ENERGIJA VETRA

ENERGIJA VODE

GEOTERMALNA ENERGIJA

BIO ENERGIJA

ENERGIJA SUNCA

Obnovljivi izvori energije

Obnovljivi izvori energije

Izborni predmet – V semestar – 2+2+1 – 5 kredita (2OEU5C03)

Modul US - 2020/21.

Izborni predmet – V semestar – 2+2+1 – 5 kredita (2OEE5A05)

Modul E - 2020/21.

Izborni predmet – V semestar – 2+2+1 – 5 kredita (2OEM5A04)

Modul EKM - 2020/21.

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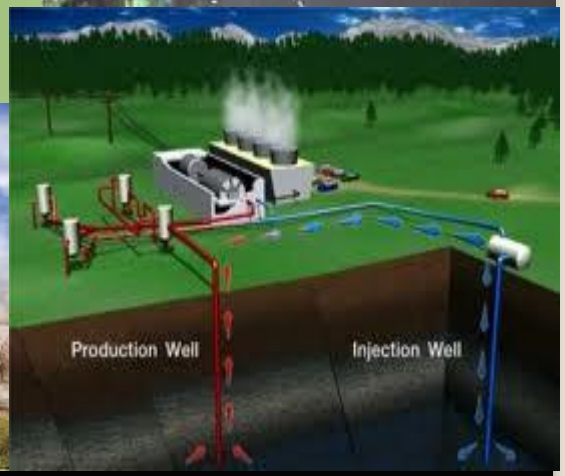
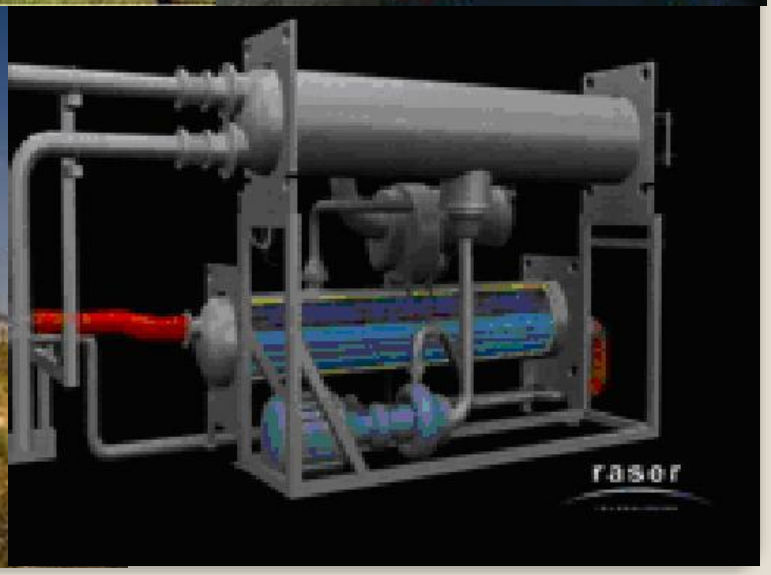
Intake
Canal
Forebay
Penstock
Powerhouse


Production Well
Injection Well


rasor

Osnovne informacije o predmetu

- Naziv predmeta:
  OBNOVLJIVI IZVORI ENERGIJE

- Izborni predmet – V semestar – 2+2+1 – 5 kredita (2OEU5C03)

Modul US

- Izborni predmet – V semestar – 2+2+1 – 5 kredita (2OEE5A05)

Modul E

- Izborni predmet – V semestar – 2+2+1 – 5 kredita (2OEM5A04)

Modul EKM

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- Asistent:
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Osnovne informacije o predmetu

- Preduslovi:

  Fizika, Elektronske komponente, Osnovi elektronike ...
- Metode izvođenja nastave:

  On-line predavanja, konsultacije, vežbe, lab vežbe uz korišćenje računara
- Mesto izvođenja nastave:

  Predavanja ćemo u slakdu sa situacijom i potrebama organizovati ponedeljkom u A2 od 12^{15}.

Literatura: (micro.elfak.ni.ac.rs)

- *D. Pantić, B. Pešić, S. Ristić, Z. Prijić, T. Pešić, A. Prijić, Projektovanje fotonaponskih sistema, Studija, Elektronski fakultet u Nišu, 2004.*
- *Solar Cells, Miro Zeman, Delft University of Technology,*
- *Planning and Installing Photovoltaic Systems - A guide for installers, architects and engineers, second edition*
- *R.P. Mukund, Wind and Solar Power Systems, CRC Press, New York, 1999.*
- *B. Sorensen, Renewable Energy, Elsevier Science, 2004.*
- *F.A. Farret, M.G. Simoes, Integration of Alternative Sources of Energy, John Wiley & Sons, 2006.*
- *R.P. Mukund, Wind and Solar Power Systems, CRC Press, New York, 1999.*
- *Handbook of Energy Efficiency and Renewable Energy, Edited by F. Kreith and D. Zogi Goswami, CRC Press, 2007.*
- *J. R. Fanchi, Energy Technology and Directions for the Future, Elsevier Academic Press, 2004.*
- *G. M. Masters, Renewable and Efficient Electric Power System, John Wiley & Sons, 2004.*
- *Renewable Energy Technology Characterization, Technical Report TR-109496, 1997.*
- *Energy Conversion, D. Yogi Goswami and Frank Kreith, CRC Press 2007.*

