Co-Benefits from artificial intelligence (AI) in renewable energy

renac
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1 – Introduction
1 Introduction to the Course and Learning Objectives

2 – Artificial intelligence and its co-benefits
1 Introducing artificial intelligence (AI)
2 Co-benefits of AI and the UN sustainable development goals (SDGs)
3 Challenges in the power sector
4 Co-benefits of AI in renewable energy (RE)

3 – AI terminology, concepts, and algorithms
1 Artificial intelligence (AI), machine learning (ML) and deep learning (DL)
2 Categories of machine learning: supervised, unsupervised and reinforced learning
3 Supervised learning
4 Unsupervised learning
5 Reinforcement learning
6 Key AI/ML technical terms and concepts in brief

4 – Assessments of AI in the literature
1 State of the art: AI for wind power
2 Artificial intelligence in an integrated energy transition
3 Artificial intelligence and big data
4 AI and robotics in the renewable sector

5 – AI use cases in renewable energy (RE)
1 AI applicants in industry
2 Electricity systems (1): enabling low-carbon electricity
3 Electricity systems (2): reducing system impacts and ensuring global impact
4 Transportation
5 Buildings and cities
6 Industry (1): supply chains
7 Industry (2): materials and production
8 AI and ICT: hidden synergies

9 Artificial intelligence: current applications in the integrated energy industry

6 – Use case identification & employment
1 Applying AI: developing a comprehensive AI strategy
2 Applying AI: identifying and prioritizing use cases

7 – Summary
1 Summary
2 References (cited)
3 Further reading
4 Glossary