 3
Robert Wilkinson
2. Energy, water and the natural environment 18
Melinda Kassen and Jack E. Williams

PART IIa: WATER FOR ENERGY

Fossil fuels

3. The coal conundrum 33
Kristen Averyt
4. Oil shale and water 45
Bart Miller
5. Managing produced water from coalbed methane production 57
Lawrence J. MacDonnell and Katherine L. Guerra

PART IIb: WATER FOR ENERGY

Water-intensive renewables

6. Concentrated thermal solar power and the value of water for electricity 71
Cynthia L. Schwartz
7. The new generation of biofuels 84
Ronald C. Pate

PART IIIa: ENERGY FOR WATER

Big projects

8.	Water–energy interdependencies and the Central Arizona Project
<i>Susanna Eden, Christopher A. Scott, Melissa L. Lamberton and Sharon B. Megdal</i>	109
9.	Energy-intensive water supplies
<i>Stacy Tellinghuisen</i>	123
10.	The energy implications of desalination
<i>Heather Cooley</i>	136

PART IIIb: ENERGY FOR WATER

Select state case studies

11.	Energy requirements for water supply in Utah
<i>Sara G. Larsen and Steven J. Burian</i>	153
12.	The vital role of electrical energy for Arizona water services
<i>Joseph H. Hoover</i>	165

PART IV: SOLUTIONS: EXAMPLES OF WAYS FORWARD

13.	Adaptive management as a tool for negotiating the water–energy nexus
<i>Melinda Harm Benson</i>	179
14.	Decision-support for the water–energy nexus: examining decision-making in the American West
<i>Steve A. Conrad</i>	192
15.	Integrated planning: transmission, generation and water in the Western states
<i>Tom Iseman and Alex Schroeder</i>	210
16.	The water bargain of solar and wind energy
<i>Martin J. Pasqualetti</i>	226
17.	Water–energy integration in California
<i>Frances Spivy-Weber</i>	243

<i>Index</i>		255