Osnovne informacije o predmetu

Polaganje ispita

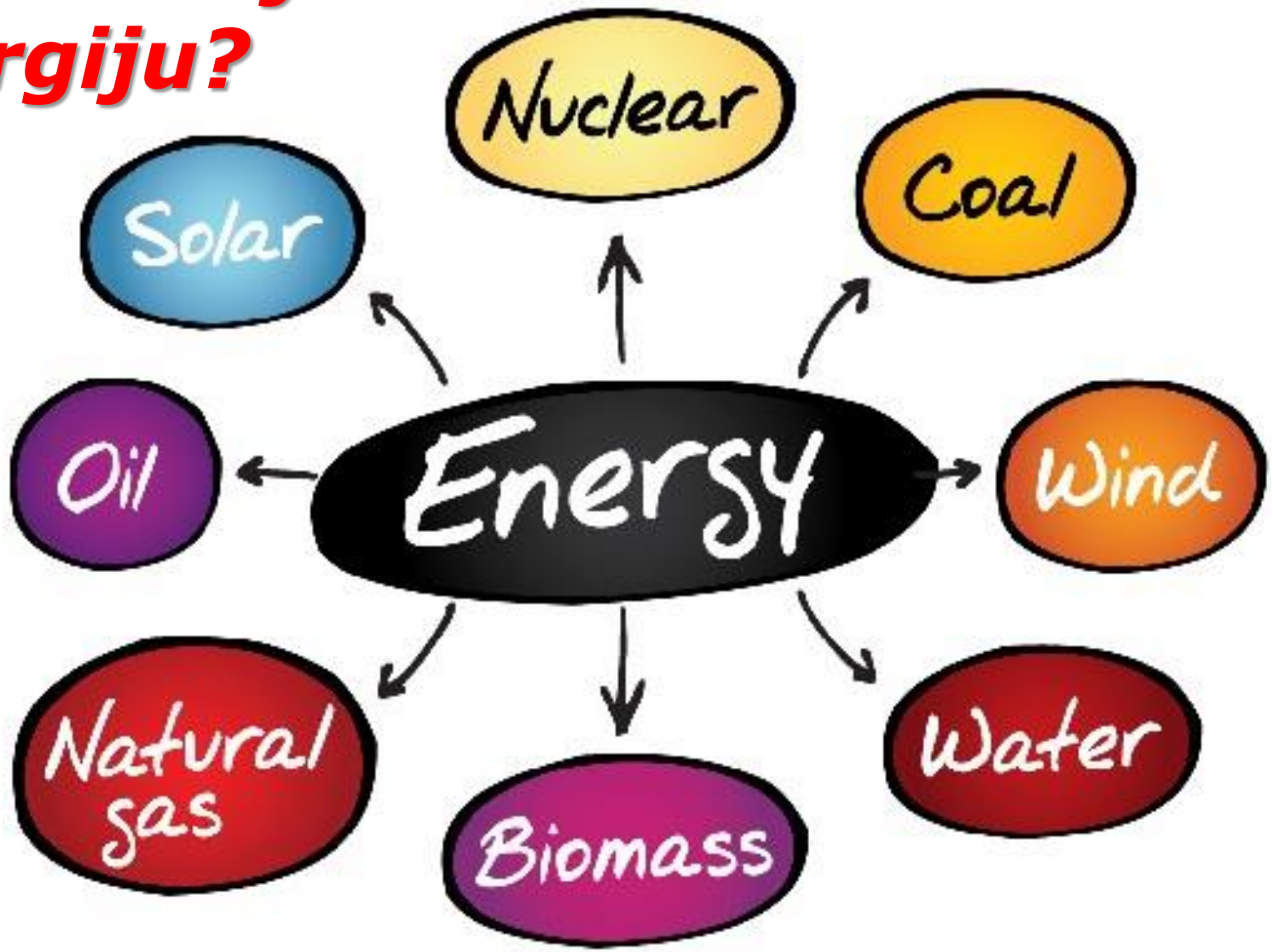
Predispitne obaveze	Poena	Završni ispit	Poena
Aktivnost	5	Pisani deo ispita	20
Vežbe	5	Usmeni deo ispita	20
Kolokvijum/Test	20		
Seminarski rad	30		
	Σ 60		**Σ 40**

Kao domaći zadatak sudenti dobijaju po nekoliko problema iz odabranih oblasti. Student samostalno urađen domaći zadatak dostavlja predmetnom nastavniku ili asistentu u dogovorenom roku.

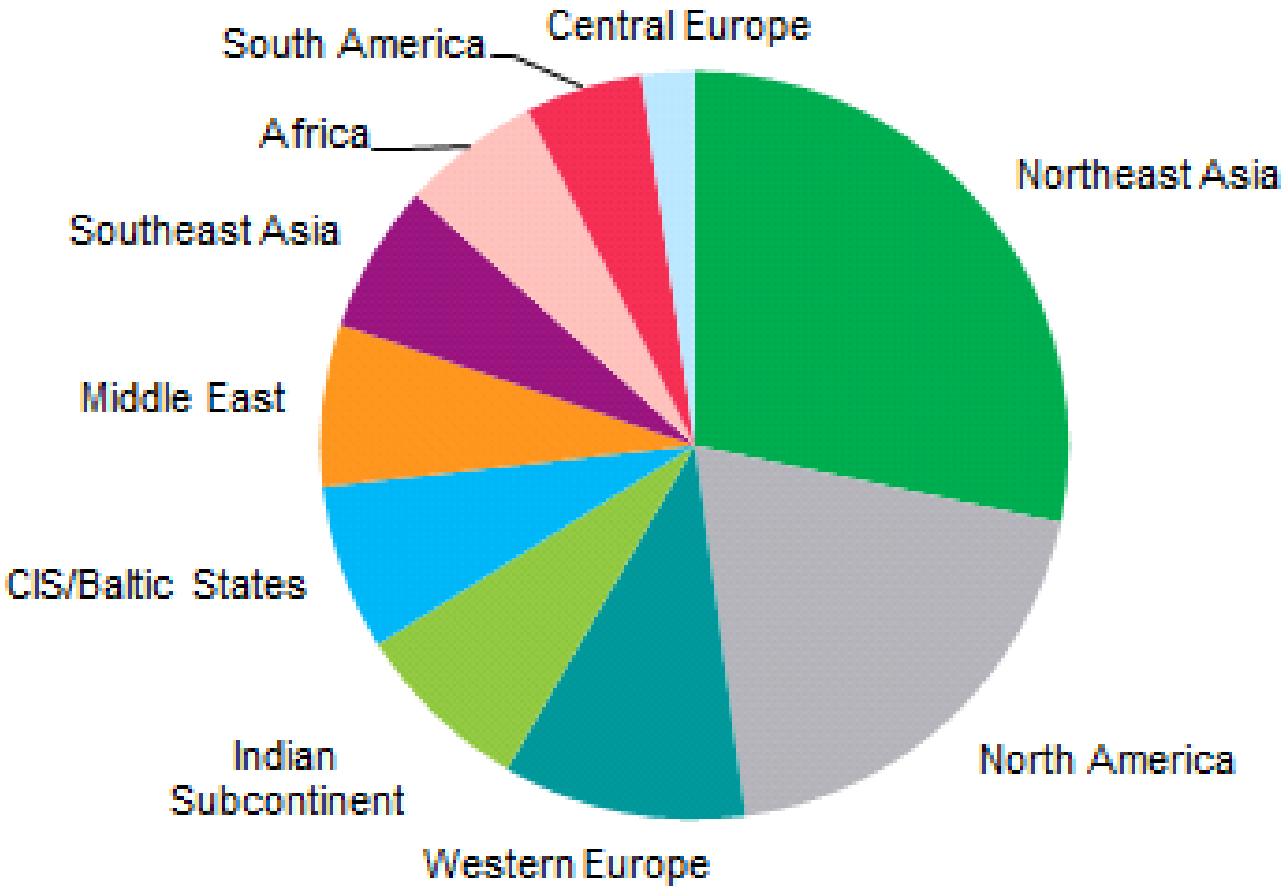
U toku semestra student/grupa studenata dobija seminarski rad/timski projekat.

Osnovne informacije o predmetu

Kako dobijamo energiju?



World consumption of energy by region—2018



Source: IHS Markit

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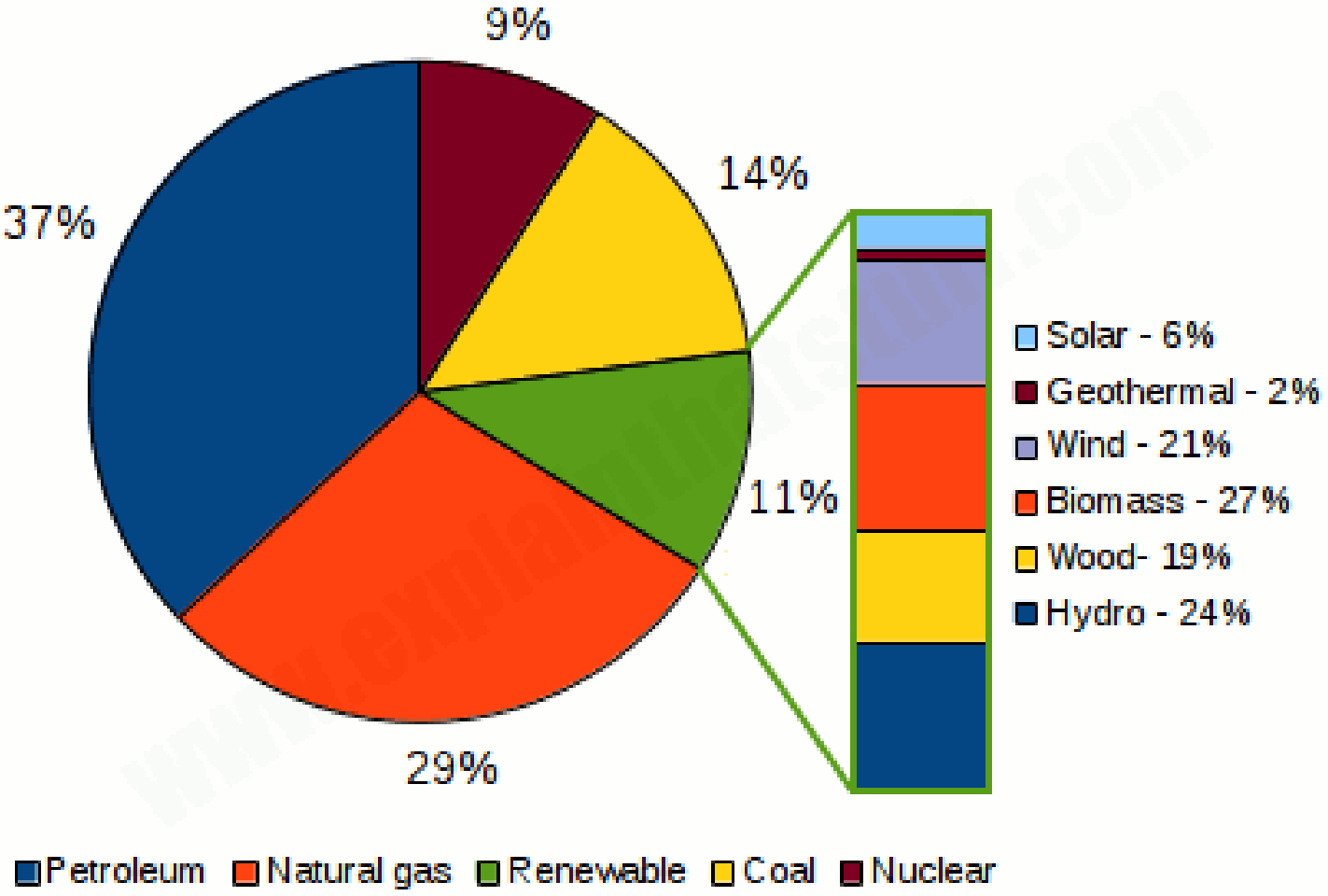
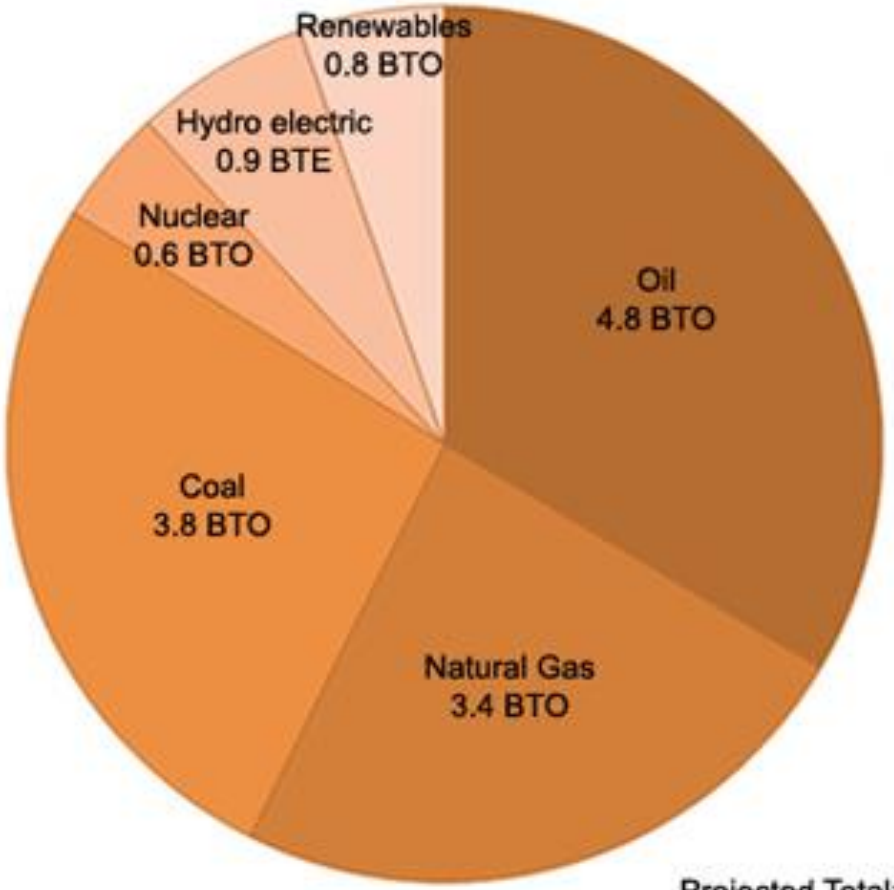

9%
14%
37%
11%
29%
Solar - 6%
Geothermal - 2%
Wind - 21%
Biomass - 27%
Wood- 19%
Hydro - 24%
Petroleum
Natural gas
Renewable
Coal
Nuclear
www.explainthatstuff.com

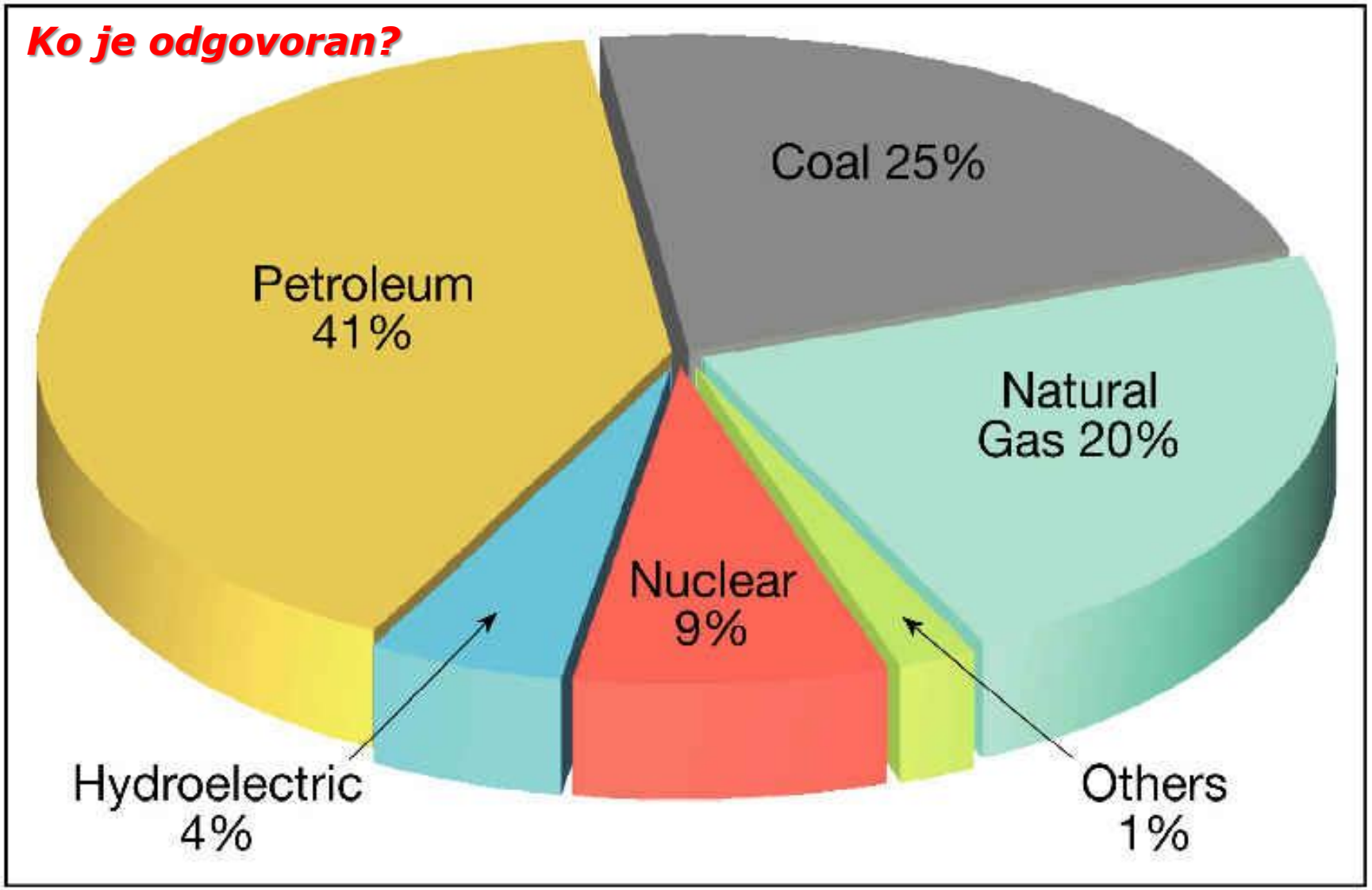
Global Energy Use by Primary Fuel - 2020

Expressed in Billion Metric Tons of Oil Equivalents (BTO)



Projected Total: 14.4 BTO

Ko je odgovoran?

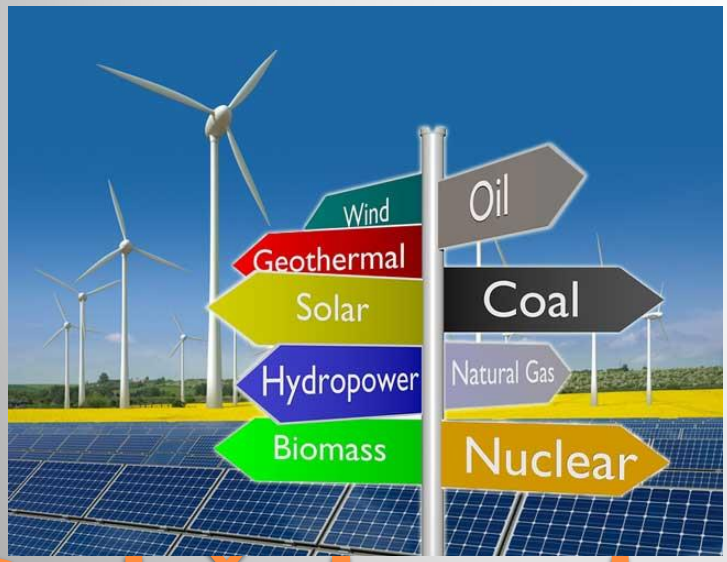


- **Sticanje osnovnih znanja o obnovljivim izvorima energije, metodama projektovanja, načinima realizacije i praktičnoj primeni uređaja za dobijanje i pretvaranje energije iz obnovljivih izvora.**

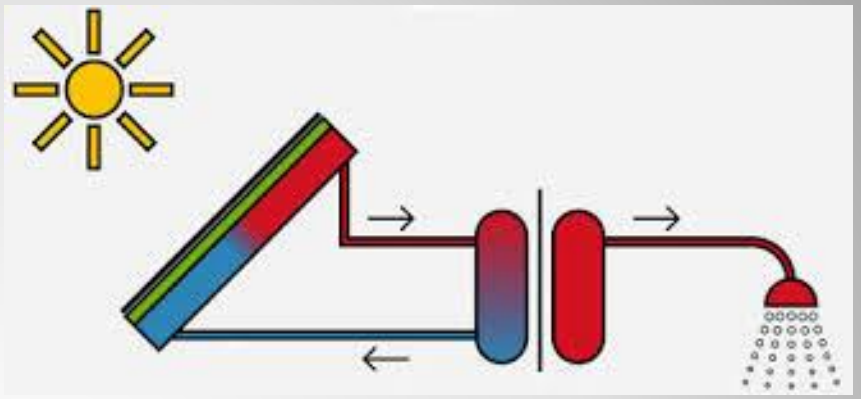
Zašto ovaj predmet?

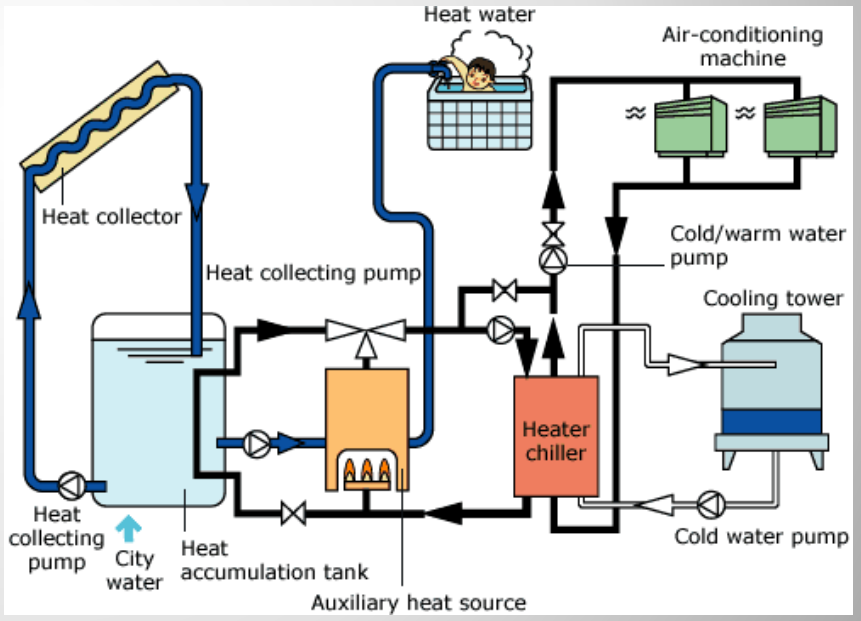
Sadržaj predmeta

- **Uvod u obnovljive izvore energije.**
  - Opšte napomene
  - Trenutni presek
  - Predviđanja



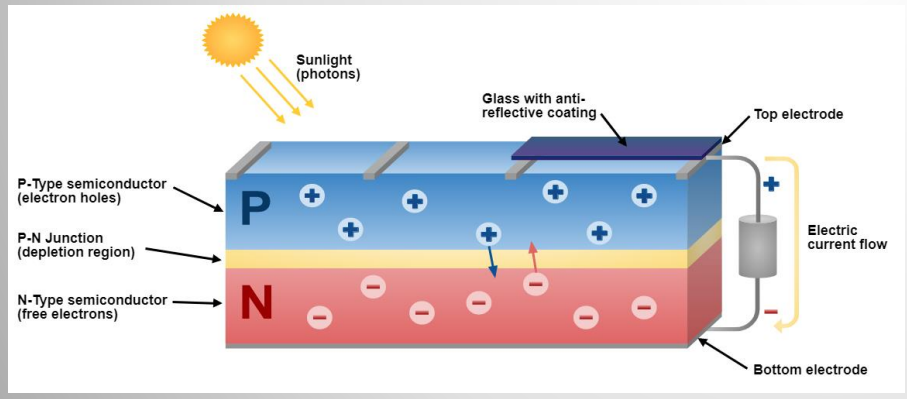
- Solarna energija.
  - Solarna termalna energija.
  - Termalni kolektori
  - Projektovanje termalnih sistema

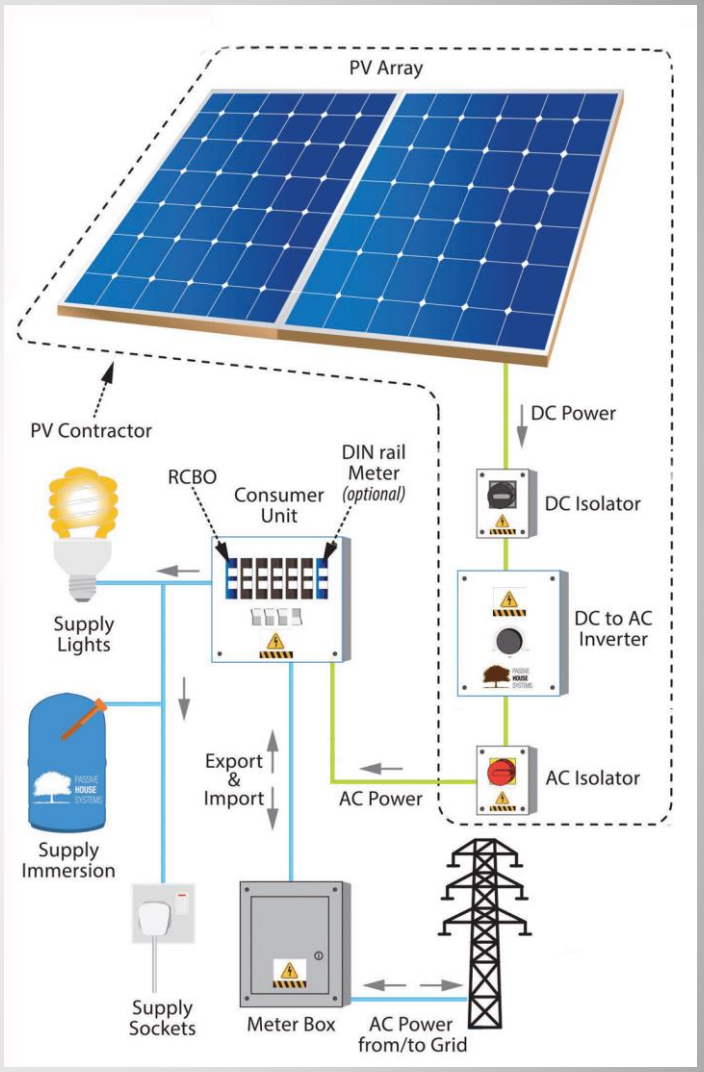




Sadržaj predmeta

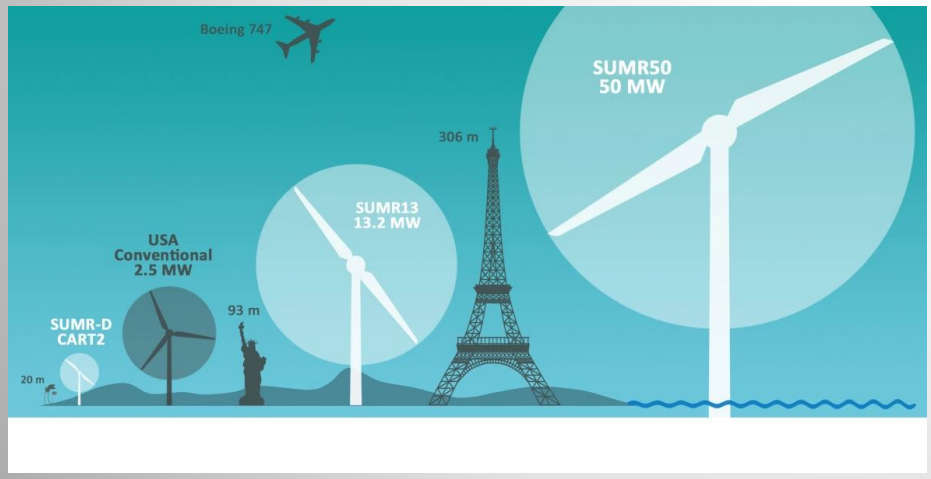
- Solarna energija.
  - Solarna PV energija.
  - Solarne ćelije:
    - Princip rada
    - Vrste
  - Projektovanje sistema





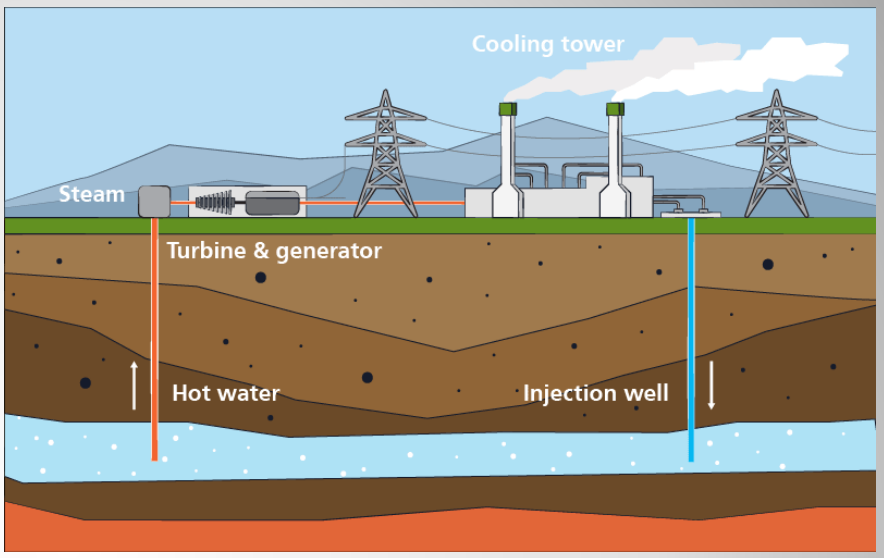
Sadržaj predmeta

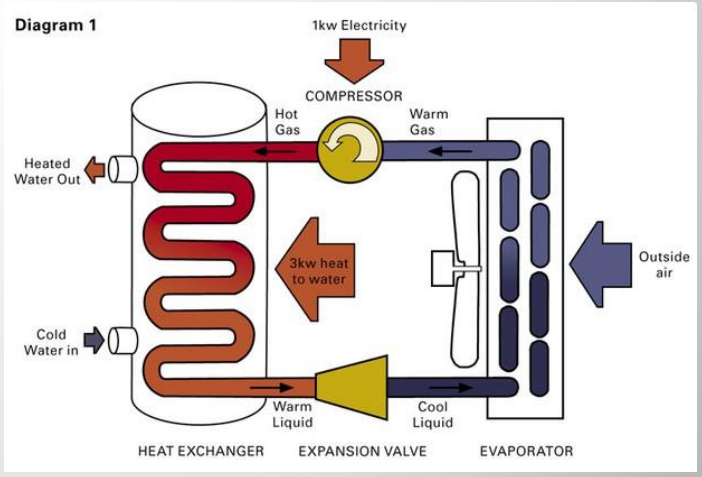
- Energija vetra.
  - Vetroturbine
  - Projektovanje sistema



Sadržaj predmeta

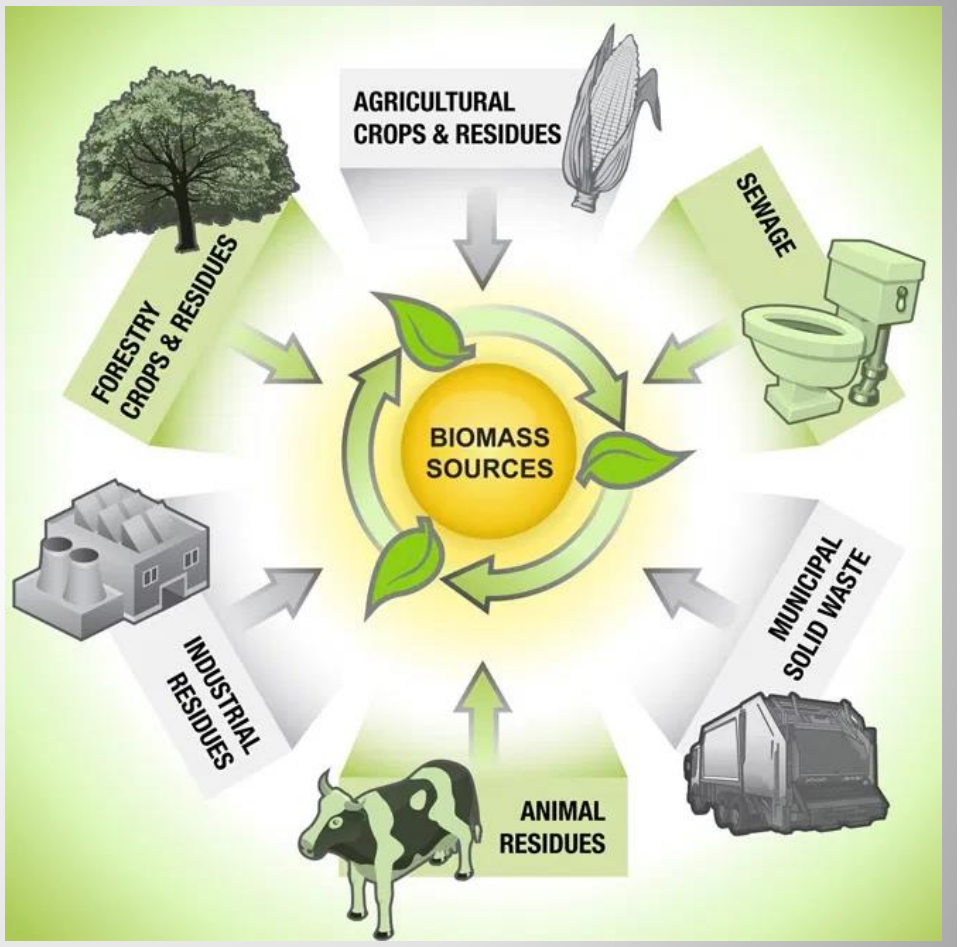
- Geotermalna energija.
  - Toplotna pumpa
  - Vrste sistema
  - Projektovanje sistema





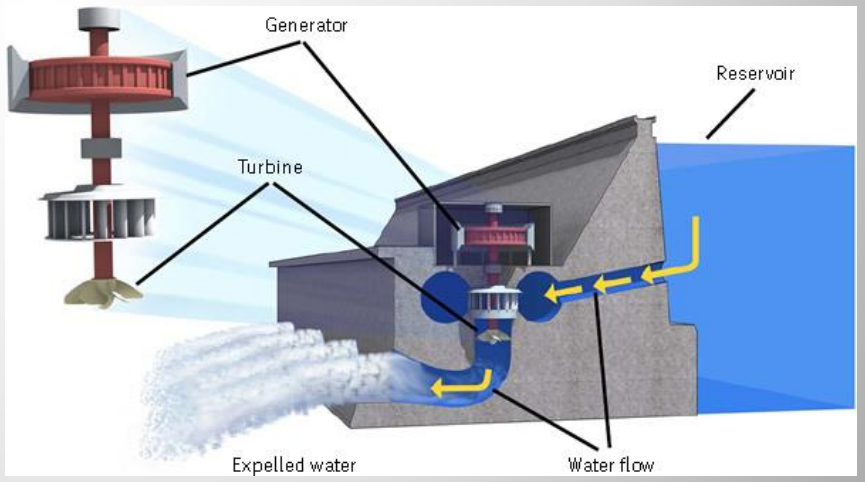
Sadržaj predmeta

- Bioenergija.
  - Bio gas
  - Bio gorivo
  - Bio masa



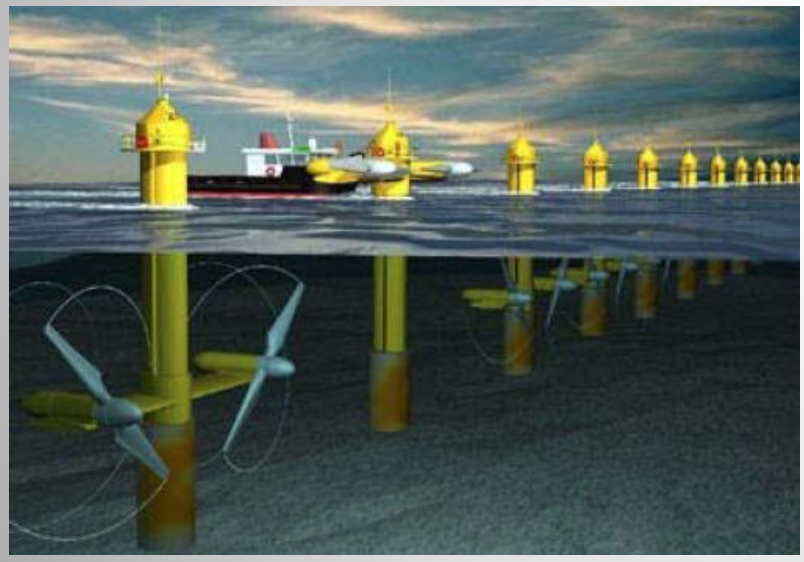
Sadržaj predmeta

- Hidroenergija
  - Hidroelektrane,
  - Pricip rada,
  - Vrste



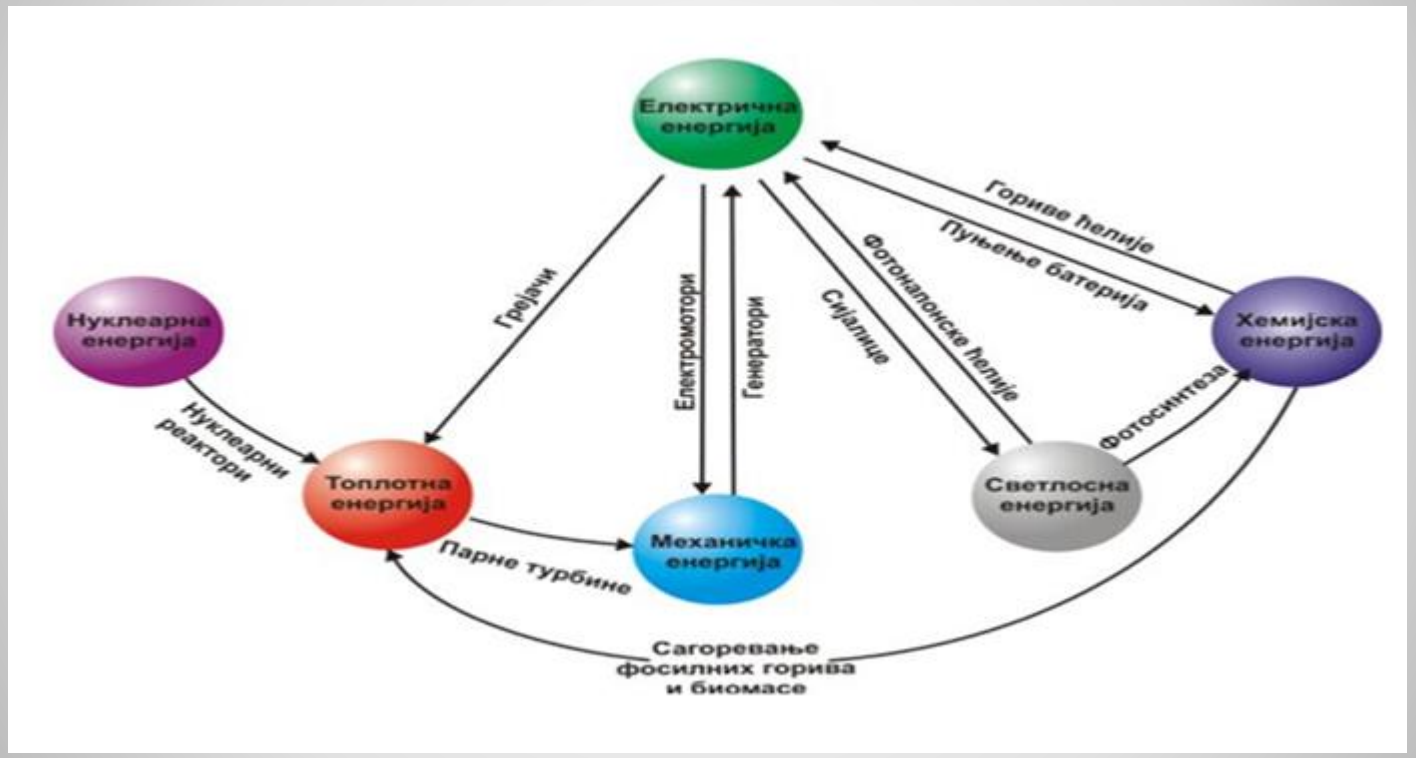
Sadržaj predmeta

- Energija talasa, plime i oseke.



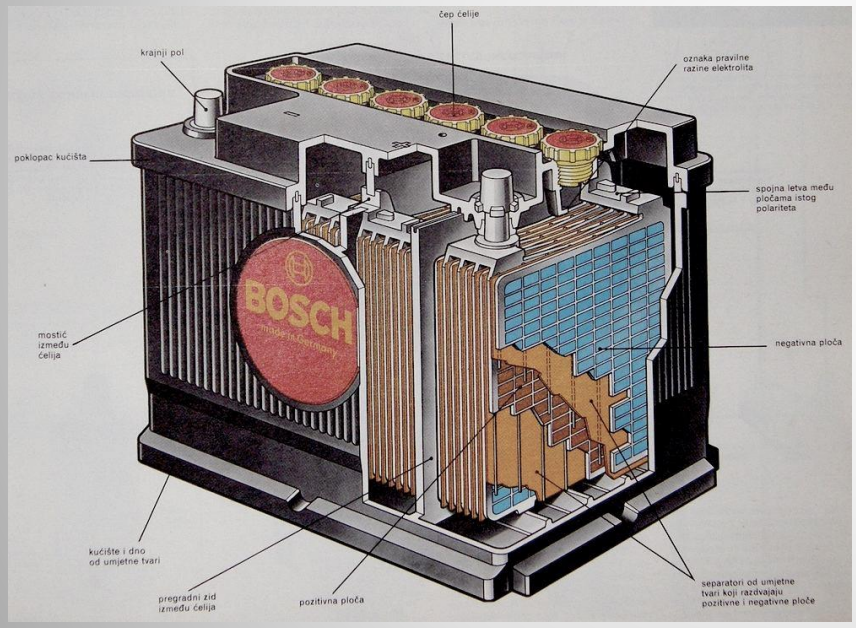
Sadržaj predmeta

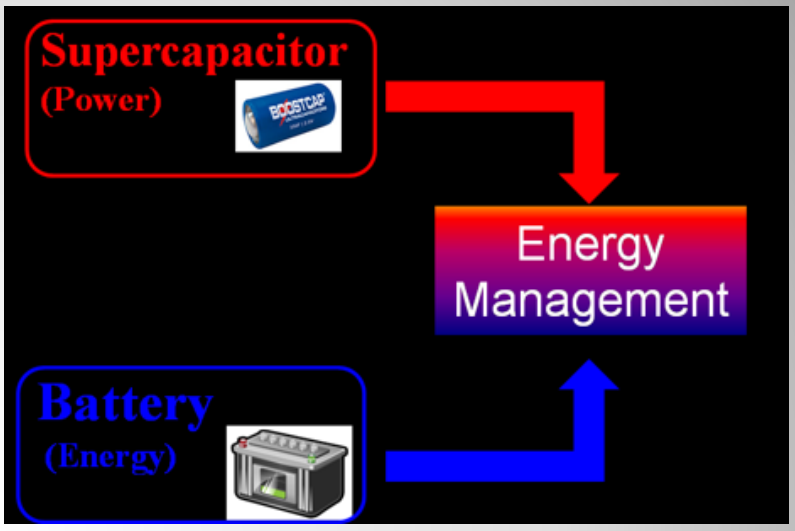
- Pretvaranje, skladištenje i prenos energije.



Sadržaj predmeta

- Akumulatori i pretvarači.





Sadržaj predmeta

Sadržaj predmeta

- Projektovanje sistema baziranih na obnovljivim izvorima energije.
- Socio-ekonomski aspekti primene obnovljivih izvora energije.
- Pravna regulativa: relevantni zakoni, dokumenta, planovi i podzakonska akta.

- **TECHNOLOGY ROADMAP**

- Predvidjanja razvoja tehnologija u oblasti obnovljivih izvora energije do 2050. godine

Na sledećem času!